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E-voting proposals may be too late. On the Mark: Beware of dangerous dashboards.

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Speech recognition software has come a long way in 20 years, Gary H. Anthes reports. Now it's easier to integrate with back-office IT applications and smart enough to be downright conversational.
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PLANKTON ART

Speak Easy

Java Developers Aren't Buying Sun's Tools Pitch

Although JavaOne attendees showed interest in new offerings, Sun still has bottom-dweller status

BY CAROL BLIWA
SAN FRANCISCO

Sun Microsystems Inc. said attendance jumped to 14,000 at last week's JavaOne conference — an increase of 2,000 over last year's event and a sign that interest in the language and development platform Sun created nine years ago remains high.

Yet Sun continues to struggle in the commercial tools market, despite its cachet as the inventor of Java. Analysts place Sun among the bottom dwellers in the commercial Java tools market, estimating that it commands less than 10% of a market led by Borland Software Corp. and IBM.

Sun has high hopes that the new offerings it demonstrated and previewed at JavaOne — particularly its visually oriented Java Studio Creator — will spark a resurgence in interest in its tools products. But the company faces an uphill climb in changing perceptions within a developer community that has paid little attention to its commercial tools to date.

INSIDE
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"I don't use any Sun products," said Scott Jensen, a software developer at Beneficial Life Insurance Co. in Salt Lake City and a user of JetBrains Inc.'s IntelliJ. "They created Java, and it gives them a marketing edge, but when it comes down to it, it's the competitiveness of the products that counts."

JavaOne, page 45

Appeals Court Ruling Silences Microsoft Antitrust Battlefield

Defeats last effort to force changes to OS; higher appeal doubtful

BY PATRICK THIBODEAU
WASHINGTON

Microsoft Corp. last week said it will finally be able to move forward, following a U.S. Court of Appeals decision that defeated a last stand to force the software giant to change Windows. The question for Microsoft's users and rivals is where that move forward is headed.

Massachusetts, the lone holdout state in the battle, can appeal to the Supreme Court. But there's a strong sense among people on both sides of the case that this historic fight is over.

The court ruling unanimously affirmed a settlement Microsoft reached in 2001 with the U.S. Department of Justice and eventually nearly all of the 20 states involved in the case at the time.

The six-year government case did have a positive impact on Microsoft's behavior,

Microsoft, page 16

MORE ONLINE

Real Estate Firm Mixes IT Management

BY MATT HAMBLEN

Lend Lease Corp., a global construction management and real estate investment firm based in Australia, plans to go live Sept. 1 with an IT overhaul that will combine its worldwide network, systems and security management operations at a data center in Atlanta.

Lend Lease is overhauling 40 core management processes, installing 16 software products from six vendors and doing nearly all the integration work in-house, according to John Miles, the company's chief security officer. The company is replacing some off-the-shelf management tools, but much of the software that's being installed will add all-new functionality, Miles said last week.

The yearlong project, which was dubbed HighRISE, was prompted by several hard real-

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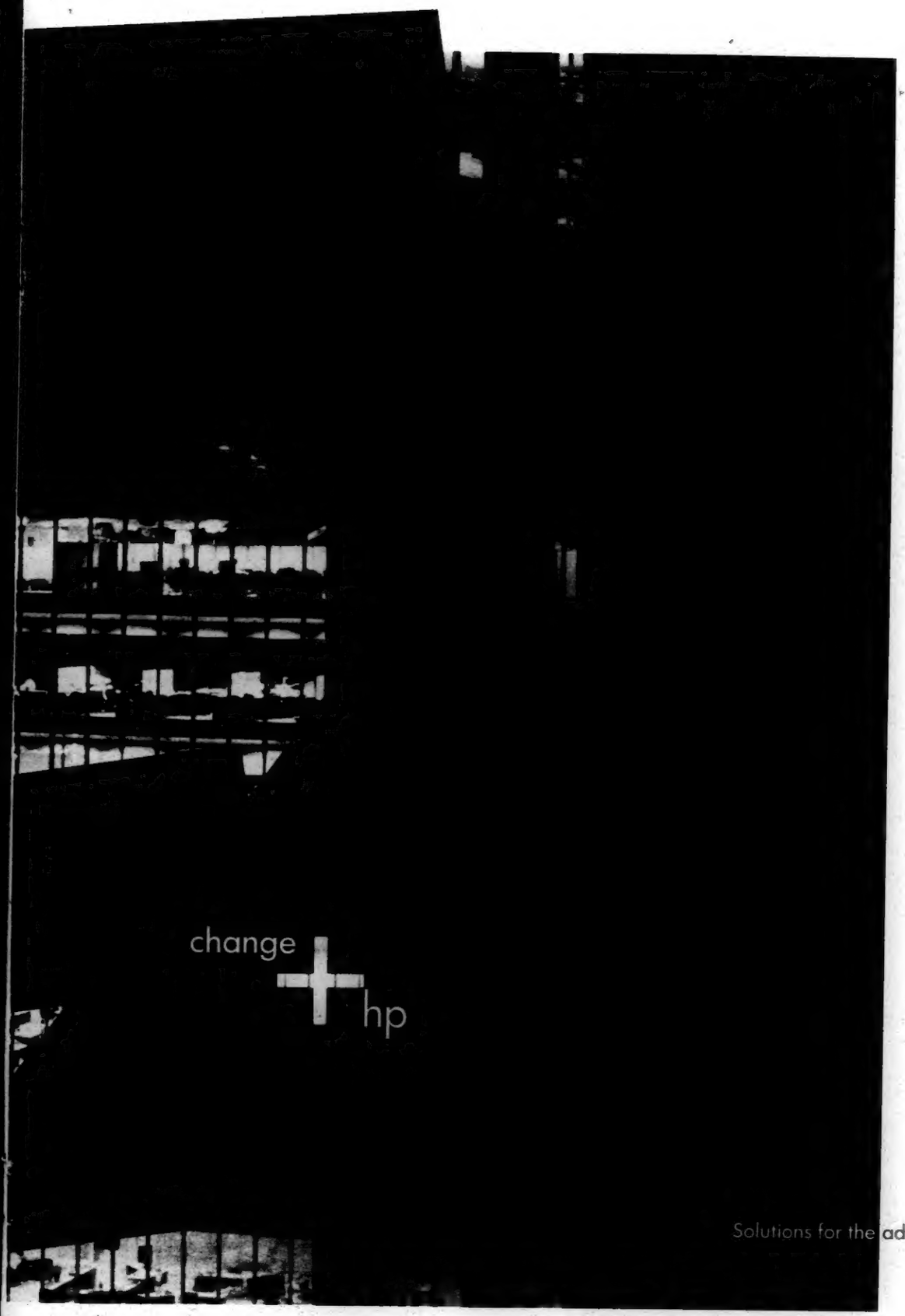
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07.05.04



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In the Technology section: IBM's not so staid anymore. Its Gadget Lab is working with companies to develop high-tech gizmos like bathroom scales and pillboxes that transmit data to doctors. Nothing seems to be off-limits. **Page 25**



Building a Compliance Framework

In the Management section: The task of complying with government regulations is sucking up far too many resources. With no end in sight, CIOs who can integrate compliance into their corporate cultures will push their companies ahead of the pack. **Page 33**

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MOBILE/WIRELESS: A *Computerworld* editor takes up the wireless war-driving game to find unsecured networks. How tempted is he by the "sorry state of wireless security"? **QuickLink 47881**

Inside the Insider Threat

SECURITY: Mudge, security expert and chief scientist at Intrusic Inc., details some of the ways that malicious hackers can slip into computer networks undetected. **QuickLink 47294**

The IT Accounting Scam

DEVELOPMENT: Columnist Linda Hayes exposes a software development quality scam — and proposes a solution. **QuickLink 47717**

Storage on the Edge

STORAGE: Many organizations have more data stored on their network perimeters than in their data centers. CIOs need to learn the new realities of the "stor-edge" landscape, write Robert Galletta and Melanie Heintz, IT staff directors at the Federal Reserve Bank of New York. **QuickLink 47764**

Using OS X Server to Manage Clients

MACINTOSH: Columnist Ryan Faas offers advice for systems administrators on what to keep in mind when configuring a user environment for individuals or workgroups. **QuickLink 47765**

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AT DEADLINE

'Net Attack Spurs Change to Windows

Microsoft Corp. released a configuration change for Windows XP, 2000 and Server 2003 in an attempt to better protect the operating systems against an Internet attack launched two weeks ago [QuickLink 47818]. Microsoft said the update will safeguard users from the Download.Ject attack. The company added that it's also working on a series of security updates for Internet Explorer to provide increased protections.

CSC to Modernize Air Traffic System

Computer Sciences Corp. said it has won a contract from the Federal Aviation Administration to modernize the system that's used to manage air traffic flow in the U.S. El Segundo, Calif.-based CSC will also network fragmented components of the FAA's IT infrastructure. The contract's design phase is valued at $13.5 million, but CSC said the deal could be worth $589 million over 11 years.

Dell to Replace Notebook Adapters

Dell Inc. said it's recalling and replacing about 38,000 notebook PC power adapters that could cause an electrical shock if they're used with power cords from companies other than Mobility Electronics Inc., which makes the adapters. The Combination Auto/Air Adapters were sold worldwide between December and May as an accessory to Dell's Latitude and Inspiron notebooks.

Short Takes

SYBASE INC. said its second-quarter revenue will be lower than expected due to problems in its North American corporate sales unit. Steps to strengthen the unit are planned. . . . NETWORK ASSOCIATES INC. changed its name to MCAFEE INC. as part of a move to focus on IT security tools.

Time Running Out for E-voting Security Plan

Panel calls for independent oversight of voting systems, but it may be too late

BY DAN VERTON

STATE AND local jurisdictions must act immediately to ensure the security of the electronic voting systems that are to be used in the November presidential election, according to an IT security panel. But the panel's recommendations may well have come too late.

In a report released last week by the Brennan Center for Justice at the New York University School of Law and the Leadership Conference on Civil Rights, the panel outlined a strategy for certifying the security and reliability of touch-screen direct recording electronic (DRE) voting systems. The systems will be used in jurisdictions representing about 30% of registered voters in the upcoming presidential election.

While analysts in the security and elections communities praised the report, most agreed that it may have come too late for states and local jurisdictions to act upon.

Chief among the panel's eight recommendations is a call for elections officials to hire a well-qualified, independent security team to examine the potential for operational failures and malicious attacks against DRE voting systems. According to the report, such a team "must be free of any business relationships with any voting system vendors or designers" and must be granted unfettered access to all software code and configuration data.

The panel also recommended that all jurisdictions contract for independent "red team" exercises to uncover any hidden physical or electronic vulnerabilities in DRE systems. And it urged election officials to make public information about the level of cooperation received from DRE system vendors.

Site-specific security procedures and physical security also weighed heavily in the panel's report. For example, the experts urged jurisdictions to use "tamper tape" on all vulnerable hardware devices and to document strict procedures for system repairs.

Jim Adler, CEO of VoteHere Inc., a Bellevue, Wash.-based developer of electronic voting security technologies, said the recommendations are an accurate reflection of what must be done.

But many of the systems and procedures for the November election are either already in place or are now being deployed. "It's late," said Adler, who was interviewed by the panel for the report. "Where was this a year ago?"

Jeremy Epstein, senior director for product security at Fairfax, Va.-based WebMethods Inc., characterized the panel's report as a set of short-term recommendations that are "exactly on the mark."

Epstein said he believes the recommendations can be implemented in time for the election. But "over the longer term," he added, "the need is clearly there for voter-verified paper audit trails or perhaps some form of cryptographically protected voting." **47931**

A VOTE FOR PAPER TRAILS

Sharon Machlis says voters need to be able to trust e-voting systems. See page 18

KEY RECOMMENDATIONS

Election officials should:

- **Hire an independent team of security experts** to examine the potential for failures and attack, and implement the team's recommendations.
- **Provide thorough training** for all election officials and workers on security procedures.
- **Develop procedures for random parallel testing** of the voting systems in use to detect malicious code or bugs in the software.
- **Create a permanent independent technology panel** to monitor the process.
- **Establish procedures for regular reviews** of audit facilities and operating logs for voting terminals and canvassing systems.
- **Prepare and follow standardized procedures** for response to alleged or actual security incidents.

3Com Hits Milestones but Seeks Path to Profitability



3COM CEO Bruce Claflin (left) greets Massachusetts Gov. Mitt Romney at last week's anniversary celebration.

MATT HAMBLEN
MARLBORO, MASS.

Networking equipment vendor **3COM CORP.** last week marked its 25th year in business and the one-year anniversary of relocating its headquarters from California to Massachusetts. The celebration came as 3Com is trying to rebound from 17 straight quarterly losses and steep declines in its sales and head count.

Two weeks ago, 3Com reported that it lost $18.7 million in its fourth quarter and $349.3 million for all of fiscal 2004, which ended May 28. But fourth-quarter revenue was up 5% from the year-earlier period. During the anniversary ceremony at 3Com headquarters here, CEO Bruce Claflin called the revenue growth "a milestone in our turnaround efforts."

Massachusetts Gov. Mitt Romney, who also spoke at the event, praised 3Com for weathering the "perfect storm" generated in the IT industry by the dot-com bust and the post-9/11 economic doldrums.

Corporate Market Key

But 3Com's hoped-for turnaround has been a long time coming and still isn't assured, said Zeus Kerravala, an independent analyst based in Boston. Increasing its sales to large companies is vital, he added. For example, he noted that the 3Com VCX IP Telephony Solution is a high-quality switch but hasn't attracted many corporate customers since it was introduced for enterprise use a year ago.

"3Com needs to get more enterprise users, and the next 12 to 24 months will make the difference," Kerravala said.

Claflin agreed that 3Com must better market its products to corporate users. He took a few stabs at networking market leader Cisco Systems Inc., describing its treatment of users as "feudal." Cisco locks customers into its technology and then acts as the "lord of the manor over serfs tilling the fields," Claflin said.

3Com had revenue of $699 million in fiscal 2004, compared with $16.1 billion for Cisco in the first three quarters of its current fiscal year. Kerravala and other analysts said 3Com has to find corporate IT niches where it can compete effectively against Cisco. **47937**

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VAX Users See the Writing on the Wall

Though still widely used and very reliable, DEC's legacy to IT is aging

BY PATRICK THIBODEAU

The VAX system at Triumph Components has been in use since about 1996, and information systems manager Dan Blackshear couldn't be happier with it. There's just one problem: He's got to scrap it.

The system is fast, works well with Windows and "fits into the modern environment very cleanly" at the El Cajon, Calif.-based aerospace parts maker, said Blackshear. "But it's a dinosaur, and eventually it has to go," he said.

It's been four years since the former Compaq Computer Corp. shipped the last new VAX, but Hewlett-Packard Co., which acquired Compaq, estimates that there are about 150,000 to 175,000 of the systems in use in the U.S.

IT managers interviewed about VAX and its OpenVMS operating system said the machines rarely fail. Geoffrey Ive manages 150 VAX systems, including one bought in 1986 and others purchased in 1990 and 1995 by his South African company, Eskom Transmission. Some of the systems have run for more than six years without a reboot. Reliability is "extremely high," he said.

Born in 1977

A reminder of VAX's advancing age came last week when Nemonix Engineering Inc. in Holliston, Mass., announced that it was starting a 24-hour support line for the system. "That's in response to a marketplace that really can't afford to get rid of them," said Beth Bumbarger, Nemonix's CEO. The company, which makes custom hardware components for the VAX, employs many people who once worked at Digital Equipment Corp., the company that developed the VAX in 1977, long before it was acquired by Compaq.

Bob Blatz, HP's director of marketing for OpenVMS, reaffirmed the company's VAX commitment. "We intend to continue supporting that line — we have no plans to stop it," he said. HP plans to port OpenVMS to its Itanium-based Integrity server line by the end of the year.

Users will be under increasing pressure to migrate as HP's maintenance costs increase and the reliability of the systems declines. Blatz estimates that the number of VAX systems in use is shrinking by about 10% each year.

But HP is continuing development of OpenVMS, and Blatz said that for the Integrity server, the company has more than 650 applications committed from 300-plus independent software vendors. And in the major OpenVMS markets — financial services, government, health care and telecommunications — he expects nearly 100% of the applications will be ready for porting to Integrity.



Systems running VMS becoming increasingly costly

Still, no porting effort will be easy or inexpensive. Users are often running legacy applications that have been heavily customized. Source code may be missing, and specific hardware calls to VAX systems may have been written, complicating a migration. That's a problem Blackshear faces; he estimates that porting to another system will cost $200,000.

One migration option is using Software Resources International SA's VAX emulator, Charon-VAX. The Geneva-based company was a former Digital software engineering center that was formed through a buyout.

One Charon-VAX user is Midwest Microwave Inc., a components maker in Saline, Mich., that was running a 10-year-old VAX machine until last year. It has moved OpenVMS and its manufacturing resource planning system to a system with dual Athlon processors, which are made by Advanced Micro Devices Inc.

"There is absolutely no migrating or porting or code conversion," said Barry Treahy, Midwest's vice president and CIO. The application "thinks it's on a VAX," he said. **47934**

Intel Counters AMD With 64-bit Extensions to x86

Could affect price, supply of 64-bit x86 machines

BY PATRICK THIBODEAU

Intel Corp. last week released 64-bit extension technology for x86 workstations and in two months will deliver the technology for servers.

Intel is following Advanced Micro Devices Inc. in releasing an x86 processor that can run both 32- and 64-bit applications. AMD's Opteron has already shown that there is demand for this capability on lower-cost, industry-standard servers.

MORE ONLINE
The Intel/AMD supercomputer race heats up:
QuickLink 47930
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The 64-bit capability is particularly important in research environments. The University of Notre Dame in Indiana, for instance, recently installed a 256-node cluster of Opteron processors for research applications.

Gordon Wishon, Notre Dame's CIO, said he expects Intel's entry in the market to "substantially influence price as well as availability of machines of this type." He said he will consider moving his 64-bit RISC-based environments to x86 extensions because doing so "could substantially reduce cost" and boost performance. But he doesn't want to be the first to use it — he will wait until application vendors have tested their software and mitigated the risks, he said.

Vendors don't appear to be expecting an onslaught of demand for 64-bit x86 applications as alternatives to ones already running on Itanium and RISC-based chips. There has been no flurry of vendors announcing 64-bit x86 versions of their software.

Tim Tribe, a product manager at financial system application vendor CODA Group Holdings Ltd. in Harrogate, England, said his company will release a 64-bit version of its software when customers demand it — something he expects will come from new users. "I see it quite clearly divided between existing users of our applications and new users," he said.

Users running in 32-bit environments, such as Paul Romano, senior manager of computer operations at Commonwealth Automobile Reinsurers in Boston, may see no compelling reason to jump to 64-bit. Romano said the 32-bit custom applications in his Microsoft shop are stable and running well. And he's not about to change that.

Intel officials said they don't see their x86 extension technology competing with Itanium, which is positioned against RISC systems.

But Randy Bryant, dean of the School of Computer Science at Carnegie Mellon University in Pittsburgh, said he believes "Itanium is dead — DOA." There may be performance issues with x86 extensions, but "the thing about x86 is, I can run my old code on it," said Bryant. He added that multithreading technology can improve application performance in x86 environments.

> **"Itanium is dead – DOA. The thing about x86 is, I can run my old code on it."**
>
> **RANDY BRYANT,** DEAN OF THE SCHOOL OF COMPUTER SCIENCE, CARNEGIE MELLON UNIVERSITY

The arrival of 64-bit x86 extension technology "really opens the door to all [independent software vendors] to at least consider whether they should 64-bit-enable their applications," said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H.

The x86 extension technology will likely populate the Wintel server lines of the major hardware vendors, in much the same way they have adopted Opteron. In the case of Opteron, however, Dell Inc. continues to be a significant holdout.

Although Sun, Hewlett-Packard Co. and IBM are all delivering Opteron-based hardware, a Dell spokesman said last week that his company has no plans to do so in the near future. Dell is, however, continuing to evaluate AMD's technology, the spokesman added. **47933**

BRIEFS

Oracle Needs to Grow, Ellison Says

As part of Oracle Corp.'s defense of its bid for PeopleSoft Inc., Oracle CEO Larry Ellison testified that his company needs to grow via acquisitions to remain competitive with SAP AG and Microsoft Corp. "The only way we can increase our investment in engineering and . . . lower our price is to increase our installed base," Ellison said in U.S. District Court in San Francisco. Closing arguments by Oracle and the U.S. Department of Justice are scheduled for July 20. (For more details, go online: QuickLink a4740.)

Hallmark, ACS Ink IT Services Deal

Hallmark Cards Inc. said it has signed a seven-year, $230 million outsourcing and IT services deal with Affiliated Computer Services Inc. Dallas-based ACS will offer jobs to 145 Hallmark workers and take over functions such as network services, desktop support and help desk operations. ACS is also setting up a new IT support services facility in Kansas City, Mo., where Hallmark is based.

GE Sends Some Coding Offshore

General Electric Co. said it has contracted with offshore IT services firm MindTree Consulting Pvt. to set up and manage a software development center in Bangalore, India. The facility initially will have about 50 workers and focus on ERP, data warehousing and Web-based applications for GE's equipment services division.

Short Takes

Bangalore-based INFOSYS TECHNOLOGIES LTD. had to temporarily shut down its network after being hit by an unspecified virus. . . . CISCO SYSTEMS INC. said it will pay $82 million to buy ACTONA TECHNOLOGIES INC., a Los Gatos, Calif., developer of wide-area file services software.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FAULKNER

Dashboards Can Steer Users in Wrong . . .

. . . direction without "taking a painful exploration of underlying business processes." Sober thoughts, especially given that they come from Colin Dover, product marketing manager at Hyperion Solutions Corp., a Sunnyvale, Calif.-based business intelligence concern that supplies BI dashboards. "The technology is the easy part," he says. Dover estimates that 60% of the success or failure of dashboard implementations depends on "getting to the nub of what your business truly is." That may sound like a cinch, but "common points of alignment" among various business units aren't that easy to quantify in ways that are useful for dashboard users, he says. In other words, prepare for a truckload of meetings between your various dashboard constituencies to create meaningful business metrics. Drive carefully.

1:2
Ratio of machines infected with spyware to those not infected, according to EarthLink.

No Need for James Bond . . .

. . . with SpyCatcher 3.0, available later this month in retail outlets. But don't let the commercial release deter you from evaluating the spyware elimination tool. "It was designed with corporations in mind," says CEO Joshua Blanchfield of Tenebril Inc. in Boston, which created the software. It uses a remote console so an administrator can manage thousands of clients. SpyCatcher comes with a library of "spyware fingerprints" that's regularly updated. And if you work in a place that discourages fun, you can suppress unwanted applications, such as games, by adding them to its database. SpyCatcher 3.0 uses an aggressive reinstall-prevention shield that keeps the malware from returning to the PC. Cost? Depends on how many copies you get. A recent contract for 40,000 users went for $2 a copy, says Blanchfield.

Discipline Application Behavior . . .

. . . with new appliance. This week a San Jose start-up, nLayers Inc., ships its first product, InSight, which creates an "application behavior model through deep packet analysis," says CEO Gili Raanan. He argues that most performance management tools are devoted to watching infrastructure activity such as routers and switches and not the applications, which Forrester Research Inc. estimates cause 54% of unscheduled downtime. Raanan theorizes that in a world of Web services and distributed software, "questions like, 'What is my application?' and 'Where is my application?' have become metaphysical questions and not engineering ones." To know the health of a given application means knowing more about the condition of a machine or even a set of machines. You need to look at the overall behavior of the application. That, he says, is what InSight does, by passively detecting and then observing packaged and custom applications on your network. InSight displays the complex interdependencies and behavior of programs, then simplifies the view so managers can, say, streamline their distribution to improve performance. You can buy a subscription for $2,438 per month or get a perpetual license for $45,000.



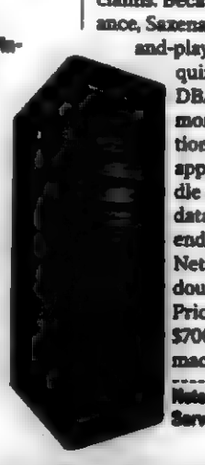
nLayers' InSight

Control Batch Jobs in Mixed . . .

. . . environment from Windows console. ActiveBatch from Advanced Systems Concepts Inc. in Parsippany, N.J., lets you queue jobs on Linux, OpenVMS, Unix and Windows machines to run at any time and in the correct order, establishing triggers between the successful completion of one job before another kicks off. Version 5 is expected to be ready for delivery the first week of September. It will add Kerberos security and let you create a "job plan" that coordinates numerous jobs into a single entity for easier management. The upgrade will also add new job types, such as customized e-mail messages. Pricing has not yet been determined.

Appliance Boosts Data Warehouse . . .

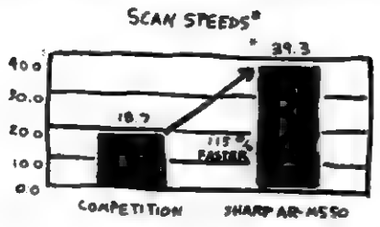
. . . performance while cutting costs. A tenfold performance jump at half the price. That's the boast from Jit Saxena, CEO of Netezza Corp. in Framingham, Mass., whose Netezza Performance Server (NPS) runs a fast proprietary database on what he calls "commodity hardware." The trick, though, is to push low-cost Intel processors down to disk drives on the appliance for faster response time "so the data is processed where it's being stored," says vice president of marketing Ellen Rubin. Saxena adds that tuning the database specifically for ODBC, JDBC and SQL business intelligence queries improves performance. General-purpose, high-end Unix machines running Oracle, DB2 and even Teradata databases can't compete, he claims. Because it's an appliance, Saxena says, it's "plug-and-play and doesn't require much of that DBA stuff," saving money on operations costs. An NPS appliance can handle up to 10TB of data, but before the end of the year, Netezza plans to double or triple that. Pricing starts at $700,000 for a 2TB machine. **47018**

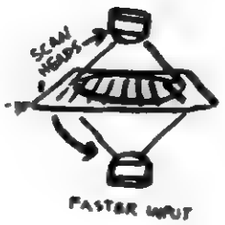


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* Results of Buyers Laboratory Inc. Document Feeding Speed tests (originals per minute) in 2 2 mode for Sharp AR-M550 vs. the following manufacturers' competitive models: Canon iR 5000 and 5020, HP 9055 MFP, Konica [illegible] 55, Kyocera Mita KM 5540, Ricoh Aficio 1055 and 551 and Toshiba e-STUDIO 550. ©2003 Sharp Corporation

Business Objects Begins To Integrate Crystal Tools

Upgrade follows merger road map, adds unified software portal, CEO says

BY MARC L. SONGINI

BUSINESS OBJECTS SA last week announced a business intelligence software upgrade that provides initial ties between its products and the reporting tools the company acquired when it bought Crystal Decisions Inc. late last year. In advance of the announcement, Business Objects Chairman and CEO **Bernard Liautaud** spoke with *Computerworld* from his Paris office about the merger of the two vendors and the new software release, which hews to an integration road map outlined in January [QuickLink 43946].



What's important about the announcement of BusinessObjects 6.5? It's the first release with the integration of the products of Business Objects and Crystal Decisions. Business Objects has built its success in query technology at the semantic layer, and Crystal Decisions has built it on reporting. . . . Now the two things will be together in one product.

We've got a unified portal and dashboard for both Crystal Decisions and the Business Objects products, for the user to log in with a single username and password. It's a true common user experience between the two products. As part of the integration, there [also] will be one single Web services API for the entire product line.

What's the status of the merger with Crystal Decisions from a business standpoint? As of Jan. 1, we have been operating as one company. We defined the road map of the products for the next two years and communicated it to all our customers and partners. We saw 11,000 customers and clarified the message to them that we are going to get an integrated product out by the end of this year. In 6.5, we'll have a lot of integration coming in the front end, and in the next six months in the back end.

That was very reassuring for the customer base because usually in mergers, one product disappears to be replaced by the other. That's not happening here, because we didn't have that much overlap.

How has the deal affected your internal operations? We're closing some offices, and we eliminated some redundant positions. We have let about 300 people go.

What's the hot technology in the business intelligence market? Probably the No. 1 thing is performance management — using business intelligence to drive real business performance improvements with dashboards and scorecard methodologies and real-time information. . . . That's probably the piece we see the most interest in from the customer base. **47737**

Version 6.5 Adds to Scalability, Web Capabilities

In addition to providing a consistent user interface for the Business Objects and Crystal Decisions product lines, BusinessObjects 6.5 includes upgraded Web reporting tools as well as server optimization and enhanced caching features designed to improve scalability.

The goal is to give a broader set of corporate users access to the tools, said James Thomas, a product marketing manager at Business Objects. "We see in our customer base a trend toward expanding the size of the deployment, so we want to provide for people with less-sophisticated skills," he added.

Jonathan Rothman, director of data management at Emergency Medical Associates in Livingston, N.J., is beta-testing 6.5 and said he welcomes the front-end integration features.

EMA, which provides emergency room staffing and medical services to hospitals, has used Business Objects software for several years. It added Crystal Reports for reporting purposes last year, before Business Objects announced its agreement to buy Crystal Decisions.

"The beautiful thing now about the integration between the two tool sets and companies is that we can take advantage of the infrastructure we've built to publish reports developed in Crystal to our Business Objects dashboards," Rothman said.

EMA runs Business Objects' Application Foundation technology atop a patient-tracking system it developed in-house. Deploying the new integration capabilities was straightforward, Rothman said.

BusinessObjects 6.5 is available on Windows and Solaris, and versions for HP-UX and AIX will ship later this year. Business Objects plans to support Linux by next year, Thomas said.

– Stacy Cowley, IDG News Service

Oracle Uses Acquisition to Close Gap on SOA Tools

Offers Java-based software to link business processes

BY MARC L. SONGINI

Looking to catch up to rival vendors in supporting service-oriented architectures (SOA), Oracle Corp. last week released Java-based software that's designed to make it easier for companies to craft reusable business processes.

Oracle acquired the BPEL Process Manager product when it purchased start-up vendor Collaxa Inc. last month. At last week's 2004 JavaOne Conference in San Francisco, Oracle announced the Collaxa deal and said it's now selling the software, which supports the Business Process Execution Language specification.

BPEL Process Manager will let users tie together different applications without having to rely on point-to-point hooks, said Rob Cheng, director of product marketing for Oracle's application server software and tools. The new offering includes open interfaces, can run on any J2EE-compatible server and is built around Web services technologies such as the Web Services Description Language, according to Cheng.

With the software, business processes can be automated and made portable so they can be quickly adapted as business needs change, Oracle said. For instance, a company that has developed a transactional system to do business with one supplier could take the existing configurations and reuse them with another supplier.

Hypothetically, John I. Haas Inc. could use the SOA technology to more tightly link its supply chain systems with ones at some sister companies and key suppliers, said Kyle Lambert, the hops grower's vice president of information solutions. Washington-based Haas uses Oracle's database, business applications and application server.

Lambert said the applications and Internet portals serving its business partners and customers "don't necessarily talk to each other," limiting visibility into information such as the status of orders. He added that although it's too early to tell whether Haas might deploy BPEL Process Manager, the software could help the company expand its business-to-business collaboration capabilities without extra development efforts. "I just hope my affiliates and vendors also use SOA-compatible systems," Lambert said.

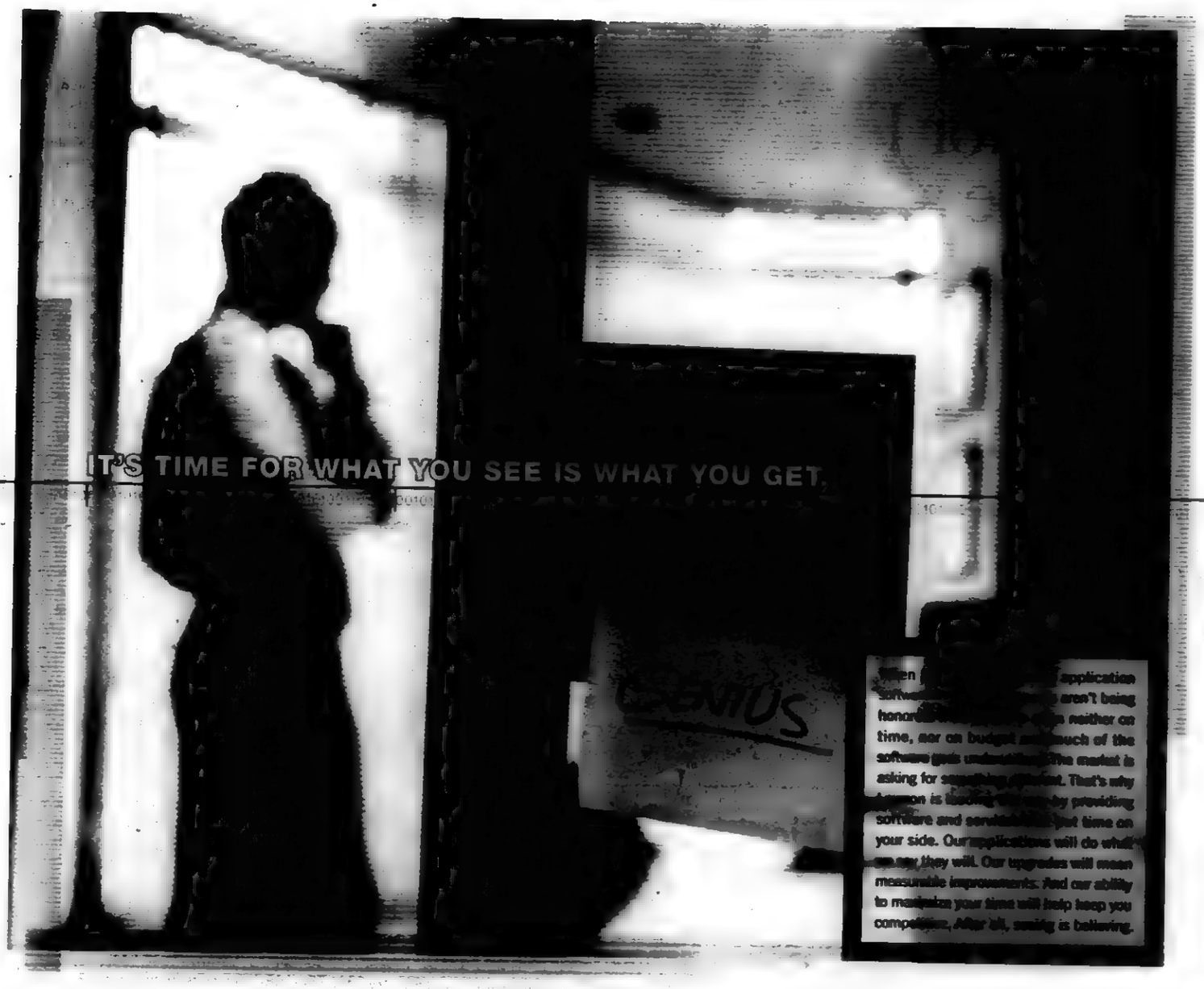
Oracle's product release is a modest first step that at least proves it's serious about offering SOA technology, said Ronald Schmelzer, an analyst at consulting firm ZapThink LLC in Waltham, Mass.

But Schmelzer said Oracle remains behind middleware vendors such as ERP rival SAP AG, which has a more extensive SOA offering with its NetWeaver integration tools. SAP co-authored the BPEL specification with Microsoft Corp., IBM, BEA Systems Inc. and Siebel Systems Inc. **47808**

TECHNOLOGY DETAILS

BPEL Process Manager

- **Includes a business process execution engine,** plus a management and debugging console and a design GUI.
- **Costs $10,000 per CPU** as an add-on for Oracle's 10g application server software, or $30,000 per processor as a stand-alone product.



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Delay for FBI's Virtual Case File May Be a Blessing in Disguise

Mismanagement, design inflexibility cited in study

BY DAN VERTON

The fact that the FBI's long-awaited electronic case file system will not be fully deployed by the end of this year as planned may be more of a saving grace than an embarrassment. The FBI needs to take the time to get the system right, analysts said last week.

The system, known as the Virtual Case File (VCF), was envisioned as a means of enabling agents to conduct rapid, paperless information sharing; it's a major component of the FBI's IT modernization effort, known as Trilogy. But only one module of the system, the automated workflow application, is scheduled to be deployed by the end of the year.

"Because the software program is large and complex, we are modularizing VCF capabilities and then testing them, deploying them to subset user groups, evaluating performance and then building upon them," said an FBI official whom the agency would not allow to be identified.

And that's actually a welcome development, said analysts, who have criticized the bureau in the past for not taking a phased approach to such a large IT deployment. In addition, the bureau has only recently begun to reverse years of mismanagement and design flaws that have led to major delays and problems with the deployment of the system, analysts said.

In a letter sent to the FBI on June 9, a committee of IT experts from the National Research Council (NRC) cited "clear evidence of progress" in the month since it issued a scathing report of the Trilogy program. That report, sponsored by the FBI and issued on May 10, outlined a series of past missteps in the design and deployment of the VCF system that by all accounts made enterprisewide rollout by December 2004 impractical and highly risky.

A Matter of Time

But while the progress has been "reassuring," the bureau faces many remaining IT challenges that will take time to fix, the NRC said.

For example, according to the NRC study, the VCF system was developed without the benefit of prototyping and testing. In addition, the bureau had no contingency plan in place for handling "mission disruptive failures" that could stem from the bureau's planned "flash cutover" from the old system to the VCF system.

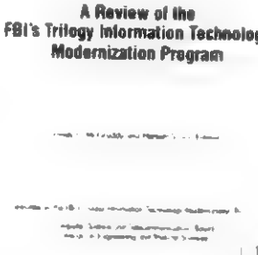
"With limited testing, and no experience gained from a limited initial rollout, the FBI would be implementing what amounts to a prototype throughout the bureau," the NRC concluded in its study. "This approach is nearly guaranteed to cause mission-critical failures and further delays."

In light of that criticism, the decision to delay the rollout in favor of a phased deployment is not surprising, said Bill Hamilton, CEO of Inslaw Inc., a Washington-based developer of case management software. "It is difficult to imagine a comparably sized private enterprise ever even considering doing something like a flash cutover without rigorous testing," he said.

The initial "inflexible" design of the VCF system has also played a role in the continued delays of the system, according to the NRC. The VCF was originally designed in the mid-1990s to support criminal investigations and not terrorism intelligence gathering and analysis, according to the NRC report, which went so far as to recommend that the FBI develop an intelligence system architecture "from scratch" rather than rely on the VCF system.

San Diego-based Science Applications International Corp., the vendor working on the VCF system, declined to comment and referred all inquiries to the FBI. The FBI official said the current contract with SAIC runs through December 2004 and that cost-sharing mechanisms will come into play if the firm doesn't deliver on the contract as outlined.

However, one of the authors of the NRC report who spoke on condition of anonymity said the current delay is the result of years of mismanagement by the FBI that allowed the contractor "to run the show." The delay, however, is "actually a good thing," the official said, because the bureau has always had a choice "to do it slow and get it right, or do it fast and screw it up." 47938



A National Research Council report cited progress but warned IT obstacles remain

Court Blocks ISP From Reclaiming IP Addresses

BY JAIKUMAR VIJAYAN

An initial ruling by a New Jersey state court judge in a lawsuit filed by a Web hosting firm is causing alarm among some Internet service providers, who fear that the ruling will set a dangerous precedent for letting companies retain their IP addresses even if they switch ISPs.

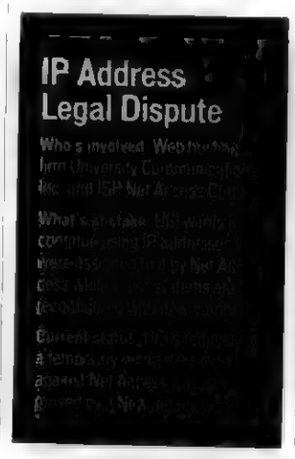
But the American Registry for Internet Numbers (ARIN), a Chantilly, Va.-based organization that manages the distribution of IP addresses in North America, said those fears are misplaced. The ruling "is not a problem when read in context," ARIN said in a statement signed by Ray Plzak, its president and CEO.

Plzak added that he thinks the concerns raised about last week's ruling resulted from the manner in which the litigation was described by one of the parties — an apparent reference to Net Access Corp., the Parsippany, N.J.-based ISP that is the defendant in the case.

University Communications Inc. (UCI), a Web hosting firm in Parsippany, received a temporary restraining order from a New Jersey Superior Court judge that allows the company to continue using its current IP addresses even though it has terminated its Internet access contract with Net Access.

Although some large companies own their IP addresses outright, ARIN typically assigns the numerical addresses to large ISPs, which in turn allocate them to their customers. The ISPs get the address space back when customers end their contracts. But for now, the court ruling prevents Net Access from reassigning or interfering in any way with UCI's use of the IP addresses it was assigned.

"If this ruling is upheld, it has the potential to disrupt routing throughout the Internet and change practices of business for any Internet service provider," claimed Net Access President Alex Rubenstein in a letter that was posted on the mailing list of the North American Network Operators' Group.



Allowing UCI to continue using the IP addresses compromises the "right of the provider to maintain control and use of the address space assigned to his network," Rubenstein said in his note.

Neither Rubenstein nor UCI officials responded to requests for comment following his posting.

In its court filing, UCI said it was seeking the restraining order because it wanted to prevent Net Access from disrupting its business while it switches ISPs. UCI added that the effort needed to assign fresh IP addresses to each of its 3,000 customers will take longer than the period specified in its contract with Net Access. 47942

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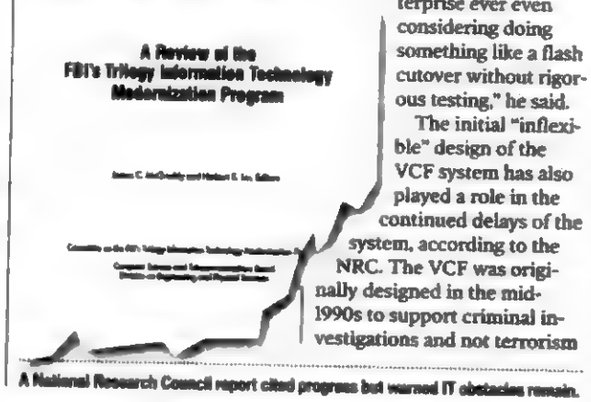
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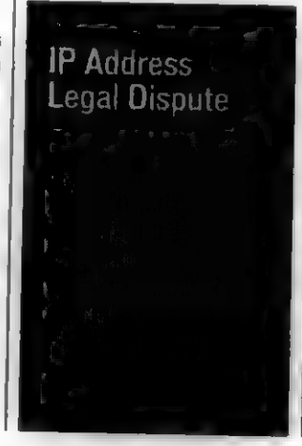
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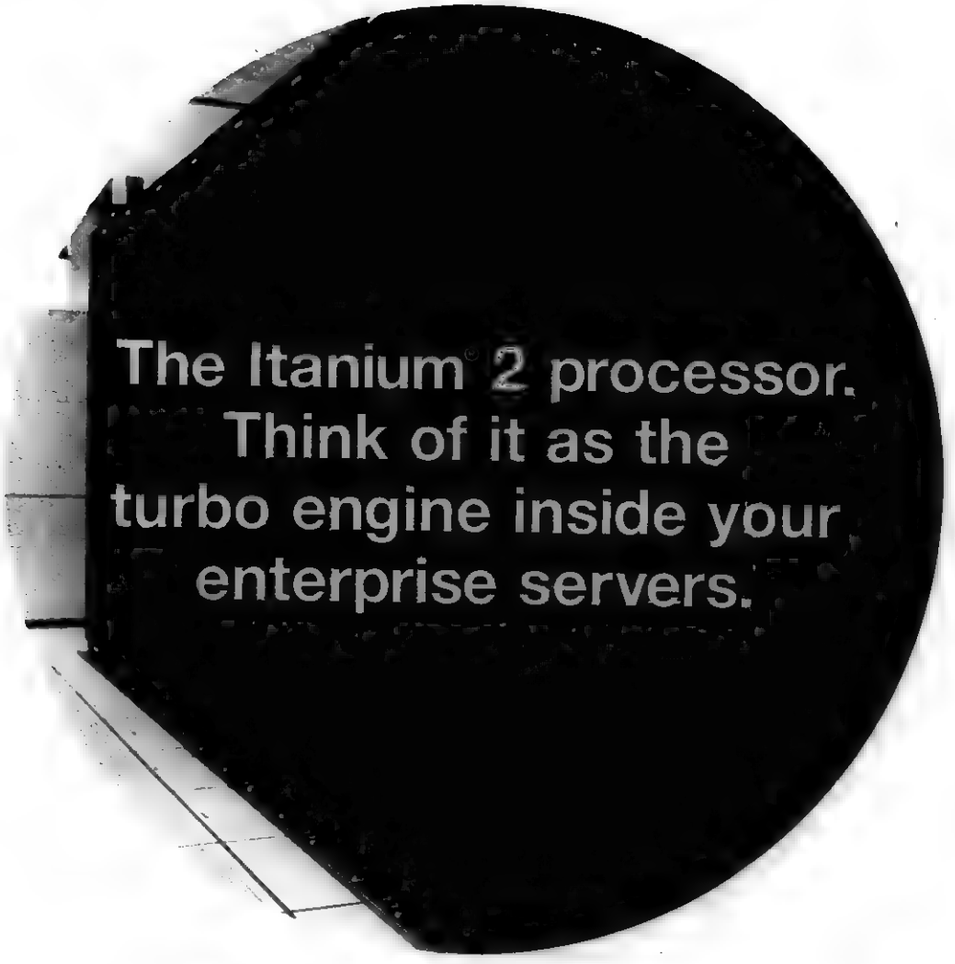
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BRIEFS

Microsoft to Allow Win CE Changes

Microsoft Corp. said it will share more of the source code for its Windows CE embedded operating system with hardware makers and allow them to modify the code for their own commercial uses. Companies won't be required to share their modifications with Microsoft or other CE licensees. The changes take effect in Windows CE 5.0, an upgrade that's due to be released to manufacturing this week.

Nortel to Sell Off Production Plants

Nortel Networks Ltd. said it will divest most of its remaining production facilities to Flextronics International Inc., a Singapore-based contract manufacturer. The agreement is valued at between $675 million and $725 million and includes a four-year contract for Flextronics to provide manufacturing services to Nortel.

Investment Firm Sues CA Over Pay

Ranger Governance Ltd., the Dallas-based investment firm that tried to take control of Computer Associates International Inc. in 2001, has filed a lawsuit asking that 12 former and current CA executives be ordered to pay back more than $1 billion in compensation. The suit stems from CA's April admission that it improperly booked revenue in the past. CA said it's reviewing "the matter of compensation given or due" to individuals who are subject to an ongoing government probe.

Short Takes

The SECURITIES AND EXCHANGE COMMISSION sued SIEBEL SYSTEMS INC., claiming that two of its executives broke financial disclosure rules last year. . . . NOVELL INC. released Version 1.0 of Mono, an open-source development platform it's pitching as an alternative to Microsoft's .Net.

Banks, Brokerages Dogged By Message Storage Rules

Mandates for IM, e-mail retention pose IT challenges

BY THOMAS HOFFMAN
NEW YORK

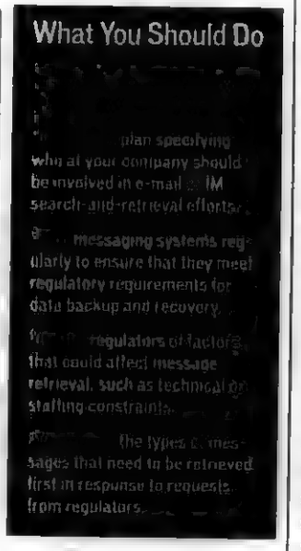
INFORMATION technology managers at financial services firms are finding it increasingly difficult to comply with a bevy of regulations that require them to archive e-mail and instant messaging exchanges with customers and ensure that the messages can be retrieved.

The U.S. Securities and Exchange Commission, the New York Stock Exchange and the National Association of Securities Dealers have all imposed regulations on the types of information that brokerages can share with clients via e-mail or IM and how long messages must be stored so they can be retrieved for regulatory audits.

The regulations have created "a poisonous atmosphere" for brokerages that are struggling to comply with them, said Stephen Shine, senior vice president and senior counsel at Prudential Equity Group LLC in Newark, N.J. He was one of the speakers at a conference on the use of messaging and collaboration tools in the financial services industry, held here last week by New York-based Information Management Network Inc.

Shine said one of the big challenges securities firms face is being able to retrieve e-mail correspondence for regulators within 24 hours, as some measures require. "Regardless of how sophisticated your e-mail retrieval system is, you won't be able to comply by tomorrow," he said.

He recommended that companies take several steps to "intervene" with regulators, such as asking for adequate time to review e-mail messages in order to determine whether any of the requested correspondence impinges on attorney/client privileges.



Not complying with the messaging regulations is a potentially costly problem. The most notable enforcement actions were taken in December 2002, when the SEC fined five broker/dealers a total of $8.25 million for improperly storing e-mail [QuickLink 34912].

Brokerages frequently audit and test their e-mail and IM backup and recovery procedures, but those efforts are probably not done "consistently enough to meet regulatory requirements," said Andy Welch, a senior manager at KPMG LLP's risk advisory practice in Short Hills, N.J.

Regulators at the Federal Deposit Insurance Corp. in Washington are also concerned about the potential network security vulnerabilities created when bank employees use IM tools for external communications.

Attempts by banks to secure IM exchanges via the use of firewalls have proved to be "very difficult," said Kathryn Weatherby, an examination specialist in the FDIC's division of supervision and consumer protection.

In order to help reduce the security threats, Weatherby recommended that IT managers at banks set and enforce limits on which of their employees can use IM externally.
47936

Microsoft CRM Pace Frustrates Users

BY STACY COWLEY

After its launch in a blaze of hype early last year, Microsoft Corp.'s CRM software is on a slower-than-expected development path, frustrating some users.

Microsoft now expects to have Version 2 of the software ready in mid-2005, more than two years after it released the first version. In the interim, the company has issued point upgrades to fix bugs and expand functionality, but the current release, Microsoft CRM 1.2, still lacks features found in rival midmarket products.

"I think Microsoft CRM wasn't ready when it was released," said customer Jeremy Whiteley, CEO of Promarketing Gear Inc. in Kirkland, Wash. Whiteley switched from FrontRange Solutions Inc.'s GoldMine to Microsoft CRM but then switched back.

> **"We understood [the software] is a Version 1, but we didn't understand there would be this many challenges.**
>
> MICHAEL KRUGER, IS MANAGER, DESIGNER DOORS INC.

Whiteley said the problem was that Microsoft's software inserted a long string of characters in the subject line of every e-mail sent through the system. Intended as a feature to help with tracking, the ID string annoyed many customers, and Microsoft issued a patch to let users turn it off. That patch came after Whiteley had already decided to stop using the software.

Features TBA

Microsoft only recently acknowledged that Version 2 won't be finished this year. The update's feature set is still being determined, though Microsoft said it will include integration with Navision 4, an important addition for customers of the Navision applications Microsoft acquired.

Michael Kruger, IS manager at Designer Doors Inc. in River Falls, Wis., said his company is scaling back its Microsoft CRM use until Version 2 is available. In October, the company began rolling out the software to about 40 employees but soon hit major problems with unreliable synchronization between Microsoft CRM and Outlook.

"I like Microsoft CRM, and I believe I will like Version 2 a lot," Kruger said. "We understood [the software] is a Version 1, but we didn't understand there would be this many challenges. Had we known, we may have waited."

Holly Holt, a senior product manager at Microsoft, acknowledged that some customers are having trouble with synchronization but said that many are seeing significant improvements with the fixes that will be included in a feature pack due next month. Holt added that Microsoft is "happy and on pace" with its CRM development efforts.
47941

Cowley writes for the IDG News Service.


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Continued from page 1

IT Overhaul

ities, including a 30% reduction in Lend Lease's IT staff during recent years, said Miles. Lend Lease has also made a series of acquisitions and divestitures that have left the company with an overly complex IT infrastructure, Miles said.

In addition, Lend Lease consolidated seven North American data centers into its Atlanta IT facility two years ago — a move that wasn't accompanied by an upgrade of its technology management capabilities.



Lend Lease's management tools overhaul is a response to staff cuts and several acquisitions.

From a business standpoint, security, network and systems management are being converged now partly because Lend Lease wants to be sure it can handle competing corporate goals: opening up online processing of bids for construction projects in order to stay competitive in that market, while making sure that financial data from its investment business is secure. The $7 billion company's presence in the financial services market also requires it to be prepared for internal and external audits of its IT security capabilities and financial records, Miles said.

Miles and Lend Lease CIO Jay Skibinski, both of whom are based at the company's Shared Technology Center in Atlanta, wouldn't divulge the cost of the project. But industry analysts said the scope is very large, with the software costs alone perhaps amounting to more than $1 million.

The project timeline also is ambitious. Lend Lease developed a blueprint last November, chose its vendors in February and started the software implementation work in March. "One principle we agreed upon at the start was the need to fire once and do it right," Skibinski said.



"One principle we agreed upon at the start was the need to fire once and do it right."

Lend Lease is installing management tools from BMC Software Inc.'s Remedy subsidiary, NetIQ Corp., ManageSoft Corp. and M-Tech Information Technology Inc., as well as underlying technology from Microsoft Corp. and Oracle Corp.

Integrating the tools will let network operations engineers and help desk staffers use one primary system based on Remedy's software to "monitor all critical events and respond to them more efficiently," Miles said. Global monitoring of the company's systems and networks will be done around the clock at the Atlanta facility.

Such information should help Lend Lease determine the cause of problems affecting its systems and network components, said Michael Disabato, an analyst at Burton Group in Midvale, Utah. He noted that network faults, such as an outage stemming from a backhoe cutting a fiber cable, require much different responses than denial-of-service attacks and other security incidents.

"There is so much going on in a global network with many locations that you need some method of sorting it all out and making sense of it," Disabato said.

Scott Crawford, an analyst at Enterprise Management Associates Inc. in Boulder, Colo., has talked with Miles about the project and said he views it as "a very advanced endeavor in implementing management architecture." Crawford added that the Lend Lease project is part of an emerging trend toward converged systems and network and security management, partly driven by the reality of IT job cuts — as is the case at Lend Lease.

The expanding capabilities of management tools also are a factor, Crawford said. Until recently, management software couldn't identify security problems as the root cause of network issues. "Increasingly, security management will be less of a product or a service in its own right and more of an aspect of management software as a whole," he predicted.

One of the biggest challenges of the project was getting the different vendors to work together to integrate their products, Skibinski said. The vendors saw risks in the process, he added, but were willing to write additional code "so they can demonstrate to other customers that they can work with other products." **47908**

Continued from page 1

Microsoft

said Ashok Bakhshi, IT director at Schindler Elevator Corp. in Morristown, N.J. But Bakhshi said he now wonders whether the company will revert to its old ways.

"They [haven't been] as arrogant, sometimes, in dealings [as] they were before," said Bakhshi. But with the end of the antitrust case, Microsoft "might get back to the old ways. That's the tendency of any big corporation," he said.

Microsoft's IT industry opponents consider the decision a disaster.

"I think we will see [Microsoft] be a little more aggressive," said Mike Petit, president of ProComp, an anti-Microsoft industry group that has supported harsher remedies than those agreed to in the antitrust settlement. "They can still wreak havoc on the industry.

"For people who ask the question, 'What kinds of things can be commingled into Windows?' [the answer is], 'Anything that they choose,'" said Petit. The settlement imposed "no restrictions at all on that," he added.

Massachusetts, joined by the Computer & Communications Industry Association and the Software & Information Industry Association, had argued that the U.S. antitrust settlement didn't go far enough and sought a range of tougher sanctions. Those harsher remedies included forcing the company to open-source its Internet Explorer Web browser and to allow the porting of Office to other operating systems, such as Linux. Massachusetts also sought to force Microsoft to unbundle some of its operating system functions, like Media Player.

MORE ONLINE

For additional coverage of Microsoft's legal battles, visit our Web site:

QuickLink 47900
www.computerworld.com

Last week's decision likely means that the end of the legal line in that effort has been reached, legal experts said.

"A Supreme Court appeal is beyond a long shot for the plaintiffs," said Hillard Sterling, an antitrust attorney in Chicago who has followed the case since its beginning in 1998. "It's virtually certain the court would have no interest in even taking this case."

Microsoft officials said the development is the most important to date in resolving its antitrust battles.

The decision "has made clear that Microsoft and the rest of our industry can move forward with this decree and judgment in place," said Brad Smith, Microsoft's senior vice president and general counsel.

The ruling in effect supports Microsoft's operating system strategy, said Smith. "The Court of Appeals made clear ... that removing code from Windows would be a huge step backward." **47923**

Microsoft Antitrust Timeline



Correction

A story in last week's special report about on-demand computing mentioned Sun Microsystems Inc.'s role at an Affiliated Computer Services Inc. data center. The data center is managed by ACS and uses Sun equipment.

The last name of David Stoop, global IT security director at St. Jude Medical Inc. in St. Paul, Minn., was misspelled in last week's Page One story about the CISSP security certification ["ISC Endorses Key Security Certification"]. The story also misstated St. Jude's revenue, which totaled $1.9 billion last year.

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COMPUTERWORLD

THE VOICE OF IT MANAGEMENT

SHARON MACHLIS

A Voter's Paper Trail

IF VOTING IS a cornerstone of democracy, so is the belief that one's vote will be properly counted. That's why the stakes — and emotions — are high as vendors, government officials and citizens groups debate the use of electronic voting machines.



Advocates of e-voting systems could learn something from the e-commerce industry, which spent years battling consumer fears that online transactions were unsafe. Early Web retailers argued that transmitting encrypted credit card data over the Internet was substantially more secure than, say, giving your card to a waiter and letting him walk out of sight. But logic alone wasn't enough to persuade the masses.

It also took major marketing efforts aimed at convincing consumers that they wouldn't be liable for fraudulent transactions before large numbers of shoppers felt confident buying online. Ultimately, people were able to test the waters by making small purchases from trusted brands. When neither their identities nor card numbers were stolen, most were willing to try again.

How can voters judge whether their use of an electronic voting machine is a success? Several groups are lobbying for a "paper trail," arguing that machines should keep a paper record of each vote cast. This is a reasonable compromise between banning the machines outright and allowing software-only systems with questionable recount abilities.

An independent report issued last week recommends that election officials hire security teams to test their systems, train all poll workers on security issues, develop audit procedures and conduct "parallel" tests of a few random systems. (Because the report's goal was to offer security advice for systems already in place, it didn't address the issue of paper trails.)

However, it's doubtful that those steps alone will convince skeptics that e-voting is secure. When well-credentialed experts say it's not that hard to hack into an electronic voting machine, voters have every right to be concerned [QuickLink 46750], even if other experts claim that such tampering is a low-level or "theoretical" risk.

Vendors need to remember that their customers aren't just local officials who sign purchase orders, but also voting citizens who ultimately foot the bill. As many IT managers have learned the hard way, end-user buy-in is critical to successfully implementing new technology. The more disruptive or controversial the system, the greater the need to convince users that they will benefit. If paper printouts are a feature that voters say they want, build them into the system.

Industry critics say that such a mandate could lead to jammed printers, which could slow or even halt Election Day voting. However, voters should be rightfully skeptical of companies that promise sophisticated hack-proof technology and yet can't make a dependable printer. As one paper-trail advocate noted, ATMs and gasoline pumps regularly give paper receipts without incident.

Others complain that the paper requirement could make the machines too expensive. But if that's the case, it would be better to delay deployment until hardware prices come down than to spike an important feature.

No one *must* shop online (and plenty of people still don't). We have other venues to get goods and services. Voters, though, aren't given a choice between paper or touch screen ballots when they arrive at polling places — which makes it vital that citizens have confidence in their local systems.

Paper isn't a panacea, as the 2000 Florida vote-counting debacle made painfully clear. But deploying new technology for a mission-critical function while ignoring the wishes of end users is rarely a recipe for success. **47905**

Maryfran Johnson is on vacation. Her column will return in next week's issue.



PIMM FOX

Free .iq Now

IRAQ SEEMS to be everywhere. The country is in headlines and political speeches and could affect the outcome of the U.S. presidential election in November.

But it isn't on the Internet.

Because of a legal dispute, the Internet Corporation for Assigned Names and Numbers has frozen the .iq address, making it impossible for Iraqi organizations, businesses and people to establish their unique identities online.

This should be changed, now.

You can make the argument that now that Iraq's interim government has taken over from the Coalition Provisional Authority, worrying about online domain addresses is far down on the list of priorities, below things like public safety, reliable electricity and routine commercial air flights.

But I disagree.



The task of rebuilding Iraq is immense, and any resource that can be applied to the effort should be used. The importance of making it possible for government ministries to effectively communicate and coordinate reconstruction work is self-evident.

The former U.S. administrator in Iraq, L. Paul Bremer, as well as Siyamend Ziad Othman, head of the new National Communications and Media Commission of Iraq, have both asked ICANN to release .iq for use.

So, why the holdup?

It seems that InfoCom Corp., the Richardson, Texas-based company that runs the .iq domain name, was indicted in 2002 for allegedly exporting computer equipment to Libya and Syria. In addition, the company is charged with sending money to terrorist groups in the Middle East.

Until the conclusion of the trial, which began in Dallas last month, .iq stays locked up.

This doesn't make sense.

The Iraqi people need and deserve the opportunity to have an electronic identity. They should be able to build Web pages, establish businesses and create electronic communities without

having to borrow domain names from other countries in the region.

One way to facilitate the use of the .iq domain would be to put it in an escrow account until the trial is completed, so it could be made available now to Iraqis on a nonprofit basis.

Getting Iraq on the Internet could give it a technological boost and perhaps even encourage a broadband build-out of the country's infrastructure. In the past, less-developed countries have been able to move from no phone service to mobile phone service, completely bypassing the time and costs of fixed-line development.

But perhaps the most important reason to release the .iq domain is the one least likely to come with dollar signs. It has to do with this strange notion: It's intrinsically a good thing when people have a say about their lives and are able to communicate their feelings, opinions and ideas to others through e-mail, online postings, Web sites and blogs.

It can build pride and respect. And, if you can for only a moment cut through the cynicism so prevalent in what we call a technologically advanced culture, it can give people a chance to dream.

If ever there was a country that needs to dream, it's Iraq. Freeing the .iq domain address is a start. **47785**

DAN GILLMOR

The Land Of the 'Free' Hot Spots

SOMETIME soon, Boingo Wireless, a Wi-Fi wireless hot-spot service provider, will launch a product I've been bugging the company about for a long time: a Macintosh client. But now that it's almost a reality, I find myself wondering if it's too late.

Not that I've stopped using a Mac when I travel. Despite Apple's quality-control problems and the occasional application I'd like to use that runs only on Windows, I'm still a Mac user and will probably remain one for the most part.

The reason I wonder if it's too late for Boingo to be useful for me is that I have doubts about the entire business model of charging for Wi-Fi access. I'm just not convinced that it makes sense.

Now, I'm not suggesting that Wi-Fi should be "free" in any serious way. What I question is the idea that hot-spot providers can charge high rates except in a fairly small set of circumstances.



The cost of setting up a hot spot is being driven down, down, down. Once you have a connection to the Internet, adding an access point is dirt-cheap.

More and more businesses are seeing value in adding hot spots and offering access as part of their overall service — something like the free glass of tap water you get at the restaurant before you order your meal.

If a coffee house offers me access, I'm likely to stay longer and drink more coffee. How many extra cups of coffee does a store owner have to sell every week to cover the cost of the hot spot and make a little extra? I'd wager not very many.

I'm also baffled by some of the locations I've seen offering wireless access. Whether you're a fan of fast food or not, the idea of taking a laptop to McDonald's seems a little weird. My keyboard is the last place I'd tend to put my fingers right after eating greasy food.

Nevertheless, there are sometimes excellent reasons to use commercial hot spots. The best reason, if the most annoying, is that you have no choice. Airports and hotels tend to lease "air rights" to commercial providers, and sometimes the only way to catch up with e-mail on a trip is to use the commercial service.

Another good reason is something Boingo understands: the need for security in a notoriously insecure environment. Boingo creates an encrypted virtual private network tunnel from the user's computer back to its own servers, a feature that adds genuine value. I have a VPN to my company's servers and use a Secure Shell server to get to my own domain, so I don't really need this feature. Nonetheless, Boingo deserves kudos for providing some security for people who don't have this kind of infrastructure.

The commercial services still don't have enough access points. They'll need to solve that problem before they have a long-range hope of getting my ongoing business.

Meanwhile, I'm still looking for "free" hot spots. There are enough of them for the average user, with more emerging all the time. That should worry the commercial providers. **47809**

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READERS' LETTERS

Projects Should Be Ongoing, Never 'Done'

IN THE COLUMN "Getting to Done" (QuickLink 46978), Paul Glen touched on the difficulties of development projects but didn't see the true culprit. That culprit is the concept of "done." The problem arises with his premise that all projects should have a conclusion. The reality is that most development projects are support tasks for ongoing operations. By trying to segment this continuous support operation into a series of independent projects, we create the difficulties described.

I'm not saying that deadlines, budgets and resource allocations should be ignored; I'm saying that if I, as a project manager, am going to be able to meet these restrictions, then I need the ability to defer items into the future. If a project is going to be "done," I have the options only to complete or not complete tasks; essentially, an infinite requirement is mapped onto a finite project. If the project is viewed as an ongoing operation, then I have the ability to negotiate trade-offs. If I need to have some set of features available for a trade show, then I can focus on those now and defer other issues.

In addition, as a project progresses closer to its "end," the team is much less willing to listen to new voices, regardless of how valuable their information may be. But if the project is viewed as ongoing, new information can be addressed as appropriate.

Finally, building consensus is almost impossible in a fixed-length project. One can have only winners and losers. The winners get their issues addressed within the project; the losers do not. With an ongoing project, one can build consensus on when specific issues will be addressed and allow all stakeholders to be winners.

Wayne Mack
Development project manager, South Riding, Va.

Respect for Sanjay

I KNOW IT IS fashionable to give Sanjay Kumar and CA a hard time (QuickLink 47368). However, as a CA user from 1978 and throughout the time I was a CTO and CIO in banking, I have to say Sanjay made a tremendous change in CA. He brought it from a company that was busy with litigation to one that tried to work with its customers. Your magazine may provide the best evidence, if you go back one, three, five and 10 years and compare the amount of negative customer reaction to CA. I am not a current customer and have nothing to gain by saying this; it's just basic decency to let Sanjay have his due respect.

Tavi Gal
Senior vice president and CIO, Warner Music Group, New York

Lake Wobegon IT

IN THE June 14 issue, Frank Hayes stated, "Remember, half of all IT workers are below average" ("Wage Reality," QuickLink 47474). This statement is incorrect. It is true that half of all IT workers are below the *median*. But about 80% of all IT workers are below average. Remember the good old 80/20 rule.

James McSovern
Hartford, Conn.

Woe, Canada

THE ARTICLE "Canadian IT Execs Say U.S. Peers Are Overpaid" (QuickLink 47346) ignores several factors that in my view justify a wide difference in salaries between U.S. and Canadian IT workers. For example, many U.S. companies have decreased their health and family benefits, forcing workers to compensate. In addition, Canadian Pacific's Allen Borak adjusted his formula for wage rate comparison to accommodate exchange rates, but he missed the critical cost-of-living difference.

Sotiris Basoukis
Senior consultant, Arlington, Va., sotiris1@yahoo.com

IN THE print edition, the story about Canadians saying U.S. workers are overpaid is right next to one that says the Royal Bank of Canada "was delaying its processing of deposits, withdrawals and payments" because of "a routine programming update [that] forced bank workers to recheck and verify tens of millions of transactions daily." I'll bet that was cheap. Maybe there's a reason U.S. programmers are paid more than Canadian programmers.

Jack Beckman
Manager, applications programming, Southfield, Mich.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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SECURITY MANAGER'S JOURNAL

Spyware Gets Top Billing

Mathias Thurman finds that developing a policy for dealing with spyware and adware takes on a new urgency after the CEO's home computer is infected. **Page 28**

QUICKSTUDY

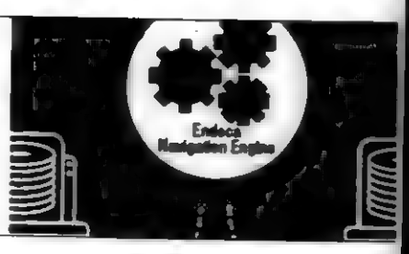
VoiceXML

This scripting language allows users to interact with speech-enabled applications. It could make it possible to surf the Web using phones, handheld devices or even household appliances. **Page 27**

CASE STUDY

Search for a View

Oil field parts and services provider Weatherford International is using Endeca search technology to top off a massive ERP and product data management project. **Page 26**





Speak Easy

BY GARY H. ANTHES

Advances in speech recognition software are extending the utility of traditional applications – and paving the way for broader use.

THE VELVETY VOICE of that nice young woman on the other end of the phone is really just digits on a disk somewhere at Verizon Communications Inc., but "she" remembers that I spoke to her a few moments earlier, before I was interrupted by another call. "I apologize if I ask some questions you already answered," the voice says. She sounds genuinely contrite.

But the virtual telephone-repair lady is just getting warmed up. "I'll test your line from here," she intones. "OK, I got the line test started. It could take up to a minute. I'll also check to see if anything's changed on the line since you last called." While the test runs, she asks me for more information about my telephone problem, and she seems to understand my every response.

Presently she says, "The line test is finished now. Unfortunately, it couldn't determine if the problem is in Verizon's network or with your equipment, so we need to dispatch a technician. . . . Here we are — I've picked up all of our technicians' current schedules. The earliest we can schedule it is on Thursday, June 3, between 8 a.m. and 6 p.m. Can someone give access to the premises at that time?" The call is soon completed, and on June 3, so is the repair.



PLANETON ART

Computerized speech has come a long way in 20 years. As Verizon's system illustrates, the technology has become smarter, easier to use and more integrated with other applications. Such technical advances, plus product introductions that facilitate the deployment of the technology by mainstream developers, are enabling new uses for automated speech systems.

A Long and Winding Road

Research in automated speech recognition goes back to the 1930s, but serious commercialization of it didn't begin until 50 years later. In 1988, Dragon Systems Inc. demonstrated a PC-based speech recognition system with an 8,000-word vocabulary. Users had to speak slowly and clearly. One. Word. At. A. Time.

The next big step came in 1990, when Dragon demonstrated a 5,000-word continuous-speech system for PCs and a large-vocabulary, speech-to-text system for general-purpose dictation. Then, in 1997, Dragon and IBM both introduced continuous

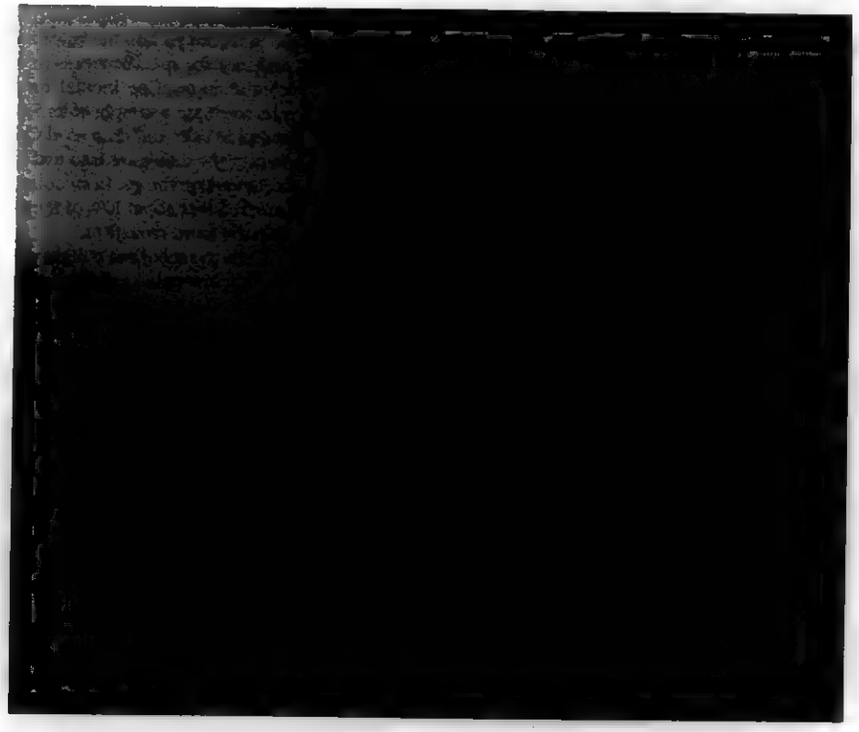
Continued on page 24

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Continued from page 21

speech recognition systems for general-purpose use.

Meanwhile, corporations began rolling out interactive voice response (IVR) systems. The earlier ones — indeed, most in use today — are menu-driven: "For your fund balance, say or press 'one.'" A few advanced systems are more conversational: "What city are you departing from?" Despite the steady advancements to bigger vocabularies, lower error rates and more natural interfaces, however, speech products have remained specialized tools for niche markets such as PC navigation by the disabled, medical dictation and tightly constrained customer service interactions.

But now, previously stand-alone speech systems are linking up with enterprise systems to access other applications and spawn transactions. As a result, these speech systems — previously the domain of call center and telephony managers — are increasingly becoming something for the IT shop to worry about, if not manage.

Verizon's speech application, for example, can trigger a line test, update customer accounts, schedule repairs and create trouble tickets — processes that require interfaces with many systems. "If you create something that's just a veneer, people get it very quickly," says Earl Ebrahimi, senior vice president for IT at Verizon. "But for customers to really get value, you need to do something with the back office."

> **With IVR, it was 'Touch or say three.' Now we can say, 'I'd like to change my address.'**
>
> JOE ALESSI, AAA MINNESOTA/IOWA

Many of Verizon's back-office functions have been redesigned as Web services and are accessible by customers over the Web or by spoken request. The new system handles some 50,000 repair calls per day and has boosted the percentage of calls that are fully automated from 3% to 20%, Ebrahimi says. He won't say how much the company is saving in labor costs, but he says it's "millions and millions."

Verizon's National Operations Voice Portal is deployed across three geographically dispersed data centers, and calls are routed from point to point using voice-over-IP technology. The system uses speech recognition products and user interface designs from ScanSoft Inc. (which obtained much of Dragon's speech technology via acquisition). Telephony servers at each data center are connected to back-office application servers running BEA Systems Inc.'s BEA WebLogic Server.

"The technology that used to be in those telephone silos, managed by the call center manager, is now becoming standards-based and is being driven by the same application server that serves the Web pages," says William Meisel, president of TMA Associates, a speech-technology consulting firm in Tarzana, Calif. "Now the IT department can create the applications in an environment that's more familiar to them."

Better Listeners

Organizations that have deployed speech technology say that recent advancements in natural-language understanding have made the systems more acceptable to callers. "With IVR, it was 'Touch or say three,'" says Joe Alessi, vice president for marketing and IT at AAA Minnesota/Iowa. "Now we can say, 'I'd like to change my address.'"

The organization last year replaced a touch-tone-based IVR member service system with a self-service system built on the Say Anything natural-language speech engine from Nuance Communications Inc. One objective was to reduce turnover in the call center by freeing agents from handling mundane calls, such as requests for new membership cards. Another goal was to address the problem of callers bailing out of the IVR system because they found the menus confusing, Alessi says.

The new system enabled AAA to reassign 20% of its call center staff as the number of calls that could be completely automated increased. And the organization has reduced processing costs by $2 per call on average, for a total annual savings of $200,000, according to Alessi.

T. Rowe Price Group Inc. in Baltimore also upgraded its menu-driven IVR system to a free-form speech system based on IBM's WebSphere Voice Response and Voice Server with natural-language understanding capabilities. The investment company reports big savings in telephone charges because automated calls can be completed faster. "An area we struggled with is doing transactions in the system," says Nicholas Welsh, a vice president at T. Rowe Price. "They could take three to four minutes, because you have to go through five or six menu legs. Now the same transaction takes 30 seconds because you can speak it all in one sentence."

Tying speech systems to mainstream corporate IT systems, and the use of VoIP, are making it easier to mine databases of voice records, much as companies have mined other customer records for years. For example, Continental Airlines Inc., which has used eQuality Balance from Atlanta-based Witness Systems Inc. to monitor calls and capture voice records and other data for three years, recently began using Witness' new CallMiner product to analyze call content.

IVR analysis tools usually can keep track of and report on a caller's choices based on which menu paths the caller has taken. But CallMiner and a few other tools can go into the voice record and look for specific words or word combinations. Continental, for example, recorded a sample of its 5 million monthly calls and then used CallMiner to turn the dialogues into text and mine it for certain things. In so doing, it discovered that about 10% of the calls contain the word *reconfirm*.

Calls to reconfirm a flight are "quite frankly low-value calls," says Andre Harris, Continental's director of reservations training and quality. She says she used the CallMiner analysis to justify the deployment of a new IVR system just for flight confirmations.

Continental currently has eight people listening to samples of calls in order to manually prepare a "call-mix report," which is used for analytical purposes by marketers and business planners at the airline. "The pilot test [of CallMiner] helped me realize very quickly that I can do this with one person instead of eight," she says.

And do it better. From the manually prepared call-mix report, Continental could see that it makes a sale on only half of all calls, but it couldn't tell why sales were lost. Telephone agents do try to elicit the reasons, and soon automated call mining will enable the airline to analyze callers' responses, Harris says. **47463**

Voice Tools Go Mainstream

Speech and telephony specialists traditionally have built speech recognition systems from complex stand-alone products. But IBM, Microsoft Corp. and others are changing that with speech products based on a broad range of application development and delivery tools.

IBM's Voice Server speech recognition engine, its Voice Application Access middleware (for adding voice portals into enterprise applications) and its Voice Response product (for interfacing with telephone networks) are all part of IBM's WebSphere product line. "The developer of a speech application now has access to the same tooling, application interfaces and databases that the Web programmer has had for several years," says Eugene Cox, director of mobile solutions for IBM pervasive computing. And because the products are based on open standards such as VoiceXML, he says, not all the components of the speech application have to come from IBM. (To learn more about VoiceXML, see QuickStudy on page 27.)

Similarly, Microsoft's new SpeechServer products are intended to bring speech technology to companies that lack huge IT budgets or employees with specialized speech or telephony skills. "We have taken standard Web programming techniques and developed tools that integrate into Visual Studio .Net," says James Mastan, director of marketing in Microsoft's SpeechServer product group. "You can add speech to your Web applications and program that the way you would any Web application."

And, he says, unlike many IVR systems that "go into a black box in the closet" and don't integrate with corporate systems, SpeechServer can be integrated and managed just like other Microsoft server products.

Mark Plakias, an analyst at Zelos Group Inc. in San Francisco, says a few companies go directly from live customer service agents to automated speech, but a more logical path is to start by building speech on top of Web applications. "Companies are saying, 'I can do this on the Web – self-service really works. Now I'll go back and do this on the phone.' So they are trying to make their phone self-service as flexible and maintainable as their Web self-service."

– *Gary H. Anthes*

FUTURE TALK

Researchers at IBM and BBN say advances in speech recognition systems could soon lead to more sophisticated applications.

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Continued from page 21

speech recognition systems for general-purpose use.

Meanwhile, corporations began rolling out interactive voice response (IVR) systems. The earlier ones — indeed, most in use today — are menu-driven: "For your fund balance, say or press 'one.' " A few advanced systems are more conversational: "What city are you departing from?" Despite the steady advancements to bigger vocabularies, lower error rates and more natural interfaces, however, speech products have remained specialized tools for niche markets such as PC navigation by the disabled, medical dictation and tightly constrained customer service interactions.

But now, previously stand-alone speech systems are linking up with enterprise systems to access other applications and spawn transactions. As a result, these speech systems — previously the domain of call center and telephony managers — are increasingly becoming something for the IT shop to worry about, if not manage.

Verizon's speech application, for example, can trigger a line test, update customer accounts, schedule repairs and create trouble tickets — processes that require interfaces with many systems. "If you create something that's just a veneer, people get it very quickly," says Fari Ebrahimi, senior vice president for IT at Verizon. "But for customers to really get value, you need to do something with the back office."

> **"With IVR, it was 'Touch or say three.' Now we can say, 'I'd like to change my address.'"**
>
> **JOE ALESSI,**
> AAA MINNESOTA/IOWA

Many of Verizon's back-office functions have been redesigned as Web services and are accessible by customers over the Web or by spoken request. The new system handles some 50,000 repair calls per day and has boosted the percentage of calls that are fully automated from 3% to 20%, Ebrahimi says. He won't say how much the company is saving in labor costs, but he says it's "millions and millions."

Verizon's National Operations Voice Portal is deployed across three geographically dispersed data centers, and calls are routed from point to point using voice-over-IP technology. The system uses speech recognition products and user interface designs from ScanSoft Inc. (which obtained much of Dragon's speech technology via acquisition). Telephony servers at each data center are connected to back-office application servers running BEA Systems Inc.'s BEA WebLogic Server.

"The technology that used to be in those telephone silos, managed by the call center manager, is now becoming standards-based and is being driven by the same application server that serves the Web pages," says William Meisel, president of TMA Associates, a speech-technology consulting firm in Tarzana, Calif. "Now the IT department can create the applications in an environment that's more familiar to them."

Better Listeners

Organizations that have deployed speech technology say that recent advancements in natural-language understanding have made the systems more acceptable to callers. "With IVR, it was 'Touch or say three,' " says Joe Alessi, vice president for marketing and IT at AAA Minnesota/Iowa. "Now we can say, 'I'd like to change my address.' "

The organization last year replaced a touch-tone-based IVR member service system with a self-service system built on the Say Anything natural-language speech engine from Nuance Communications Inc. One objective was to reduce turnover in the call center by freeing agents from handling mundane calls, such as requests for new membership cards. Another goal was to address the problem of callers bailing out of the IVR system because they found the menus confusing, Alessi says.

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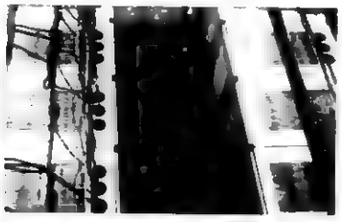
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1:00pm – 5:00pm	Pre-Conference Developer and Analyst Tracks
7:00pm – 9:00pm	Welcome Reception

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7:00am – 8:00am	Breakfast
8:00am – 12:15pm	General Conference Sessions
12:15pm – 1:30pm	Luncheon Sessions
1:30pm – 5:30pm	General Conference Sessions
1:30pm – 5:30pm	Concurrent Developer Tracks
3:45pm – 5:15pm	End User Case Study and Analyst Tracks
5:30pm – 8:30pm	Expo with Dinner

TUESDAY, SEPTEMBER 14

7:00am – 8:00am	Breakfast
8:00am – Noon	General Conference Sessions
Noon – 1:30pm	Expo with Lunch
1:30pm – 5:00pm	General Conference Sessions
1:30pm – 5:00pm	Concurrent Developer Tracks
4:00pm – 5:00pm	End User Case Study Track
6:00pm – 8:00pm	Gala Evening

WEDNESDAY, SEPTEMBER 15

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8:30am – 11:45am	Developer Track and Vendor Tracks
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Big Blue Meets Inspector Gadget

IBM shows its not-so-staid side as its lab works to develop high-tech gizmos. By Gary H. Anthes

THERE'S NOTHING special anymore about a digital bathroom scale. But this one has its own IP address and a Bluetooth connection to a cell phone.

And nearby is a similarly equipped pillbox. Forget your meds, and it might just e-mail you a reminder.

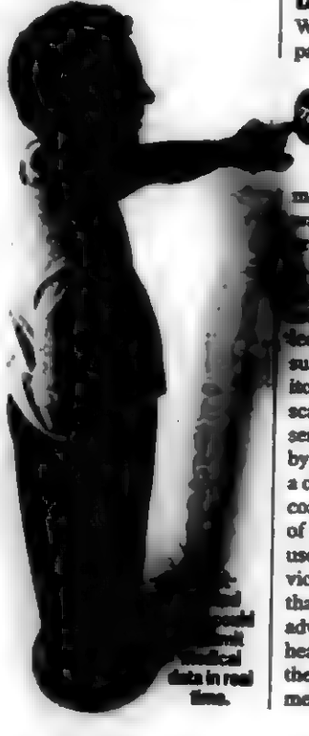
You won't find these items at The Sharper Image just yet. They and dozens of other futuristic gizmos are prototypes at IBM's Corporate Design Center in Somers, N.Y.

That's right — the same company that makes million-dollar mainframes and enterprise application software. Here in what IBM calls its Gadget Lab are devices that sit at the intersection of the marketplace and IBM's vast patent portfolio. Most of the prototypes have been built in small quantities for specific customers.

IBM hopes these demo devices will turn into real products, albeit in most cases manufactured by another company. In addition to generating license fees, IBM hopes they will spawn demand for its big-iron infrastructure products. Wherever there are networked bathroom scales and pillboxes, there must be a server and some database software in the background, IBM figures.

Several forces converged to prompt IBM to establish its Engineering Technology & Services division, which owns the Gadget Lab, in October 2002. There had been an explosion in the number of applications for IT embedded in consumer products, from cars to toys to medical devices, and there had been much innovation around e-commerce. "We interviewed 76 companies at the end of the dot-com era, and there was a lot of interesting technology left on the table," says Pat Toole, general manager of ET&S.

Seeking a way to match those technological opportunities with its 20,000 active patents and 40,000 engineers, and propelled by a management mandate to become more of a services company, IBM got into the gadgets business. Some 200 companies have paid it to develop prototypes so far. For the first time, IBM is giving customers access to its core technologies, not just to finished products.



IBM worked with the Mayo Clinic in Rochester, Minn., to design a small magnetic resonance imaging coil that can be used to examine body parts in extreme detail. An injured arm, for example, is inserted into the coil and then the coil and arm are inserted into the tube of an MRI machine. The resulting images recorded by the coil are more detailed than those that can be obtained any other way, says Bruce Kline, Mayo's technology commercialization manager.

Doctor in the House

Why turn to a computer company for a medical device?

"Mayo and IBM are trying to get together on many levels," Kline says. "IBM's win was they learned how to do a medical device. Mayo's win was access to engineers that are good at productization."

IBM is working with four companies to develop devices for wireless medical data collection. Wearable blood pressure, heart rate and EKG monitors — plus the bathroom scale and pillbox — could send real-time medical data by mobile phone to a doctor, a clinic or a pharmaceutical company whose clinical trial of a new drug includes the user of those devices. The devices could work in concert so that a physician receiving, say, adverse blood pressure or heart rate data could see that the patient hadn't taken his medication that day and respond accordingly.

A communications company in Europe wanted more flexibility in pricing cell phones, and it wanted to foster demand for services over its cellular network. In response, IBM designed a cell phone "hub" that contains the phone's battery, its cellular radio and a Bluetooth device. The hub stays in a pocket or purse and communicates with application-specific cell phone modules — which IBM also designed — that contain input and output devices such as keypads, earphones, cameras or minikeyboards.

This arrangement allows the cell phone owner to use the ultralight and cheap user-interface device as an ordinary cell phone. But it also lets the user employ any number of specialized mobile wireless gadgets. For example, IBM worked with Nike Inc. to fit Nike's foot-mounted pedometer with a Bluetooth connection to the cell hub. Now a jogger can automatically send time and distance data to his trainer — which might just be a Web application, not a person — and get back instructions or words of encouragement.

A stack of 27 bricks may be one of the most promising items in the Gadget Lab. Each brick in the prototype storage system contains a microprocessor, eight to 12 disk drives and communications hardware. Each brick can communicate with any other brick at 10Gbit/sec., and the bricks can be stacked to create data storage cubes scalable to petabytes [QuickLink 46885].



IBM's lab is working on a wearable blood pressure/heart rate monitor.

An array of these bricks in the lab — a cube that's about 30 inches on each side — can hold as much information as the Library of Congress. It has 10 times the storage density of anything ever made, says Robert Steinbugler, IBM's manager of strategic design. In a few years, one storage administrator using smart bricks should be able to manage a petabyte of storage, about 100 times more than is typical today, according to IBM.

The technology is part of IBM's autonomic computing initiative. "The idea of autonomic is self-healing, or self-managing," Steinbugler says. Smart bricks perform security and recovery operations without human intervention. The system can reconfigure itself in response to and in anticipation of varying conditions and user needs. And when a disk drive fails, users can ignore it. "You don't have to replace a failed drive," says Steinbugler. "It just fails in place. Drives are a commodity; that's why we can let them fail." 47025



Search View

CASE STUDY Oil field services provider Weatherford completes a companywide ERP deployment with enterprise search technology for user access. **By Tommy Peterson**

WHEN WEATHERFORD INTERNATIONAL LTD. began deploying an enterprisewide ERP system in 2001, the company wanted to make sure it gained maximum benefit from the massive migration project. Specifically, the oil field products and services company wanted to develop advanced search capabilities that would expose the information in its new J.D. Edwards OneWorld ERP software and the Parametric Technology Corp. (PTC) Windchill product data management (PDM) system installed with it, says Bill Droke, Weatherford's ERP manager. So the company brought in ProFind, an enterprise version of the Endeca Navigation Engine from Endeca Technologies Inc. in Cambridge, Mass.

Weatherford is a $6 billion corporation that competes with Halliburton Co. and Schlumberger Ltd. It has grown largely through mergers and acquisitions, a process that left it with a patchwork of IT systems across 440 locations in more than 100 countries.

"We identified 60 different systems that people were using to run the business, and a lot of them didn't talk to each other," says Droke.

It had become nearly impossible to track orders, assets and inventories. Many of the disparate IT systems came from acquired companies that used part-numbering systems that were different from the one Weatherford used.

"We had multiple part numbers for the same item and the same part number for different items in various parts of the company," says Droke. That meant that the sales staff was sometimes unsure of the availability and location of products. And purchasers for Weatherford's manufacturing operations sometimes bought components that were already in stock.

Weatherford needed to cleanse and rationalize data going into its PDM and ERP systems and make the information quickly available to the company.

Weatherford first approached Endeca for tools to help with the indexing and classification necessary for the data transformation and cleansing, and it later selected the vendor to provide the integrated search function.

As the ERP deployment rolls out incrementally, project teams identify products that have had business activity within the past 24 months. Each item is then designated with a part number and classified based on its technical attributes. When two different numbers are associated with parts that have identical technical attributes, one of the numbers is eliminated.

The cleansed and rationalized parts data, along with product structure data for anything Weatherford manufactures, is then inserted into the Windchill system, which provides the engineering staff with control over the information. Windchill then publishes the data to the J.D. Edwards OneWorld system (renamed EnterpriseOne by PeopleSoft Inc.). Since both systems have limited search capabilities, ProFind links to each of them, exposing the data, including technical attributes and legacy part numbers, to users from all departments.

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At a Glance

Weatherford International Ltd.

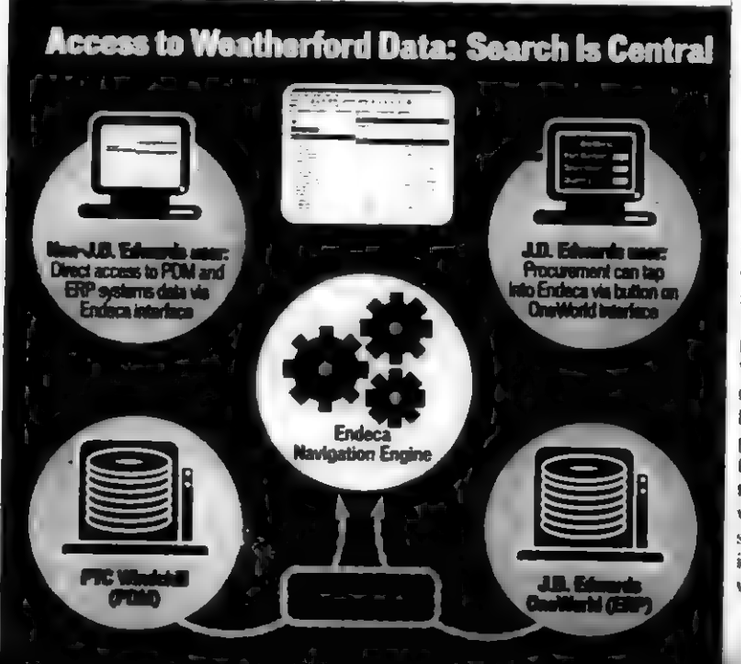
Houston

Provide widespread user access to information from a corporatewide deployment of a J.D. Edwards ERP system and a PTC Windchill PDM system

ProFind and Endeca Navigation Engine

Made key information available to all departments of the company, including nontechnical staff

Access to Weatherford Data: Search Is Central



VoiceXML

DEFINITION

Voice Extended Markup Language (VoiceXML) is a scripting language for defining dialogues and specifying the exchange of information between a user and a speech-enabled application.

BY RUSSELL KAY

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QUICK STUDY

In other words, we want to be able to talk to our Web pages and have them talk back to us. This is called voice browsing, and it lets users retrieve information from the Web by means of speech synthesis, prerecorded audio and speech recognition. Voice capability can be added to conventional desktop browsers, and as mobile devices become smaller, voice interaction can provide a more practical alternative to tiny keypads and undersized displays.

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VoiceXML is the most visible part of this framework, while the other elements are essentially infrastructure. VoiceXML leverages the other specifications for creating dialogues that feature synthesized speech, digitized audio, recognition of spoken and DTMF key (i.e., touch-tone) input, recording of spoken input and telephony. VoiceXML hides many of the complexities of telephony platforms.

VoiceXML has features to control audio output and input, presentation logic, flow, event handling and basic telephony connections. Applications built with VoiceXML can include prerecorded audio material, just as HTML can incorporate existing images in a graphical page.

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Languages like VoiceXML and its predecessors have to support two kinds of markup: one that describes the text according to its structure or content, and another that controls aspects of how speech is to be produced, such as voice pitch and emphasis. **47675**

Kay is a Computerworld contributing writer. You can reach him at russkay@charter.net.

Origins of Speech Synthesis

We've paid a lot of attention over the years to speech recognition – getting the computer to hear and understand what we say to it – but much less to how the computer talks back to us via text-to-speech (TTS) synthesis. A number of proprietary systems have been used, beginning in 1961 when Bell Labs researchers programmed an IBM 7094 to sing "Daisy" (an event memorialized in the film *2001: A Space Odyssey*).

TTS got a big boost in 1976 when Ray Kurzweil introduced his Reading Machine, which could scan printed copy and speak it. At the time, we acknowledged the significance of the breakthrough but made bad jokes about the heavy "Swedish chef" accent.

In the intervening three decades, computers have grown far more powerful and we have developed many more tools with which to produce better output.

VoiceXML has its roots in an AT&T Bell Labs project called PhoneWeb, a phone markup language and platform for building both consumer and call-center telephony applications.

Motorola used a similar approach so it could provide mobile users with interactivity and current information. Motorola focused on hands-free access, emphasizing speech recognition rather than touch-tones for input. Motorola based its language on XML and in 1998 announced VoxML.

Another XML-based speech language, Sable, was also introduced in 1998 and built on the Spoken Text Markup Language (1997's STML, based on the 1996 Speech Synthesis Markup Language) and Java Speech Markup Language, also dating from 1997.

– *Russell Kay*

Key Concepts

SESSION: A set of interactions among a user and a VoiceXML interpreter, usually oriented around a common transaction, beginning with user interaction and ending when the user, program or VoiceXML interpreter makes a request.

APPLICATION: A set of VoiceXML documents that share the same root document. The root document's information is available to all documents in the same application.

DIALOGUE STATES: The user is always in one dialogue state at any given time. Each dialogue specifies, as a URL, the next dialogue to transition to.

GRAMMARS: Sets of rules defined for a particular dialogue or application that describe the expected user input as either spoken words (using speech) or touch-tone keystrokes.

SUBDIALOGUE: Similar to a function call, a subdialogue invokes a new dialogue and then returns to the original but retains local state information. Subdialogues are useful for confirmations and to create a library of reusable elements.

FORMS AND MENUS: A menu offers the user a set of options and then moves to another dialogue state based upon the user's choice. A form is a group of fields for collecting data along with specifications for prompts, input and validation.

NAMED VARIABLES: These hold specific data values.

EVENTS: These are triggered when a user fails to respond to a prompt or when the system can't understand the input.

For a helpful tutorial on VoiceXML with greater detail and examples, see www.w3.org/Voice/Guide

MICROSOFT'S ALTERNATIVE

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Search FOR A View

CASE STUDY Oil field services provider Weatherford completes a companywide ERP deployment with enterprise search technology for user access. **By Tommy Peterson**

WHEN WEATHERFORD INTERNATIONAL LTD. began deploying an enterprisewide ERP system in 2001, the company wanted to make sure it gained maximum benefit from the massive migration project. Specifically, the oil field products and services company wanted to develop advanced search capabilities that would expose the information in its new J.D. Edwards OneWorld ERP software and the Parametric Technology Corp. (PTC) Windchill product data management (PDM) system installed with it, says Bill Droke, Weatherford's ERP manager. So the company brought in ProFind, an enterprise version of the Endeca Navigation Engine from Endeca Technologies Inc. in Cambridge, Mass.

Weatherford is a $6 billion corporation that competes with Halliburton Co. and Schlumberger Ltd. It has grown largely through mergers and acquisitions, a process that left it with a patchwork of IT systems across 440 locations in more than 100 countries.

"We identified 60 different systems that people were using to run the business, and a lot of them didn't talk to each other," says Droke.

It had become nearly impossible to track orders, assets and inventories. Many of the disparate IT systems came from acquired companies that used part-numbering systems that were different from the one Weatherford used.

"We had multiple part numbers for the same item and the same part number for different items in various parts of the company," says Droke. That meant that the sales staff was sometimes unsure of the availability and location of products. And purchasers for Weatherford's manufacturing operations sometimes bought components that were already in stock.

Weatherford needed to cleanse and rationalize data going into its PDM and ERP systems and make the information quickly available to the company.

Weatherford first approached Endeca for tools to help with the indexing and classification necessary for the data transformation and cleansing, and it later selected the vendor to provide the integrated search function.

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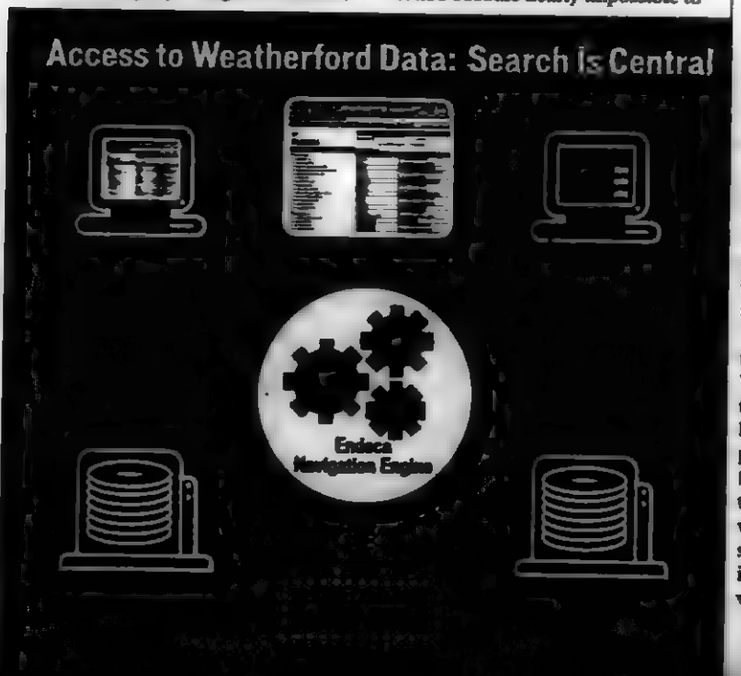
COMPANY: Weatherford International Ltd.

HEADQUARTERS: Houston

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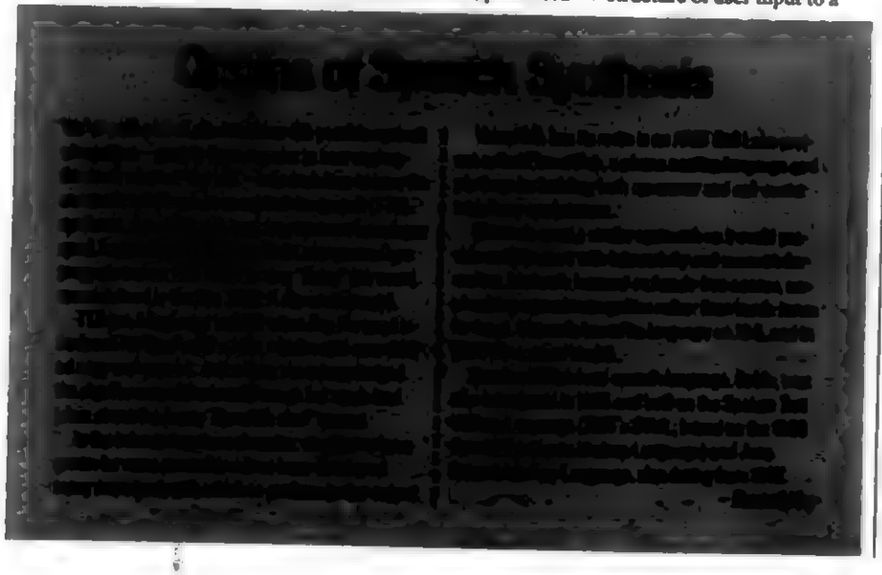
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Spyware Gets Top Billing

An infection on the CEO's home system leads to a call for new preventive measures. By Mathias Thurman

THIS WEEK, I was suddenly called into my boss's office for an urgent meeting. From the look on his face, I expected to hear that we had a serious security incident under way. Instead, he asked what our department was doing about spyware.

Apparently, a spyware program had infected our CEO's home computer, so he asked the CIO if we had a plan to deal with adware and spyware. The CIO marched down to a vice president's office to ask the same question. That VP then asked a director, who asked me whether we have any infrastructure to deal with an increase in spyware activity within our company. The short answer is that we don't have any. So now the question is, Why don't we have that infrastructure in place?

It's funny how these sorts of inquiries roll downhill. At a previous job, I once had to bring in several vendors after the CEO read an article about public-key infrastructure. We explained to him that PKI was still in its infancy and would cost several million dollars to implement. The project died quickly after that.

Typically, adware is software that installs a service or program that spawns pop-ups or launches a Web browser that points to a specific Web site's marketing message [QuickLink 45702]. Adware also tracks an individual's surfing habits and sends that information to a third party for analysis and use in marketing campaigns. Spyware is software that monitors a user's activity without his knowledge. In addition to Web surfing, it may also monitor things such as keystrokes.

Spyware and adware are two sides of the same coin. Both enter a computer system when a user opens an attachment or clicks on a Web page that allows a program to be executed on the system without his knowledge. Both make similar modifications to a system, such as changing Windows registry settings, adding services and installing and executing applications.

SECURITY MANAGER'S JOURNAL

When I recently experienced pop-up ads on my home system, for example, I was amazed at the number of modifications that had been made to it. I found several applications I didn't recognize in the registry key responsible for starting applications at boot time. All of them turned out to be adware. There are many freeware and commercial products I can use at home to identify and remove these applications. For example, I use Patrick Kolla's Spybot — Search & Destroy. The popular program is available for free at *www.safer-networking.org* and is supported by user donations. But neither this nor the other tools I've come across are appropriate for enterprise use. Most lack enterprise-class support, pricing and centralized management features.

Adware and spyware are often difficult to detect until they affect performance.

Furthermore, while the CEO and I had both experienced spyware problems at home, I wasn't aware of an issue on company machines. I called our help desk manager, who concurred that we haven't had many internal problems with spyware or adware. But that doesn't mean that our desktops are free of this code, and now I need to know for sure. The dilemma is that adware and spyware are often difficult to detect until they affect performance, flood the user with pop-up ads or make the system unstable.

Difficult to Block

As for blocking spyware communications, we don't restrict outbound TCP/IP traffic. Except for certain unauthorized music-sharing applications such as Kazaa, we allow almost all network traffic originating from desktops to leave the company. Many spyware and adware programs send data out, or "call home," by way of HTTP Port 80.

Practically speaking, we can't block all those destination addresses because they change frequently. Although we have an intrusion-detection system (IDS), spyware and adware are so dynamic that it's difficult to use signatures to identify this traffic.

The best way to deal with this type of problem is on the desktop. Several programs can identify the common registry entries, services and applications that might be modified or installed by adware and spyware. The problem is that we have more than 10,000 desktops in dozens of countries, so management of one desktop at a time is unrealistic.

Another option is to install a host-based IDS, which typically includes a period of time in which you record the normal activity of an uninfected system and then mark that as the baseline. Then, when the software detects something outside of normal operations (for example, starting a new service or writing to certain parts of the registry), the IDS generates an alert. But deploying this software requires extensive resources. And if it's not deployed properly, a host-based IDS will generate false positives, preventing users from conducting legitimate business activities or sending users excessive pop-up warning messages.

In addition, a host-based IDS is yet another application that must be managed and maintained. Add it to the plethora of applications you already have — antivirus, desktop firewall, patch management, disk encryption and so on — and you've created a very complex desktop environment with multiple centralized management consoles to maintain.

Don't get me wrong. I'd love to have everything I could install on each employee's desktop. But technology consumes both money and staff resources. There's a place for a host-based IDS, but mostly for important servers, not for 10,000 desktops. But I have to start calling on vendors that claim to have centrally manageable enterprise-class tools for detecting and removing spyware and adware. The first tools are just coming out, but I'd be surprised if there were any mature, scalable systems at this early stage.

WHAT DO YOU THINK?

This week's journal is written by a real security manager. "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: QuickLink a1580

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SECURITY LOG

Security Bookshelf



Wardriving: Hacks, Detection, Defense. A Guide to Wireless Security, by Chris Hurley, Michael Puchol, Russ Rogers and Frank Thornton; Syngress Publishing, 2004.

This title focuses on protecting against attackers who use a laptop and wireless LAN card to try to break into your WLAN while parked outside your offices. If you don't already understand the basic details of WLAN technology and the intricacies of the various 802.11 protocols, this book won't help. But if you do understand the fundamentals, this book will help you determine whether your WLAN is secure enough to prevent war drivers from identifying and infiltrating your network.

The book includes two main sections: one on Windows-based tools, and one on Linux-based applications. Both cover a lot of ground, but neither offers astounding detail. And if you're willing to do your own research, much of the book's information on the use of the tools is available for free on the Web.

—Mathias Thurman

Symantec Updates Antispam Software

Symantec Corp. last week released an updated version of its recently acquired Brightmail Anti-Spam software. The client software now includes enhancements and filters to block spam in 12 languages and supports server-based Web-based control and management and consolidated report tracking, according to the Cupertino, Calif.-based company. The software is also designed to let administrators set spam policies on a per-user or per-group basis and includes anti-fraud signatures to help identify "phishing" attacks and other fraudulent spam messages.


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BRIEFS

Fujitsu, Microsoft Team on Longhorn

Fujitsu Ltd. plans to collaborate with Microsoft Corp. to develop an Itanium-based server optimized for Windows Server 2003 and the next major Windows Server release, code-named Longhorn. A Windows Server 2003 chip is expected in the first half of next year. Microsoft has set 2007 for Longhorn's release.

PassGo Upgrades Security Tokens

PassGo Technologies in Pittsburgh has released Version 5.1 of its Defender authentication and security tokens. Defender 5.1 provides users with a secure way to be authenticated and gain access to a secure network from any location via a Web browser, according to PassGo. Pricing starts at $36.20 per user.

Students, Google Develop 'Monkey'

Students at the University of California, San Diego, and developers at Google Inc. in Mountain View, Calif., have jointly created an open-source tool designed to better predict the effect on real-world server performance if changes are made to things like network infrastructure. Called Monkey, the tool first captures data from actual client sessions – what its creators call the "monkey see" portion of its work. It then attempts to emulate those conditions for server tests, in the "monkey do" phase. Source code for the tool is available at *http://ramp.ucsd.edu/projects/monkey/*.

Sun Thin-Client User Group Formed

Sun Microsystems Inc. has formed a user group for its thin-client system, Sun Ray. The group is being led by Jaimie Jamieson, program supervisor of technology at the Moose Jaw Catholic School Board in Saskatchewan. The user group Web site is *www.sun-rays.org*.

PAUL A. STRASSMANN

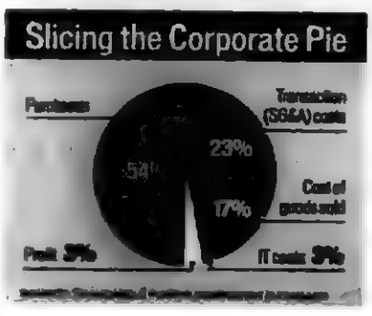
CIOs Must Manage What's Left

IF ALL YOUR NEIGHBORS lose their jobs, you call that an economic recession. If you lose your job, you call it a depression. The same reasoning seems to apply to the enormous attention that computer people are suddenly giving to outsourcing. The fact is that CFOs have always pushed for outsourcing everything associated with the cost of goods sold. What is different now is that CFOs have shifted their target and placed IT on the top of their list of functions that should be subjected to competitive pricing.



Outsourcing is widely practiced with regard to factory labor and materials supplies, without distinction between domestic or foreign sources. It is labeled as "competitive purchasing," "best value procurement" or "commercial off-the-shelf acquisitions" (in government). After 50 years of abnormal growth in the number of IT jobs, and after a period of above-average increases in compensation for IT people, CFOs are seeking lower overhead expenses. That's where IT is most vulnerable, because most of IT is an overhead burden.

A squeeze on profits necessitates cost-cutting. When it comes to picking where to cut, why not select what has escaped pruning for at least 20 years?



The CFOs — still nursing a grudge for having lost possession of IT — are happy to oblige [QuickLink 41348].

The CFOs understand that corporations already purchase (e.g., outsource) most of their costs, as shown in the pie chart below of median values for over 2,000 U.S. corporations.

Given the high percentage already devoted to purchasing to gain a competitive cost advantage, the current outsourcing initiatives shouldn't come as a surprise. Offshore procurement would be a logical choice, since imports already account for 14% of the gross national product of the U.S.

I have calculated "outsourcing ratios" (e.g., the ratio of purchases to revenues) for over 1,000 global companies. (For a chart showing a diverse selection of firms, see QuickLink a4710.)

As a rule, I find that diversified multinational corporations — already engaged in global commerce — show higher outsourcing ratios than smaller firms. Therefore, one can expect an acceleration in the awarding of outsourcing contracts in $100 million increments. The primary purpose of such contracts is to take over the job of migrating the obsolete client/server architectures to network-based data-centric designs. As I previously noted in *Computerworld* [QuickLink 40856], such outsourcing would pass on to vendors the technology risks for fixing the creaky and unaffordable computing infrastructures.

Sensational headlines notwithstanding, the CFOs fully comprehend that IT does matter! IT median costs now equal median corporate profits. They are not a mere 3% of revenues but 13% of overhead (e.g., transaction costs), which is nowadays the principal cause of eroding corporate profits.

In about a quarter of companies, IT constitutes the largest cost center and therefore will get intense attention in budget reviews. In this environment, asking for massive reductions in IT spending will always be a politically popular move — except that IT innovation has now become a strategic necessity. Without injections of new sums of money, we won't be able to free companies from 50 years of emphasis on intracompany information processing and start moving toward a future that mandates global interoperability with vendors and customers.

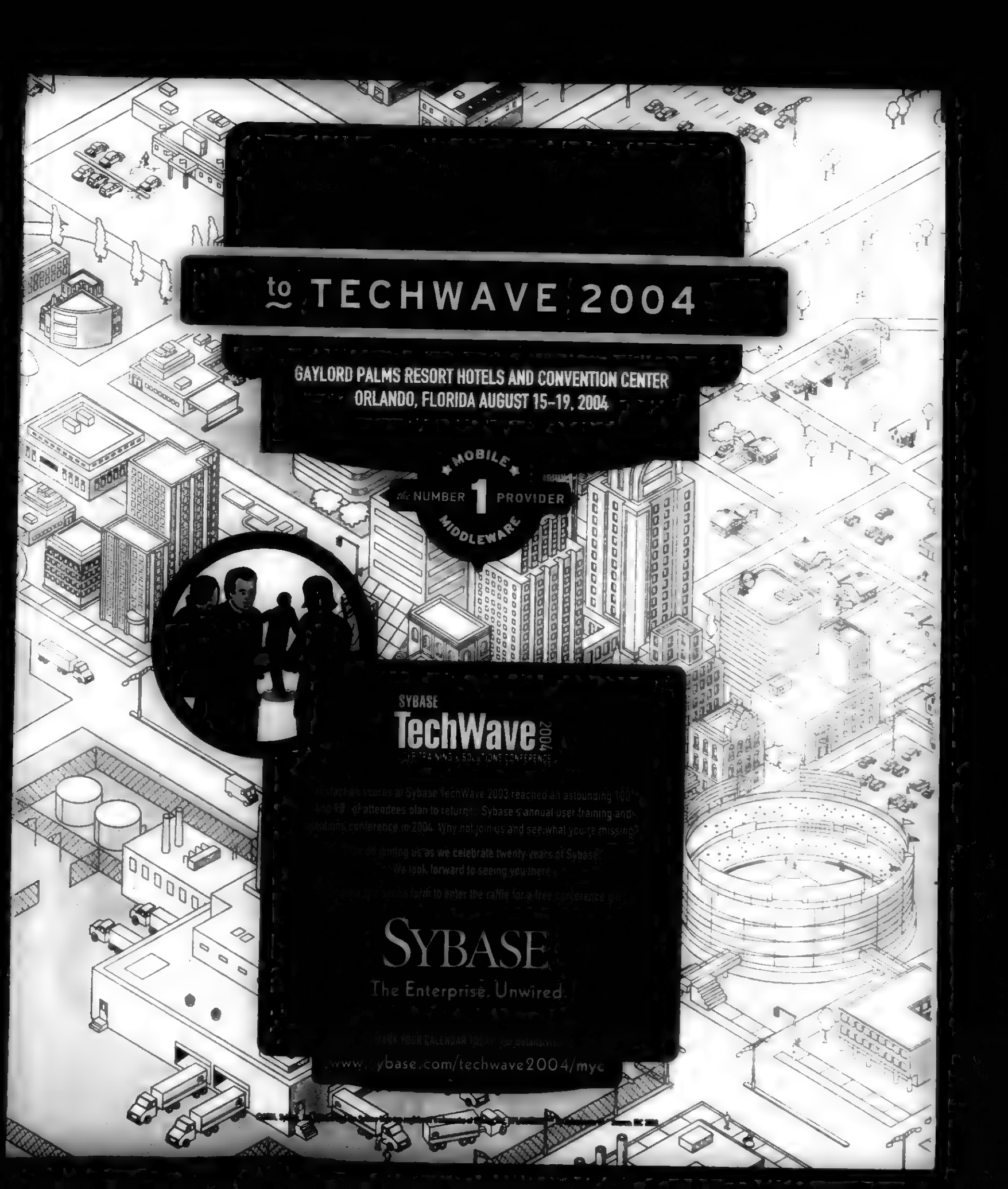
Whether refocusing your firm's IT infrastructure results in a bleeding amputation or in simple outpatient surgery depends on your information architecture. If you have built up your infrastructures separately for each organization, invested in isolated client/server farms, depend on desktop-centric applications for too many applications or do not have a companywide data dictionary, you will need to remedy your conditions prior to passing on your IT infrastructure to the outsourcers with the most attractive bids.

The CFO will always show reasons for outsourcing to reduce costs. The job of the CIO after outsourcing more than three quarters of IT spending is to manage risks and preserve those parts of the IT organization that are the essential core competency for safeguarding future prosperity.

47723

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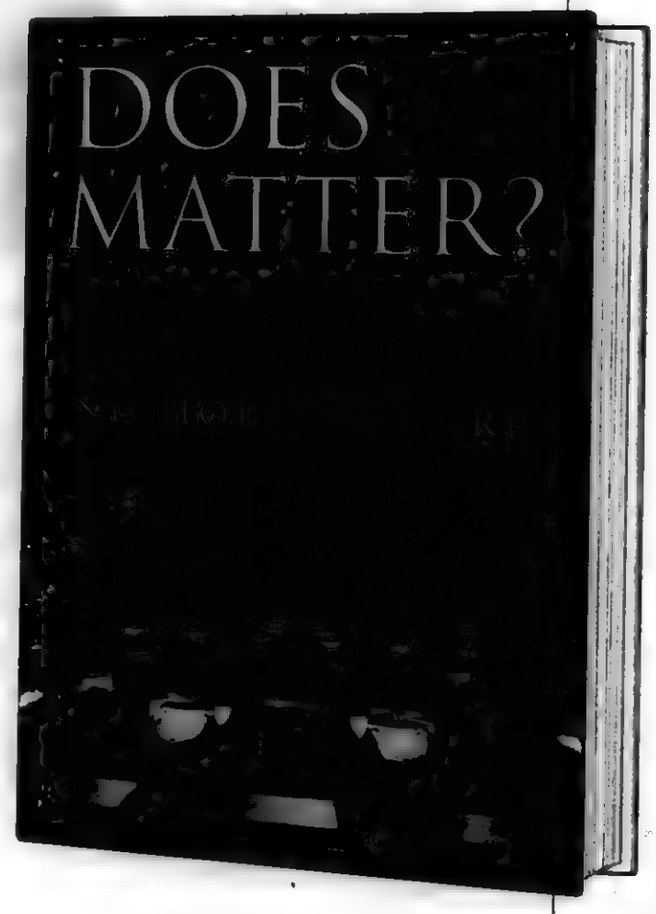
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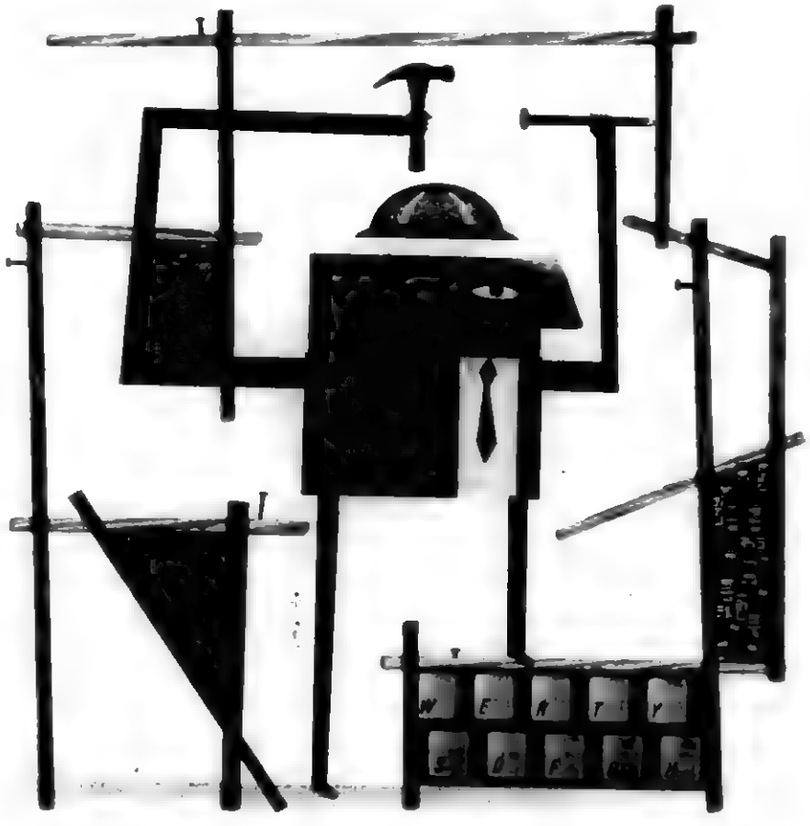


Shareware Grows Up
CIOs Scott R. Lien (left) and Andrew Black got tired of the high cost of software development and thought there had to be a better way. So they developed a software co-op to share intellectual property. **Page 35**

Think Tank
The IT and facilities management departments are headed for a merger in the next decade; and a new book on the future of work says it looks a lot like open-source software development. **Page 36**



OPINION
The Wrong Stuff
Gearing up to make some great IT hires? Paul Glen says many IT shops will miss out on the best people because they don't know what to look for. **Page 38**



JOYCE HESSELBERTH

BUILDING A Compliance Framework

As the flow of mandates continues, CIOs who can integrate corporate compliance efforts will be ahead of the pack. BY STEVE ULFELDER

DO YOU BREAK OUT in a cold sweat whenever you hear the phrase *Section 404*? When a coworker mentions HIPAA, do you race back to your office to figure out the earliest possible date you can retire?

If so, we've got some bad news: The Sarbanes-Oxley Act, the Health Insurance Portability and Accountability Act, the USA Patriot Act and other regulations of their ilk are just the beginning. For the foreseeable future, you can expect a steady flow of industry, state, federal and international mandates that codify the way businesses gather, store, manage and report information.

Naturally, IT will play a key role in compliance. But will that role be one of leadership or mere execution? Can IT create systems and processes that allow the corporation to easily comply with any new regulation it encounters, regardless of that regulation's specifics and origin? These are key questions, and millions of dollars ride on the answers.

Some doubt such preparedness is feasible. "Predicting the next big regulation is like trying to predict the weather," says Thomas Watson, information security project lead at West Haven, Conn.-based Bayer Pharmaceutical. "Who knows what's going to come down next?" Others, however, believe it's both possible and necessary to create a compliance management infrastructure and environment that can make future regulations less onerous to follow. Here's a look at the benefits of compliance management, the hurdles and the steps companies can take to get started.

Keys to Compliance

AIIM International recently published a book on IT compliance that attempts to lay out a step-by-step program for businesses. *Information Nation: Seven Keys to Information Management Compliance*, by Randolph Kahn and Barclay T. Blair, is filled with checklists, examples and key questions that IT must ask. Here are the seven keys as outlined in the book:

1. **Good policies and procedures**
2. **Executive-level program responsibility**
3. **Proper delegation of program roles and components**
4. **Program communication and training**
5. **Auditing and monitoring to measure program compliance**
6. **Effective and consistent program enforcement**
7. **Continuous program improvement**

More information is available at www.aiim.org.

Making Lemonade

The most persuasive reason to institute compliance management culture is to reduce the cost of meeting individual regulations. A look at the price tag for Sarbanes-Oxley drives home the point. In a January 2004 survey of 217 companies, industry group Financial Executives International found that for large companies, the average cost of compliance with Section 404 — Management Assessment of Internal Controls — was $4.6 million, including 23,000 hours of internal staff time. Spending for consulting and software added $1.8 million in new audit fees.

Business Roundtable, an association of 150 of the U.S.'s largest companies, conducted a similar survey in July 2003 in which it found that IT's share of their compliance costs would range from $1 million to $5 million; other categories topped $10 million.

The good news is that the cost of Sarbanes-Oxley compliance, along with that of HIPAA and other regulations, can be used as a basis for meeting future regulations. According to Stamford, Conn.-based Gartner Inc., public companies that adopt a comprehensive compliance management architecture will spend 50% less per year than those that don't.

"In many organizations, the first reaction to a new regulation is to create a 'tiger team' " to address the issues, says Gartner analyst Lane Leskela. "But if you've got these teams for three or more regulations, the redundancy makes no sense."

> **You can't buy a compliance architecture; they don't exist.**
>
> **John Hagerty,** analyst, AMR Research Inc.

A compliance strategy can also provide a competitive edge. If your business can respond quickly to new regulations while others in your industry remain stuck in tiger-team mode, the advantage goes to you.

Spearheading

While it's tough to anticipate future regulations, it's a sure bet that data-gathering will be a critical component of compliance. That's why it makes sense for CIOs to lead the charge.

"When business leaders look at compliance, they look at the letter of the law, not repeatability," says John Hagerty, an analyst at Boston-based AMR Research Inc. "IT can say, 'Here's how we can automate so it's not such a pain next time.' " Technologists can lead the compliance effort because they can ignore departmental and line-of-business barriers and comprehend the big picture regarding data and data flow.

It's also important to lead externally by leaning on software vendors to more fully develop their offerings so that there are fewer security vulnerabilities and less reliance on patches. Experts say today's premature commercial software rollouts and subsequent frequent patching make it difficult for companies to vouch for the integrity of their systems. Where data integrity and security are concerned, "IT must say to suppliers that it cannot live with unsafe technology," says Alan Paller, director of research at the SANS Institute in Bethesda, Md. "Today, there's not sufficient pressure; IT groups are allowing vendors to sell them systems full of holes."

Elements

So how do you create systems with an eye toward compliance? Gradually, for starters; nobody expects IT groups to toss their infrastructures overboard and start from scratch. John Mancini, president of industry group AIIM International in Silver Spring, Md., says one digestible approach is to keep in mind a regulation that you know is pending. Then, when you upgrade a technology component that will be affected by that regulation, shop accordingly. For example, a business that's heavily affected by HIPAA should consider that regulation when exploring access-control offerings.

AMR's Hagerty agrees. "You can't buy a compliance architecture; they don't exist," he says. "So you look at hot buttons for your company to see what you must handle first, and use that to decide what architecture pieces you must put in place first."

Myriad technologies play a role in compliance support:

- **Business process management applications,** for both reporting and risk forecasting.
- **Enterprise resource planning,** to ensure that controls are in place.
- **Search and retrieval,** for information discovery and communications monitoring.
- **Storage (software and hardware),** to protect and retain data.
- **Security,** to control access, protect data and ensure that systems are auditable.
- **Content management,** to control access and handle document compliance efforts.
- **Records management and e-mail archiving,** to meet retention regulations.
- **Data and application integration,** to make unstructured data usable and ensure the data's reliability.
- **Business process automation,** to monitor key processes and define relationships among data.

In addition, vendors have begun to roll out general-purpose compliance management applications (as opposed to applications focused on a single regulation). Axentis Inc., IBM, Documentum and FileNet Corp. have fielded products, and many others are expected to follow suit.

Challenges

IT managers who attempt to raise company consciousness about compliance shouldn't necessarily expect a hero's welcome. According to Gartner's Leskela, too many corporations still approach regulations the way they did when Sarbanes-Oxley became an issue: "Businesses decided this was an issue for finance, and finance said to IT, 'You'll get involved when we say you'll get involved,' " he says.

Leskela adds that in interviews with many of the largest, best-managed companies in the U.S., Gartner found a dispiriting number of process management silos preventing legal, financial audit and IT audit groups from working together. "Organizations just don't connect senior management of business divisions to [corporate] legal, IT and finance groups," he says.

Making these connections is the first challenge, and a prickly one at that. Volunteering to lead the company's compliance management program is sure to be viewed by some as a power grab. Nevertheless, it's worth the effort. **47455**

Ulfelder is a Computerworld contributing writer in Southboro, Mass. Contact him at sulfelder a charter.net.

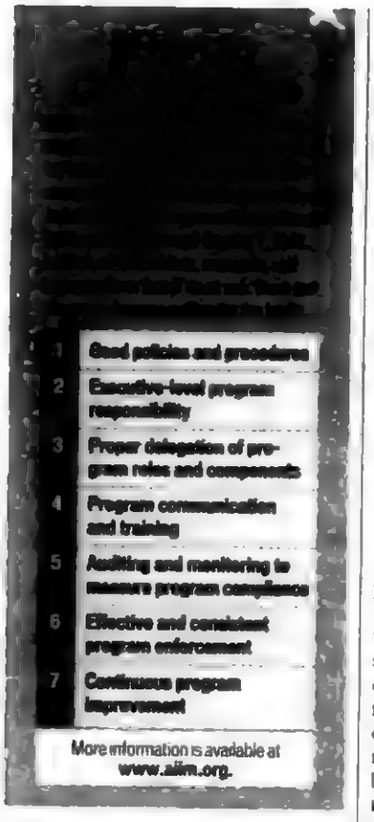
WANTED: IT INVOLVEMENT

Some corporate auditors are lamenting IT staffers' reluctance to help with Section 404 compliance.

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Technologies Involved in Compliance

	Basel II	Gramm-Leach-Bliley	HIPAA	Patriot Act	SEC 17a-4	Sarbanes-Oxley	21 CFR Part 11
Financial compliance and BPM/analytical apps	●						
ERP	●						
Business intelligence and data warehousing	●						
Content/document management and search	●	●	●	●	●	●	●
Data/app integration	●					●	●
Business process automation	●	●			●	●	
Records management and e-mail archiving	●	●		●		●	●
Storage SW/HW	●	●		●	●	●	●
Security	●	●	●	●	●	●	●



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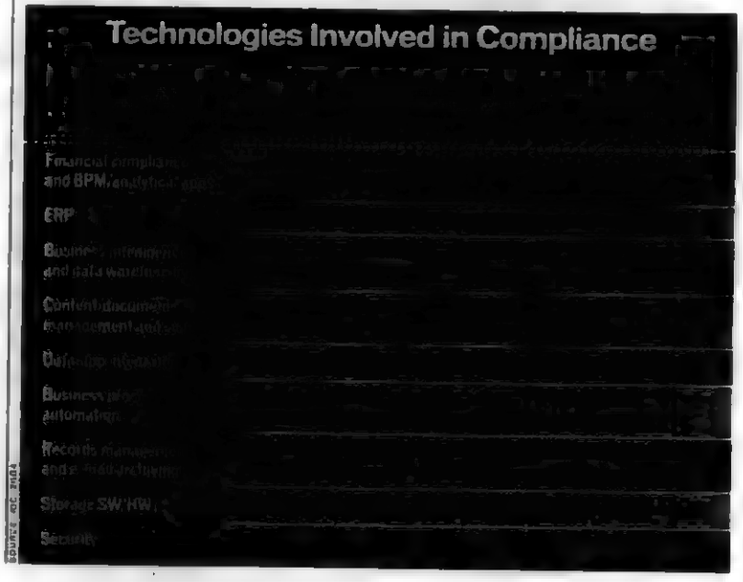
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SHAREWARE Grows Up

A friendly group of Midwestern CIOs is saving money by pooling resources and software. BY CJ RHOADS

IN JULY 2001, Andrew Black and Scott R. Lien were having a drink after work and commiserating about the high cost of software and intellectual property development. Lien, then vice president of information services for customer-facing systems at Best Buy Inc., had just been burned by a vendor that decided to take its software in a different direction — leaving Lien high and dry for future updates. He and Black, CIO at Jostens Inc., knew from years of experience that they were both purchasing the same software and coding the same integration functions. They decided there had to be a better way.

In yet another after-work conversation, they enlisted the help of Elmer Baldwin, CEO of consulting firm Born Information Services Inc. The plan: Form a member organization to share resources such as software, utilities and IT planning tools.

"Initially," Baldwin said, "I thought they were nuts!" But he took on the project, began to investigate and soon was hearing a litany of complaints from CIOs about the cost of duplicated development efforts.

Meanwhile, Baldwin, Black and Lien met monthly. They hired Minneapolis-based Dorsey & Whitney LLP to work through the legal issues, consulted with prospective members and developed a business charter. Last fall, they formalized the structure as Avalanche Technology Corp., a for-profit Minneapolis-based cooperative, and hired Jay Hansen, formerly general manager of Asia-Pacific operations at Retek Inc., as CEO.

Companies pay $30,000 a year for an Avalanche membership, which entitles them to use any of the intellectual property that has been donated to the cooperative by other members. There are currently four members, with four more in various stages of approval, and about 30 intellectual property assets are being legally cleared for use. "Our goal is to grow by at least 10 companies within the next year," Hansen says.

Members log onto *www.avalanche.coop*, where they can review and download intellectual property or upload property they wish to donate.

Intellectual property assets can be integration applets, application add-ons, best-practice documentation, templates, project plans, user interfaces, software coding or schemas. "Anything that makes it easier to implement software," Baldwin says. "The financial models project a 20% to 40% decrease in the total cost of ownership of software at member companies," he adds.

Lien explains the Avalanche mission: "We want to take the friction out of collaboration," he says. "We are all under tremendous cost pressure to save money, and through Avalanche we can save each other money."

"Software cooperatives are a great idea," says Bob Lewis, president of IT Catalysts Inc., a consulting firm in Eden Prairie, Minn. "I'm surprised that it took so long to happen. It really legitimizes the open-source model."

Beyond Open-Source

Lien says the co-op model is similar to that of open-source but takes the concept further. "This is the next level beyond open-source," he explains. "With open-source, there is too much risk. You are stuck maintaining and supporting anything you develop. That can get resource-intensive."

With Avalanche, Lien says, the co-op becomes responsible for the asset and also ensures that there's a clear title so member companies can't be sued later. "It is great for the donating companies," he says. "The larger the installation base, the lower the cost of ongoing maintenance."

John Schmidt, vice president of integration at Best Buy, echoes that idea. "It's easy to informally collaborate with just one or two developers; companies do it all the time. But beyond that, you begin to run into risks," he says. For example, Best Buy was using an open-source framework available at *www.openadaptor.org*, but the original developers stopped supporting it, leaving Schmidt hanging. Later, when Best Buy developed its own framework for coding integration adapters, the company donated it to Avalanche.

The charter members of Avalanche are Jostens, a provider of affiliation products such as yearbooks; ePredix Inc., an employee assessment firm, where Lien is now CIO; Born Information Services; and Integral Business Solutions. All four are based in the Minneapolis area. As technology service providers, Born and Integral are obligated to donate services in addition to paying the membership fee.

Hansen says that competition among members shouldn't be an issue because the shared assets don't bring competitive advantage. "We fully expect competing companies to join and share," he says. But he acknowledges that getting members to really collaborate is a challenge.

Baldwin agrees. "We are looking for more than just money," he says. "We want member companies to get involved, to participate." They hope member companies will donate intellectual property, cooperate in adapting it for other companies, help troubleshoot problems and form subgroups to develop needed niche software for the library.

As of June, a discussion board on the Avalanche site had been discontinued because of underuse, but Schmidt is still optimistic. "Six months from now, the site will be very active," he says. "The idea hasn't been proven yet. It's a leap of faith. But I think it will work." 47448

Rhoads is a freelance writer in the Philadelphia area. Contact her at CJRhoads@ETMAssociates.com.



A discussion of software development resource issues over an after-work drink led Scott R. Lien (left) and Andrew Black to form the for-profit Avalanche Technology cooperative.

Show Me the Money

The Avalanche co-op is still young, but early savings hint at its potential:

- Best Buy developed and donated a framework, called AppTalk, that cuts the labor cost of coding adapters (code that integrates two systems) from $25,000 to $5,000.
- ePredix expects to cover the $30,000 Avalanche membership fee with one use of Cherrydata, a Web deployment utility donated by Best Buy.
- During the initial phase of Avalanche, when companies were sharing software informally, Jostens donated a project plan for an Oracle upgrade that it had spent more than $100,000 developing. Intuition Corp., currently a candidate for membership, subsequently used it, spending only $5,000 to customize the battle-tested plan.

–CJ Rhoads

AVALANCHE GETS ROLLING

Avalanche CEO Jay Hansen talks about the formation of the organization.

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ThinkTank

CIOs to Manage Buildings, Too?



Best Bits



Things to Ponder

- Less is more.
- What's the next big thing in IT?
- Dirty data

47651

Privacy Brands

Consumers say these are the most trusted companies for protecting their privacy:

1. eBay Inc.
2. American Express Co.
3. Procter & Gamble Co.
4. Amazon.com Inc.

BASE: Survey of 6,309 U.S. consumers
SOURCE: Joint study by the Ponemon Institute, Tucson, Ariz., and Truste, San Francisco; June 2004

The IT Economy

■ The IT department has taken over printer procurement from office managers, since printers are on the network, says a report by Merrill Lynch & Co. analysts. The firm's survey of 100 CIOs found that 87% are in charge of buying printers, though it's a relatively low-priority task.

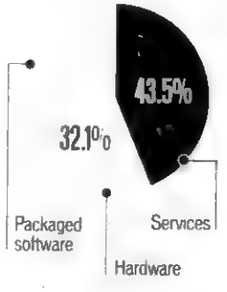
■ IT outsourcing spending will grow 9% this year, while spending on IT consultants and full-time staff will stall at 3% and 2% growth, respectively, according to a Forrester Research Inc. survey of 115 CIOs.

■ The combined IT spending in California, New York and Texas is almost equal to IT spending in Japan, the second-largest market in the world, IDC reports.

U.S. IT Spending Forecast

2004 SHARE

Packaged software will make up only 24% of IT spending . . .



2004 GROWTH

. . . but it will be the fastest-growing segment.



SOURCE: IDC, FRAMINGHAM, MASS.
MAY 2004

Watch

Richard LeFave



TITLE: CIO and senior vice president

COMPANY: Nextel Communications Inc.

LeFave, a *Computerworld* Premier 100 IT Leader, is this month's guest columnist. He answers readers' questions about breaking into management, the outlook for older IT workers and pursuing an advanced degree. If you have a question you'd like to pose to one of our Premier 100 IT Leaders, send it to askaleader@computerworld.com and watch for this column each month online and in print.

Even though I have more than 20 years of support, development and project management training and experience, and a bachelor's degree, I haven't been able to break into management. Should I simply focus on improving my technical skills, or insist on joining management?

I'm 58 years old and have been in IT since 1969. I've been a Unix systems administrator for 10 years and a mainframe systems programmer for 20 years. Is there a tendency among hiring managers today to look at any one over 55 as obsolete - even though we have current skills?

With so many jobs being outsourced, what are the opportunities for IT professionals of the future?

I am an undergraduate student in computer information systems. I am considering graduate school. Which would be more beneficial: a master's degree in business administration or in information systems management?

Stateside Pay Slide Tied to Offshore Outsourcing

trending downward for U.S. IT workers whose jobs are most susceptible to offshore outsourcing, according to new research conducted by Foote Partners LLC in New Caanan, Conn. Pay for both noncertified application programming and enterprise application development skills declined 2% in the first quarter of 2004 and between 19% and 20% over the past two years. Meanwhile, certified application development skills have not fared much better. They have lost nearly 15% of their value over the same two-year period. "This is premium skills pay that has traditionally been used to retain and motivate workers," says David Foote, president and chief research officer of Foote Partners. "As more programming work is transferred offshore or at least directed away from IT full-timers, premium pay becomes unnecessary."

Getting Colder

The following certifications have lost between 17% and 36% of their premium bonus pay in the past year

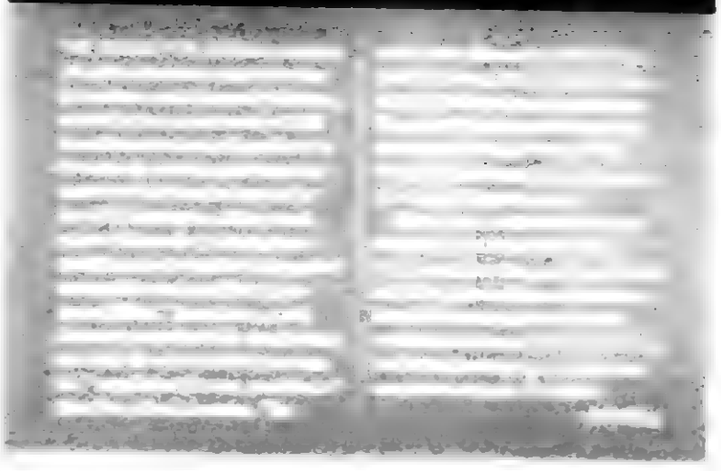
- GIAC Certified Firewall Analyst
- GIAC Certified Incident Handler
- Siebel Certified Consultant
- Sun Certified Java Programmer
- Microsoft Certified Systems Engineer + Internet
- Microsoft Certified Professional + Internet

Still Hot

Strong demand can be expected for the following groups of certified and noncertified skills over the next year

- Security
- Linux
- XML variants/Web services
- VoIP
- Wireless
- Enterprise project management
- Web-enabled analytics, management applications

Tall Tales



ThinkTank

BRAIN FOOD FOR IT EXECUTIVES

CIOs to Manage Buildings, Too?

If you've ever relocated a data center or moved a headquarters, you know how much the IT group and the facilities management group need to work together. The two departments must coordinate myriad details about electrical power, heating and cooling systems, security and telecommunications. Otherwise, you'll have insufficient cooling for those red-hot blade servers, or telecommunications circuits that are provisioned too late for the move.

To improve coordination, a few companies are starting to combine IT and facilities management functions in a single group, a merger that could become mainstream in five to 10 years, says Joshua Aaron, president of consulting firm Business Technology Partners Inc. in New York. "Facilities managers need to know a lot more about technology than they used to. And technology managers need to know a lot more about facilities than they used to," Aaron says. "Technology is now so woven into the fabric of office space that I don't think these things can be [separate] anymore."



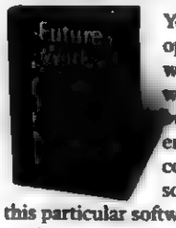
That's especially true in the "smart office" of the future, Aaron says. Integrated building systems will recognize that a particular employee has entered the building (via biometric access controls), provide just-in-time lighting along his path, boot up his PC and set the customized temperature in his office. Those capabilities exist today, Aaron says, but they won't be widely affordable for seven to 12 years.

– Mitch Betts

Best Bits

The most useful parts of recent business and IT management books

THE BOOK: The Future of Work, by Thomas W. Malone (Harvard Business School Press, 2004).



You know how open-source software is created by a widely dispersed bunch of highly talented people who come and go but at some point focus on this particular software project?

That's the future of work, according to MIT organizational guru Thomas Malone. Projects will be handled by "flexible webs of small companies," or ad hoc teams of internal experts, or electronically connected freelancers. Malone calls the latter group *e-lancers*, and already there's an online marketplace where buyers can receive bids from service contractors (*www.elance.com*). Afterward, the team will disband and regroup in different combinations for other projects.

This is all made possible by cheaper communications and collaborative IT, of course, but it will require new ways of managing: more coordination, less command-and-control. And Malone says we'll need to establish *guilds* — reminiscent of the craft associations of the Middle Ages — to make sure e-lancers have health care benefits, financial security, training, recognition and social interaction with their peers.

— Mitch Betts

Things to Ponder

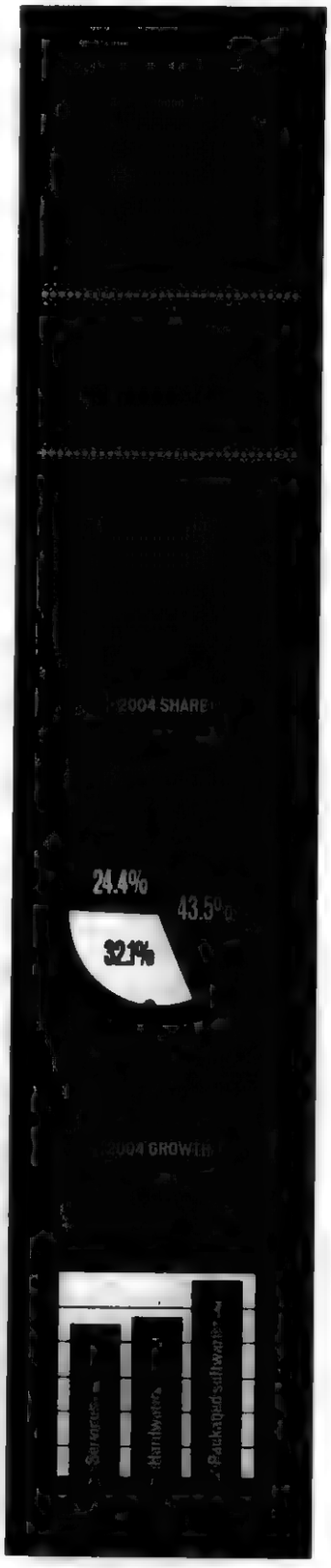
■ **Less is more.** World-class IT organizations spend 18% less than average ones and operate with 36% fewer employees while still providing higher levels of strategic value to their companies, according to a benchmarking study by The Hackett Group in Atlanta, a unit of Answerthink Inc.

■ **What's the next big thing in IT?** Merrill Lynch & Co. asked 100 CIOs that question and the most common answer was "don't know," followed by security and wireless/RFID. Obviously there's no killer app on the horizon, but Merrill Lynch analysts say that *sensors* may be a big deal in a couple of years [QuickLink 44641].

■ **Dirty data.** Companies are basing important decisions on bad information, says Gartner Inc., which estimates that more than 25% of the critical data within Fortune 1,000 businesses is inaccurate or incomplete. **ID 47651**



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Career Watch

Stateside Pay Slide Tied to Offshore Outsourcing

BASE AND PREMIUM PAY is trending downward for U.S. IT workers whose jobs are most susceptible to offshore outsourcing, according to new research conducted by Foote Partners LLC in New Canaan, Conn. Pay for both noncertified application programming and enterprise application development skills declined 2% in the first quarter of 2004 and between 19% and 20% over the past two years. Meanwhile, certified application development skills have not fared much better. They have lost nearly 15% of their value over the same two-year period. "This is premium skills pay that has traditionally been used to retain and motivate workers," says David Foote, president and chief research officer of Foote Partners. "As more programming work is transferred offshore or at least directed away from IT full-timers, premium pay becomes unnecessary."





SOURCE: FOOTE PARTNERS LLC, JUNE 2004

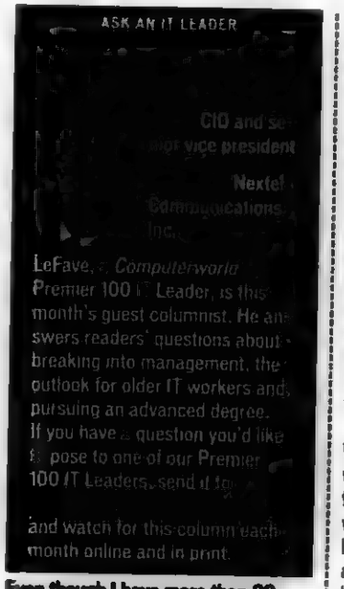
Tall Tales

[redacted] a previous job is the information that executive job seekers most frequently fabricate, according to a recent survey of 300 executive recruiters at Korn/Ferry International, a Los Angeles-based executive search firm that serves Fortune 500 companies. Other areas where white-collar job hunters are most likely to stretch the truth are their accomplishments and their job responsibilities. "Sometimes, candidates are uncomfortable about having been laid off or let go from a previous job," says Robert Damon, president of Korn/Ferry North America. "But rather than obfuscate or alter the reasons for leaving, it's always best to be straightforward about the situation. The reality is that downsizing and restructuring have lost much of their stigma and are becoming more generally accepted by employers."

Nonetheless, potential employers remain diligent about performing background checks on managerial and executive job candidates, Korn/Ferry found. Education and employment verification and criminal/arrest history are the top three types of checks that companies request. ○ 47655

—Julia King

Ask an IT Leader



LeFave, a *Computerworld* Premier 100 IT Leader, is this month's guest columnist. He answers readers' questions about breaking into management, the outlook for older IT workers and pursuing an advanced degree. If you have a question you'd like to pose to one of our Premier 100 IT Leaders, send it to [redacted] and watch for this column each month online and in print.

Even though I have more than 20 years of support, development and project management training and experience, and a bachelor's degree, I haven't been able to break into management. Should I simply focus on improving my technical skills, or insist on joining management? If moving into management is something you want to do, I think your technical leadership skills could support a move. The issue sometimes is making your management aware of what you want to do. Start with HR and take the time to promote your career design with them so they can be a supporter.

I'm 50 years old and have been in IT since 1969. I've been a Unix systems administrator for 10 years and a mainframe systems programmer for 20 years. Is there a tendency among hiring managers today to look at anyone over 55 as obsolete – even though we have current skills? The power of the IT profession is that it gives people the ability to bridge age and gender gaps; the need for technically competent leaders provides a level playing field. Mobility and skill sets play an important role in being considered for the right job for you. Broadening your skills always helps, and adding capabilities in project management, benchmarking analysis and balanced scorecard techniques are very valuable adjuncts to a solid Unix background. Adding Linux expertise broadens technical skill sets as well.

With so many jobs being outsourced, what are the opportunities for IT professionals of the future? The areas that will continue to grow at a fast rate include local and wide-area networks, database administration, systems administration and business systems analysis.

I am an undergraduate student in computer information systems. I am considering graduate school. Which would be more beneficial: a master's degree in business administration or in information systems management? I think that an undergraduate degree in computer science coupled with a few years of work experience makes a solid launching platform for either graduate degree. An MBA will provide a valuable experience in business operations and insight into where IT can best be deployed. You can customize either degree with courses that cross over, thereby getting the best of both worlds. Getting some work experience first will give you insight into which degree makes the most sense for you.

EXEC TRACK

Steele Moves to Dentegra as CIO

Patrick S. Steele has been named senior vice president and CIO for The Dentegra Group Inc., the San Francisco-based holding company that includes Delta Dental of California and operates in 16 states plus the District of Columbia. He assumes the responsibilities of Martin Whelan, who is retiring. Steele is a 35-year veteran of Albertson's Inc., the nation's second-largest grocery retailer, serving most recently as executive vice president and CIO.

Applegarth Named CIO at New Airline

Don Applegarth has been named CIO at Virgin America, a new domestic airline with headquarters in New York. He previously was a vice president at Navitaire, a division of Accenture Ltd., where he focused on business development for the division's airline reservation systems. Virgin America plans to begin service in 2006.

Becton Dickinson Picks Natale as CIO

J. Peter Natale has been named vice president and CIO at Becton, Dickinson and Co. in Franklin Lakes, N.J. He will have responsibility for global IT operations. Natale comes to the medical technology company from General Electric Co., where he most recently lead the IT group for the American Consumer & Industrial division, a $9 billion business unit.

May to Take Over IT at Digimarc

Digimarc Corp. in Tualatin, Ore., announced the appointment of John May as CIO. May previously served as senior vice president and CIO at Medical Management International Inc. for five years in Portland, Ore. Digimarc provides products and services for securing personal identification.

PAUL GLEN

The Wrong Stuff

NOW THAT IT DEPARTMENTS are starting to do just a little recruiting, it's time to think about how to hire the best and brightest people. Despite having had a few years when they could be really choosy, hiring managers seem to have lost sight of how to pick great employees.

We've all seen job postings with statements like, "Must meet all requirements below to be considered. Otherwise, don't waste our time by applying." What follows is invariably a list of required experience that would elude even the most energetic and accomplished centenarian. Usually the list includes a long string of ill-considered, mutually incompatible skill sets and temperaments. Statements like, "Must have a successful record as a sales hunter, a seller of large-scale software solutions to senior executives and a J2EE programmer, with a minimum of 25 years of experience," seem all too common.



I imagine some junior HR person fresh out of college sitting in a windowless cubicle sifting through piles of résumés. "Hmm. Here's one. Oops. Only 24 years of Java. Reject. Next. Steve Jobs; that name sounds familiar. Oh, didn't finish college. Next."

I'm not suggesting that hiring managers shouldn't be choosy now that they have the chance, but they should use the opportunity to choose based on meaningful criteria. Too often, it seems, these attempts to be selective are based on a few myths that lead to poor decisions.

Myth 1: Past Experience Equals Future Success

At the heart of absurd selection criteria is the assumption that an applicant's previous experience doing exactly the same job implies future success. But there are a number of problems with hiring someone to re-create a previous performance.

People frequently try to repeat past success by doing things exactly the same way as before, failing to recognize the uniqueness of the new situation. In fact, if someone has done a job before and been wildly successful, he's unlikely to reproduce the results. Early success doesn't lead to learning. Failure is a much better teacher.

Also, people get bored doing the same things over and over again and don't engage completely with the job.

A much better rule to follow when hiring would be "past drive for success implies future drive for success." The desire to be effective is much more enduring and important than some specific experience. You can see it in a progression of increasing responsibility, but mostly it comes through in the interviews.

Myth 2: Specialization Equals Productivity

This myth has deep roots in the business community. Ever since studies of scientific management were conducted at the turn of the last century, specialization has been considered a bedrock of productivity. The more specialized someone is, the more productive he must be. Obviously, this belief has served us well over the past 100 years or so, helping to multiply the productivity of physical labor by a factor of more than 50.

But just because this assumption has proved true for improving the productivity of physical labor, that doesn't necessarily mean that it will work the same way for improving the productivity of knowledge work.

A better assumption would be that every organization and project needs a blend of both deep specialists and broad generalists. Hiring a bunch of specialists more often results in internal competition and posturing than in outstanding productivity. In the right environment, people with varying perspectives find the most efficient and creative solutions to the problems at hand.

Myth 3: You Can Do Only One Thing Well

This myth assumes that each of us is entitled to only one primary skill. If someone has pursued a career writing mystery novels, he clearly can't be much of a programmer.

For me, one of the great privileges of being in IT has been working with just these sorts of talented polymaths. I've worked alongside people who started their careers as opera singers, concert pianists, high school teachers, mathematicians, physicists, historians, salespeople, factory workers and psychologists. They all bring varied perspectives from their other careers, enriching our work experiences and the quality of our technical products.

If we allow these people to be forced out of the industry by checklist recruiting, our projects and work lives will be poorer for it. ● 47808

WANT OUR OPINION?

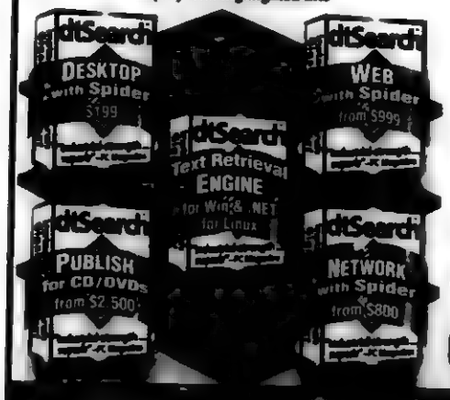
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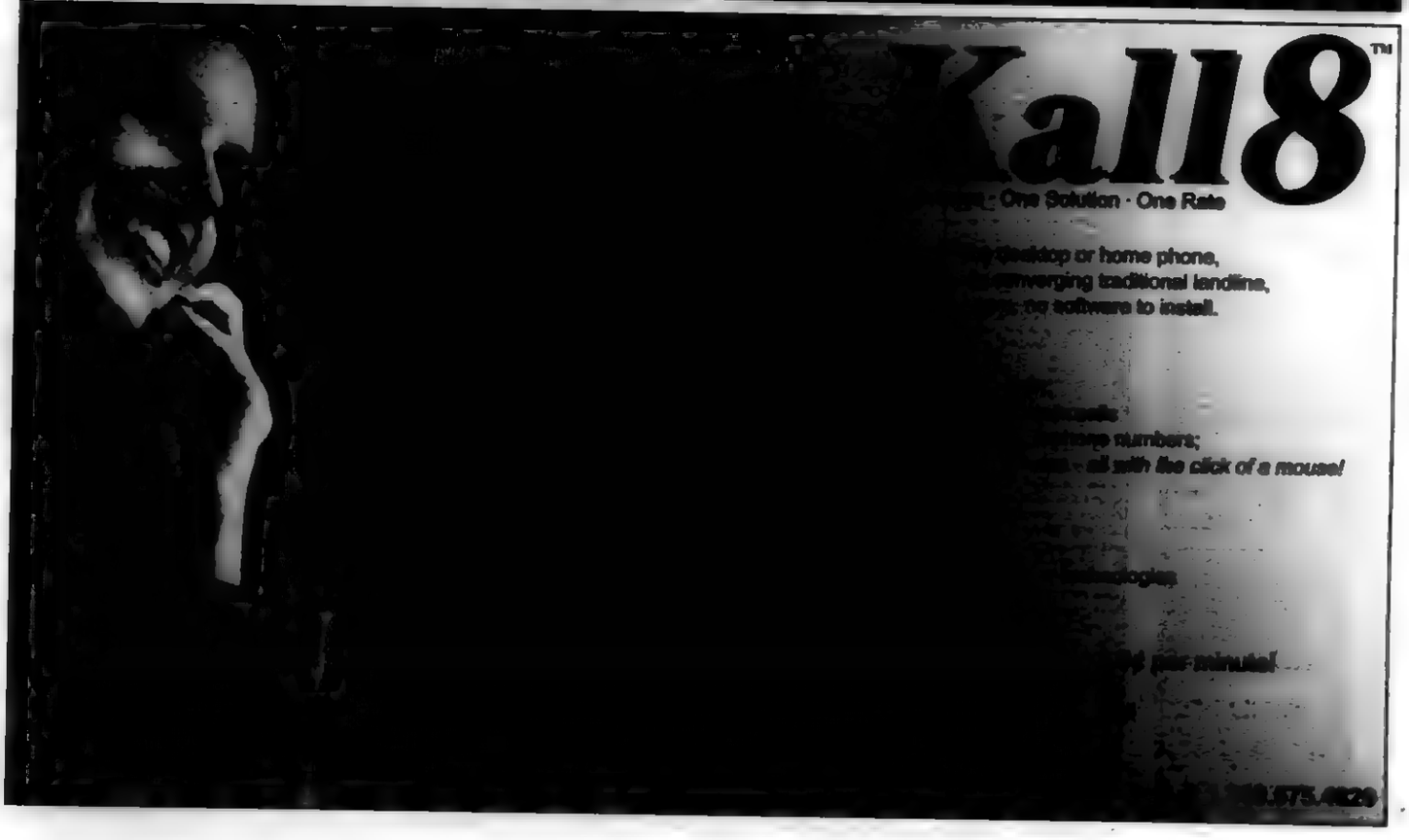
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WAGE: $74,752/year
Hours worked: Monday-Friday 9:00am-5:00pm

MINIMUM REQUIREMENTS
Bachelor's degree in Computer Science, Engineering (any type), Math, Business Administration or Information Science or Statistics + 2 years exp. in the job offered or 2 years exp. as a Consultant, Systems Analyst, Database Administrator or Developer. Related experience must include implementation of large scale systems projects for HHS systems adhering to HIPAA using Public Sector Information Technology applications as well as securing networks using HTTP, TCP and UDP. Must have knowledge of database standards such as Oracle, SQL, ASP, Visual Basic, JavaScript and COBOL.

Please send your resume, referencing Job Order Number **WEB431286** to the Philadelphia Careerlink, FLC Unit, 235 W Chelten Ave., Philadelphia, PA 19144. EOE.

FT Database Administration Manager

Multiple positions. Responsibilities include: Manage Database Administration, including but not limited to the management of database administration projects, accounting and budgeting; the development and promotion of data architecture, integration, consolidation strategies and standards; data analysis and reporting, data modeling, data management, directory services, mapping services, statistical analyses for data quality, and data custodial activities supporting systems and applications; direct the application of existing and emerging Information and Data Management technologies in the creation of normalized relational data models, dimensional data warehouse models, entity relationship diagrams and other forms of documentation which support business systems requirements; manage database administrators, systems analysts and other computer professionals supporting database administration, including professional development, evaluation and work allocation. Serve as a chief client liaison. Must have a Master's Degree or foreign or educational equivalent in Computer Science or a related field and at least three years of experience as a Database Administrator or a related occupation, or a Bachelor's Degree or foreign or educational equivalent in Computer Science or a related field and at least five years of experience as a Database Administrator or a related occupation. If interested, submit resume in duplicate to:

Ms. Sandy Pruitt
MIT (USA), Inc.
1600 Crown Pointe Parkway, Suite 500
Atlanta, GA 30338

Corpus, Inc. has multiple openings for IT professionals to design and develop applications using Oracle, SAP, SQL, PL/SQL, COBOL, C/C++, VB, Java, XML, ERP, ASP, NT, XSL. Min BS/MS with exp. Travel maybe required. Please send resumes to resumes@corpusinc.com. EOE.

Park Systems, Inc. is looking for IT Analyst/Engineers to fill various positions using C/C++, Java, VB, Web Tech, Oracle, Unix-Sun Solaris, E-B, Rational Rose/UML, JSP, OOAD. Candidates must have MS/BS & IT experience. Apply at jobs@parksys.com. Travel maybe required. EOE.

Seeking Software Developer to: Design, develop, code, test, & document computer program custom'd to meet info. requ'mts of food service industry; consult w/ clients re program objectives, features, & input/output requ'mts; analyze & define requ'mts for data, logical process, interface w/ system, hardware & OS environment; develop client/server apps to meet biz. requ'mts of food service industry; analyze & correct software defects; maintain source code using SCCM tools & related disciplines, develop plans re steps, costs & timetable for developing programs; perform system test of developed code; monitor performance of programs post implement. & support/maintain apps; write documentation describing program development, logic, coding, testing, & correction; identify software technical gaps, develop apps methodology & program standards; conduct performance diagnosis & tuning; analyze, review, alter program to increase efficiency; train end users & technical support staff on use of apps. Duties involve MS development tools, SCCM tools, C/C++, MFC, COM, ADO, DAO, Visual Basics, ACCESS, Microsoft T-SQL, ASP. Prereqs: Bachelor in Computer Science or IS or related field, plus 2 yrs exper. in job offered or 2 yrs exper. in software development for food service industry. Compet. Salary. 8 a.m - 5 p.m., M-F. Location: Charlotte, NC. Send resume to: Kelly Giarratano, Attn: VG-1, Progressive Software Inc., 6836 Morrison Blvd., Ste 104, Charlotte, NC 28211.

Network Administrator. Administer Windows NT/2000/2003 Servers, Exchange Server 2000 and SQL Server 2000. Setup and manage DNS, DHCP, WINS and IIS servers. Install, configure and maintain Cisco routers. Maintain and troubleshoot network. Firewall and Terminal servers. Develop company websites including online store, develop, analyze and customize applications in support of business solutions. Require Master Degree in computer science or a related field with minimum of 2 years related experience. Apply to Human Resource, Winston-Salem Industries for the Blind, 7730 N. Point Dr., Winston-Salem, NC 27106. Attn: Jim Collier.

Computers - Multiple positions available in a financial software development company in NJ:

Sr. Business Analyst: Maintain & develop internal/external client relationships across all levels. Create procedures for bringing new business. Ensure the efficient function of existing business from both IT & end-user perspectives by reviewing, analyzing & evaluating business systems/user needs for new programs & complex modifications to existing programs. Review business processes & workflow with clients to understand their business requirements. Research & gather relevant data to assist in the determination of project feasibility, cost & time requirements. Create/write business specifications based on gathered information & design datamodels using ERWIN. Review datamodel design with clients & develop prototypes. Develop, publish & execute project implementation plans and announcements. Manage development team (in US and off-shore) focused in enhancement & maintenance of existing products.

Technical Product Manager: Provide product support for new sales and existing clients in book and tax accounting of trust investments or hedge funds. Liaise with clients; handle and resolve difficult business problems. Test issue fixes and help client in product roll-out using latest technologies using Visual Basic and SQL Server.

Sr. Programmer Analyst: Discuss business requirements with Business Analysts and/or clients. Through a complete understanding of client requirement & datamodels created in ERWIN, develop programs & perform unit testing upon completion. Walk-thru with Business Analysts or clients to ensure compliance with requirements. Interface with clients to explain programming & system architecture & defend current systems platforms. Create full releases, service packs, hot fixes, & manage distribution of same. Perform above duties using Visual Basic, JAVA, .Net, and SQL Server.

BS or equivalent in Computer Science, any Engg. or related field, plus relevant experience required. Send resume to Anthony Mitchell, Director of Product Development, FI-Tek, LLC, 379 Thornall Street, Suite 1100, Edison, NJ 08837.

BCC USA Inc. - Portland, Maine needs experienced Programmer Analysts having a Bachelors degree with minimum two years of progressive work experience in: GDI+, C Sharp, VB.Net, ASP.Net, .Net Remoting, COM+, DTS and C. Competitive salary and benefits. M-F, 40 hours/week. Please mail your resume to BCC USA Inc., HR Department, 650 Main Street, Suite 201, South Portland, ME 04106.

ASSOCIATE PROGRAMMER/ANALYST - Analyze, dsgn., dev'p, conf., & test comp. soft. prgms. Req'd: MS in CS; exp. w/ UNIX, HTML, Java, SQL 7.0, Oracle 9i, XML, JSP, and Solaris. Resumes: Forest Laboratories, Inc. 500 Commack Road, Commack, NY 11725. Attn: C. Cantalupo.



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Sr. Financial Planning Analyst. MBA w/concentration in Finance + 4 yrs. rel. fin'l planning exp, incl exp w/capital forecasting & planning of $20M or above; std costing; Oracle Financial Analyzer; 2 yrs exp with standard costing. CPA certification reqd. Send resumes to Margo Massey, 2510 North Dodge, IA City, IA 52240.

Systems Analysts needed. Seeking candidates possessing BS or equivalent and/or relevant work experience. Part of the req. rel. exp. must include 1 year working with SQL Server and VC++. Duties include: Analyze and evaluate requirements; devise system architecture; debug and test programs. Work with the following: Visual C++, C#, VB.Net, Rational Rose, SQL Server and Winrunner. Mail resume, references and salary requirements to: Infolink, P.O. Box 835080, Richardson, TX 75083.

Sr. Network Systems and Data Communications Analyst wanted by company engaged in financial services. Requires B.S. in Comp. Sci. plus 2 yrs. exper. including network design/implementation, network security, expertise in SQL Server replication in distributed environments, strong Exchange Server administration experience, Intel/Dialogic computer telephony development and Visual Studio Net. Reply to H.R. Dept., Economic Advantages Corp., 71 Central St., Woodstock, VT 05091.

Sys Admin wanted by Computer Service Center, Inc, Meriden CT. Requires BS in Comp Sci or related field, min 2 yrs exp. Job duties include: setup & maintain user accts & permissions for networks, Win NT/2000/2003 servers, MS Exchange 5.5/2003, MS SQL Server 2000; support Internal LAN network; field office networks & Cisco PIX firewalls; maintain documentation for all related IT systems, including network diagrams, procedures, system configuration detail, incident logs, etc. Send resume to jobs@cscihome.com or Fax to 201-291-1509.

Universal Electronics is looking for a Sr. Software Eng in Advanced Technologies to develop software systems for wireless communication devices. MSCS/CE + 3 yr exp reqd. Resumes w/job code SSE0108 to HR@UEIC.com or by fax to (714) 820-1223. Universal Electronics, 6101 Gateway Dr., Cypress, CA 90630-4841

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WAGE: $100,884.75/year
Hours worked: Monday-Friday 8:00am-5:00pm

MINIMUM REQUIREMENTS:
Bachelor's degree or equivalent in Computer Science, Engineering (any type), Math, Business Administration or Information Systems + 3 years exp in the job offered or 3 years exp as a Senior Consultant, Consultant or Systems Analyst. Related experience must include at least 1 year using data/warehousing tools (Siebel Analytics & Business Objects) Siebel tools, Oracle databases, SQL server, and Workflow Manager. Employer will accept 5 years of related experience in lieu of a Bachelor's degree.

Please send your resume, referencing Job Order Number WEB431336 to the Philadelphia Careerlink, PLC Unit, 235 W Chelten Ave., Philadelphia, PA 19144. EOE.

Computer Professionals

We have openings for the following positions to work at the client site throughout the United States. Send Resumes to: Webstent Technology Inc, 280 A Main St. Suite #6 Nashua, NH 03060.

Java Programmer Analyst: Design and develop software applications using Java, JDBC, J2EE, Websphere, Tomcat and XML. Perform object-oriented methodologies and problem diagnosis.

Visual Basic Programmer Analyst: Design, develop and test software applications using SQL Server, VB, ASP, .NET and Crystal Reports. Involved in trouble shooting, query optimization, testing and production support.

Mainframe Programmer Analyst: Analyzing the business needs, writing the technical specifications and testing the application using Cobol, DB2, CICS, FileAid and MVS/ESA. Must be able to Performance Tune, Troubleshoot and production support.

Oracle Programmer Analyst: Design, develop and customize oracle applications using Oracle 11i, Forms, Reports, stored procedures and PL/SQL. Solving system issues and performance tuning.

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COMPUTER SECURITY

PricewaterhouseCoopers LLP's CRMS practice has opportunities available for experienced professionals in the area of Oracle Controls Security. Positions require 3 to 5 yrs related exp. and bachelor's degree in MIS, Finance, or Accounting/Business. Applicants must have experience performing control/security reviews of Oracle applications; experience in EDP audit, Consulting or ERP implementation exp. and CPA and/or CISA certification. Job site/location: Florham, NJ. Interested candidates please reference job code SBWTXS & fax resumes to Gladys Logedon at 813-329-3919. No phone calls please. Employer will only consider applicants authorized to work for any employer in the U.S.

RedPrairie Corporation, world leader in provision of logistics execution systems, seeks the following: Managers (Technical) for supply chain execution application services at Cary, NC, office, to assist in leading in technical aspects of customer implementation & to mentor/provide administrative lead for group of Software Engineers. Require Bachelor's in Computer Science, MIS, Engineering or related field (equivalent combination education/experience or equivalent experience considered) plus 3 yrs experience in computer-related occupation, including leadership role in project implementing warehouse management or supply chain software, & experience in automated warehouse/distribution systems industry. Senior Manager for supply chain execution application services at Cary, NC, office, with responsibility for major portion of customer TMS products, to interface with internal groups to enable delivery of products that meet customer's need, & to serve as primary point of contact for customers. Require Bachelor's Computer Science, MIS, Engineering or related field (equivalent combination education/experience or equivalent experience considered) plus 5 yrs experience in computer-related occupation, including experience in logistics & supply chain consulting or related field, TMS functionality, & management of logistics projects. Interested candidates should e-mail, fax or mail a resume and cover letter, including code CW1 with salary requirements to:

RedPrairie Corporation
Attn: Organizational Development
3000 Swenson Drive
Waukesha, WI 53189
Fax: 262-317-3639
Email:Recruiter@redprairie.com

EPCON International, Inc. requires a Software Development Engineer with Masters in Computer Science and 1 year experience to develop process engineering/simulation software products in house. Knowledge of Visual Basic, Visual C++, Fortran, scientific computing and Microsoft development environments essential. Please send resumes to Director of Software Development, 16225 Park Ten Place, Suite 600, Houston, TX 77084.

IT PROFESSIONALS

Manager, Customer Relationship Management

(Glen Mills, Pennsylvania and other locations through the U.S.) Responsible for management and direction of technical/development team(s) component for large and/or complex Siebel projects. Develop, monitor and control project plans. Identify and resolve team and inter-team dependencies and issues. Involving areas of a full-life cycle Siebel implementation. Document Siebel processes and requirements for implementation using CRM and Siebel best practices. Perform fit-gap analyses of the requirements and translate processes and requirements into functional and technical designs. Develop presentations and conduct business reviews of Siebel designs/prototypes to gain consensus and track and resolve issues and change requests pertaining to the technical/development. Create technical development standards, review work product deliverables for Siebel technical/development team(s) component for quality. Manage the builds between environments (development, testing, production) and understand the different components that need to be migrated and the methods/ steps required for migration of each component. Develop and manage relationships with peer level clients and provide technical expertise. Monitor and evaluate team performance. Contribute to complex proposal development efforts with potential clients for the technical/development components of a CRM implementation.

WAGE: $100,880/year
Hours worked: Monday-Friday 8:00am-5:00pm

MINIMUM REQUIREMENTS:
Bachelor's degree or equivalent in Computer Science, Engineering (any type), Math, Business Administration, Information Systems or Finance + 4 years exp. in the job offered or 6 years exp as a Manager, Senior Consultant, Consultant or Analyst. Related experience must include at least 3 years of managing large-scale CRM implementation projects, utilizing Siebel, across multiple modules and industry verticals. Employer will deem foreign educational credentials evaluated by an evaluation service to be the equivalent of a U.S. degree.

Please send your resume, referencing Job Order Number WEB431137 to the Philadelphia Careerlink, PLC Unit, 235 W Chelten Ave., Philadelphia, PA 19144. EOE.

IT PROFESSIONALS

Senior Consultant

(Glen Mills, PA and other locations throughout the United States) Design and implement decision support systems, fraud detection and other rules based processing systems utilizing Business Rules Engine (BRE) based applications to enable clients to capitalize on market opportunities, re-engineer business processes and implement new processes through component-based development, easy-to-maintain decision tables, dynamic rules, and a sophisticated inference engine that manages and interprets large rule sets. Lead the process of gathering, consolidating and reconciling data from a variety of different sources to implement and develop OLAP (Online Analytical Processing) Reports. Provide a variety of informational services utilizing, predictive "data mining", and business support services, to deliver critical data to key decision makers using Business Objects. Create and develop custom applications using PL/SQL procedures with Oracle as the back-end and create logical and physical data models and star schemas using ERWIN. Create automated testing scripts for Mercury Interactive Load Runner/Win Runner to support Load Testing and lead the system integration and performance testing, develop testing strategy, plan/schedule, and conduct user acceptance testing and defect triage using Mercury Interactive Test Director.

The wage offered is $81,700/year. The work schedule is Monday-Friday 8:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Computer Science, Business Administration, Information Systems, Engineering (any), or Mathematics plus 4 years experience in the job offered or 4 years experience as a Senior Consultant, Team Lead, Consultant or Systems Analyst. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited institution of higher education in the United States. Related experience must also include at least six months of implementation of Business Rules Engine (BRE) based applications, implementation of OLAP (Online Analytical Processing) reports using Business Objects, creation of custom applications using PL/SQL and Oracle as the back-end, creation of star schemas using ERWIN, and creation of automated testing scripts for Mercury Interactive Load Runner/Win Runner.

Please send your resume, referencing Job Order Number WEB 429189 to the PA CareerLink, PLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

Database Analysts needed. Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. Part of the req. rel. work exp. must include 2 yrs working w/ ColdFusion, ASP, & HTML. Duties include: Manage, organize, & optimize databases. Gather req.; Define funtional capabilities of databases & develop security spec. Work with SQL, HTML, XML, ASP, & Coldfusion. Send res., ref. & sal. req. to BCS Inc., 5550 Sterrett Pl., #308, Columbia, MD 21044.

Computer Research Scientist

Ph.D. in CS + 2 yrs. exp. required to create system network solutions utilizing video encoding in MANET and Bluetooth Scatternets with host architectures of multi-threaded caching and cut-through networking. Salary $98K. Location, Torrance, CA. Send resume to capence@broadstream.com.

IT Professionals sought for dsgn, dvlpmt, testing & implmtn of server side s/ware & d/base systems. MS/BS in Comp Sci, Eng, or related field w/exp in TCP/IP, SQL, JAVA, C/C++, .NET, UNIX, QA. Applicants must be willing to relocate/travel to various unanticipated locations in US. Mail resume to HR, K2 Software Group, LLC, 1111 E. Lincolin Way, Ste 114, Cheyenne, WY 82001 or email: swatt@k2softwaregroup.com.

Radiant Soft Sol. Inc., a S/ware Consulting Comp. has permanent positions open for Computer Software Professionals with a B.S. or equivalent degree in Arlington Heights, IL, Cheyenne, WY & other unanticipated locations in the US.
(I) Software Engineers, Database Analysts & Network Analysts with 3 yrs. exp.
(II) Business/Systems/Programmer/QA Analysts with 2 yrs exp.
Respond by resume to HR, 855 E. Golf Road, #1125, Arlington Heights, IL 60005.

IT PROFESSIONALS

Senior Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.) Lead custom design and development teams for building complex enterprise applications in the public sector industry utilizing custom development tools including Java, Java2 Platform Enterprise Edition (J2EE), Enterprise Java Beans (EJB), Visual Basic (VB), Message Queue Series (MQ), C++, Rational Rose and Relational Databases including Oracle, DB2, Sybase ASE; testing tools like Mercury and Compuware and eBusiness. Job responsibilities include Technical Architecture using Enterprise Application Server IBM Websphere and technology integration. Map the client's business processes, organization and technology to new technology solutions. Provide potential gap resolution alternatives. Create designs for complex technical requirements (gap analysis, infrastructure, interfaces, reports, enhancements and conversions) Manage code development and lead teams of architects, developers and analysts. Execute complex infrastructure build activities. Participate in the development of test plans, test scripts, test cases and acceptance criteria. Manage components of engagements and develop work plans.

The wage offered is $75,780 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: "Bachelor's degree or equivalent in Computer Science, Math, Business Administration, Engineering (any) or Information Systems + 2 years and 6 months of experience in the job offered or 2 years and 6 months of experience as a Senior Consultant, Systems Engineer or Senior Systems Engineer. Related experience must include Technical Architecture and technology integration utilizing Enterprise Application Server IBM Websphere, Java, J2EE, EJB, VB, MQ, C++, Rational Rose, Relational Databases (Oracle, DB2 and Sybase ASE), Testing Tools (Mercury and Compuware), eBusiness delivery and one year of experience must be in Public Sector Industry (Courts, Corrections and Integrated Justice processes) "Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited educational evaluation service.

Please send your resume, referencing Job Order Number **WEB431274** to the PA CareerLink, PLC Unit, 235 West Chelten Avenue., Philadelphia, PA 19144. EOE.

Computers-Coordinator. Computer Systems needed. Seeking qual. candidates for the University of South Florida's Tallahassee Client/Server Support Group. A BS or equiv. & 3 yrs. rel. exp. OR relevant work exp. req'd. Part of the req. relevant exp. must include 2 yrs. working w/ EJB, XML & Oracle. Duties include: Design, develop & deploy software systems using secure file transfer; implement & maintain client/server & worldwide web computer systems. Work with J2EE, EJB, XML, Oracle, JDeveloper, PL/SQL Server Pages. Send resume & cover ltr. to: University of South Florida, Attn: Susan Niemas, EDU 182, 4202 East Fowler Avenue, Tampa, FL 33620.

IT Developer/Analyst: Job located in Largo, FL; Responsible for the maintenance and enhancement of Oracle Application modules, as well as providing expertise for the design and implementation of new Oracle Application modules using Oracle Forms/Reports, SQL*Plus, PL/SQL, Oracle Database in a Unix operating system environment. Requires a B.Sc. or foreign equiv. in Comp. Sci., Engineering, Info. Systems Mgmt. or a closely related field and at least five years of work exp. in this or a related position. 40 hrs/wk, M-F, 8:00 am - 5:00 pm. $75,000/yr. Interested parties should submit resumes to: Workforce Program Support, Attn: EH, P.O. Box 10869, Tallahassee, FL 32302-0869. Job Order FL-2529336.

Programmer - Position for Programmer. Responsible for providing application development tasks (requirements, design, coding and testing) of enhancements to WEB based customer service application (WES) on time and within budget. Will also debug program errors and production discrepancies, accommodating the IS deliverable schedule and application installation commitments utilizing JAVA, HTML and Java Script, servlets. 40 hours per week. Hours are 8:00 a.m. to 5:00 p.m., Monday through Friday. Must have Bachelor's Degree in Mechanical Engineering, Information Technology or equivalent. Two years experience necessary. Pay is $51,205 per year. Job Order No. FL-2529798. Job located in Tampa, Fl. Send resume to: Agency for Workforce Innovation, P.O. Box 10869, Tallahassee, Fl. 32302-0869.

SOFTWARE ENGINEER to provide on-site consultancy in analyses, design, development, implementation, customization and maintenance of webMethods B2B Server, distributed and web based application software using webMethods integration Platform. webMethods workflow, Microsoft and Sun technologies, VB, ASP, Java, JSP, Java Servlets, SQL Server on Windows and Sun Solaris. Require B.S. in Computer Science/Electronics Engineering and three years experience in the job offered or any experience providing skills in described duties. 40% travel to client locations within the United States required. Competitive salary and benefits, 40-hr week, M-F. Apply with resume to: President, Frontline Consulting Services, Inc., 8701 Mallard Creek Road, Charlotte, NC 28262.

Sys. Analyst Resp appl & sec Set-up, mng Verisign KMS Srvr, PKI infrastruc issue digital certs, deign. Netegrity Siteminder Policy Srvrs Appecan/Appelweld plcy protect web srvr, deign & integrate Sandsum Appelweld Siteminder srvrs w/Client Certs deign, EB-XML based msging Network for clients; impl fault tolerance on netwk infrastruc config CISCO content swth for SSL Netwrk Load Bal impl Clustering srvcs w/SAN System deign & monitor hot site; & mng acc cntrl & data appl Security. BS in Comp Scnc or Electr +3 years of sep job duties Req firm w/Cert. & Accrd process under FSA as evidenced by 1 yr of wk exp in field. Apply: BCA, 2002 Perimeter Summit Blvd, Suite 880, Atlanta, GA 30319 + proof of perm Wk Auth.

Technical Analyst System Development: research, evaluate, implement and coordinate changes, maintenance and technical support of systems or applications. Compile and write documentation to describe program development, performs research, identifies program problems and develops solutions. Code, test, debug, document and maintain application programs. Resolves problems by evaluating processes and implementing necessary corrective measures. Implement and document modifications to software applications currently in use. Req. BS or equivalent in CS or MIS with proficiency in COBOL, SAS, and JCL. 40 hrs/wk, 8-5. Fax resume to 870-365-4866.

Programmer Analysts. We are seeking candidates who possess a BS or equiv and 2 years relevant work experience. Education must include coursework in Java and Computer Programming. One year of post bachelors experience will be considered in lieu of 1 year related work experience. Duties include: Plan, develop, code and test comp programs. Work with SQL Server, Analysis Services. Perform/ms Monitor and Java. Mail resume, ref, trans and salary reqs to: HCR Manor Care, 333 N. Summit Street, Toledo, OH 43604. EOE.

Technical Support Specialists needed. Seeking cands possessing BS or equiv and rel work exp. Part of rel work exp. must include 2 years working with SQL and Visual Basic Applications. Duties include: Assist end users to resolve problems with hardware and software. Work with SQL, Oracle, ASP and VBA. Mail resume, transcripts, refs and salary reqs to: HCR Manor Care, 333 N. Summit Street, Toledo, OH 43604. EOE

Technical Support Specialists needed. Seeking cands possessing BS or equiv and/or rel work exp. Our company will accept 1 year of post baccalaureate experience in lieu of 1 year of required years of experience. Education must include coursework in Database Systems and Java either at the baccalaureate or graduate level. Duties include: Assist users to resolve problems in hardware or software and work with Java. Mail resume, references and salary reqs to: HCR Manor Care, 333 N. Summit Street, Toledo, OH 43604.

BCC USA Inc. - Portland, Maine needs experienced Programmer Analysts having a Bachelors degree with minimum two years of progressive work experience in SAP, QTP, WinRunner, Oracle, SQL, PL/SQL, Java, J2EE and HTML. Competitive salary and benefits. M-F, 40 hours/week. Please mail your resume to BCC USA Inc., HR Department, 550 Main Street, Suite 201, South Portland, ME 04106.

Webmaster wanted by Gbl Mktg Rsrch Co in TX. Oversee admin & maintenance of web-based syste run on multi platform & web servers; design, implement & maintain production websites; maintain/optimize Oracle & SQL server databases utilized with web-based syste. MS in Comp Sci & 1yr exp in job offered req. Respond to: VP HR/MBI, 1250 Capital of Texas Hwy, Bldg 1, Ste 600, Austin, TX 78746.

Infobahn Technologies delivers innovative IT Solutions to business clients nationwide. We have immediate full time opportunities for Software Engineers. All applicants must have a minimum BS in Computer Science Engineering or Related field plus 2 years of experience. Send resumes to: Infobahn Technologies, (HR) 286 Walnut St. #410 Newton, MA 02460.





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SYSTEMS ADMINISTRATOR to administer, develop and maintain business computer systems to manage comprehensive accounting functions essential to company's clients operations using C, C++, C#, Java, HTML, SQL and Jbuilder on Windows NT and UNIX platforms. Design and develop new website for the company in order to provide technical service online and transfer data via the internet to the main office; Network accounting computer systems at clients offices to facilitate communication between clients and main office, and provide technical support and training to clients. Require: B.S. degree in Computer Science, Business Admin., or a closely related field; Must have a demonstrated ability to perform the stated duties gained through academic coursework/previous work experience. Competitive salary offered. Apply by resume to: Karim Kassani, Comprehensive Business Accounting, Inc., 6123-A Oakbrook Pkwy., Norcross, GA 30093, Attn: Job SC.

Software Engineer (San Carlos, CA and client sites nationally) Cono seeks a Senior Member Software Development Engineer in the area of application design and development with Java and J2EE technologies. This position is charged with performing integration into current application platform based on J2EE framework and on LDAP technologies. S/he will work with WebMethods to facilitate integration with a trouble ticketing system, knowledge management system and user management systems. Position requires a Bachelor's Degree or equivalent in Computer Science, Information Systems or Engineering (any) and a minimum of 3 years of relevant professional experience to include LDAP, JNDI, XSLT, XML and JSPs. Please send resumes to Aimee Romeo, Cono, 959 Skyway, Suite 100, San Carlos, CA 94070. EOE. Please reference Code 111SJ.

Software Engineer (San Carlos, CA and client sites nationally) Cono seeks a Member Software Development Engineer in the area of application development and deployment with Java and J2EE technologies. This position is charged with developing proof-of-concepts for end-user feedback, architecting and designing production quality solutions from the proof-of-concepts, and implementing and deploying solutions into Data Centers. S/he will perform integration into current application platform based on J2EE framework and on LDAP technologies. Position requires a Bachelor's Degree or equivalent in Computer Science, Information Systems or Engineering (any) and a minimum of 2 years of relevant professional experience to include application development implementing complete solutions using JNDI, JDBC, LDAP and Single Sign On (SSO). Please send resumes to Aimee Romeo, Cono, 959 Skyway, Suite 100, San Carlos, CA 94070. EOE. Please reference Code 222KN

SENIOR SOFTWARE ENGINEER to design, develop and implement software product solutions for web-based multi-threaded/asynchronous claim management applications using VC++, MFC, ATL, STL, COM/DCOM, C, C++, XML, XSLT, ASP, ADO, Java, J2EE, EJB, Swing, JSP, JDBC, Oracle and SQL Server on UNIX, Linux, SUN Solaris and Windows platforms. Trace and design stored procedures and triggers; Mentor junior programmers and engineers. Require: Bachelor's degree in Computer Science, an Engineering discipline, or a closely related field with 5 yrs of progressively responsible exp in the job offered or as a Programmer/Analyst or Programmer. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Sundeep Chaudhry, Elite Solutions, Inc., 1670 Reserve Way, Ste 203, Decatur, GA 30033, Attn: Job PK.

Programmer Analyst (San Carlos, CA and client sites nationally) Cono seeks a Sr. Enterprise Wide Programmer Analyst in the area of PeopleSoft Consulting. This position is charged with providing functional support and PeopleSoft consulting for HRMS (Payroll clients in the areas of HRMS, Benefits, Time & Labor, Payroll, CRM, Workforce Analytics and EPM. S/he will review code, data, and application configuration to identify problem source efficiently utilizing PeopleTools (Application Designer, Peopletools). Position requires a Bachelor's Degree or equivalent in Computer Science, Information Systems or Engineering (any) and a minimum of 4 years of relevant professional experience to include Payroll, Benefits, HRMS and Time & Labor utilizing People Tools (Application Designer, Peopletools). Please send resumes to Aimee Romeo, Cono, 959 Skyway, Suite 100, San Carlos, CA 94070. EOE. Please reference Code 333VI.

Programmer Analyst - Strategic Staffing Solutions of IL, Inc. a software consulting company has openings for IT Professionals in entry and advanced level positions. Duties include, but are not limited to developing/designing s/w systems using various h/w, o/s tools, software packages & languages; developing client/server, mainframe, midrange, ERP and web applications. A degree is required. Experienced candidates will be given special consideration. Comp. salaries offered. Please forward resumes to ssresumebox@aol.com.

NT Server Engineer - Working in a team environment and under supervision, prepare study plans and design of NT servers, and evaluation of mid-range services/technology for development. Perform technical analysis of software, hardware, and packaged applications. LAN/WAN communications. Install software/hardware and create server/desktop images. Analyze, configure, test and debug to resolve problems on selected software/hardware. Provide technical support services to customers and corporate technical staff. May give technical presentations and evaluate customer capabilities and needs. Install, configure, troubleshoot and maintain over 200 NT servers. Requires Bachelor's degree in Computer Science or Electronics Engineering or equivalent and 4 years experience in the job offered or 4 years of experience in Network engineering/administration. Experience must include routing protocols, switching technology, firewall and security, Microsoft BackOffice, javascript, C++, SMS and WISE. Salary $86,300/year, 40 hours/week, 8:00am to 5:00pm, M-F, job location Boca Raton, FL. Send Resume to Agency for Workforce Innovation/Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869 RE: JOFL #2530428.

Software Engineer - Systems/Architect, Temple Terrace, FL. to be responsible for leadership and technical expertise in conceptualizing and creating technical solutions based on research and investigation to solve complex problems related to the design and deployment of system enhancements and new products, design software applications using C, C++, Java, Java Script, CORBA, UML (unified modeling language), UNIX, AIX (advanced IBM UNIX), DB2 (database 2), HTML and web server technologies, research and prepare architectural designs, standards and migration plans for future business enhancements, finalize code and handle unit testing for complex technical issues. Requires Bachelors in Computer Engineering or Computer Science, plus either 3 yrs exp in job offered or 3 yrs exp in systems engineering using Java, C++, CORBA, AIX, DB2 and UML. Salary $78,800/yr, Mon-Fri, 8AM-5PM, 40 hrs/wk. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869. refer to J.O. # FL-2531087

Software Engineer (San Carlos, CA and client sites nationally) Cono seeks a Member Software Development Engineer in the area of application development with Java, C++ and J2EE technologies. This position is charged with developing through hands-on coding of web-based applications based on Model-View-Controller Architecture (such as Struts). S/he will develop and maintain Java and C++ applications based on object-oriented concepts that tie various disparate sub-applications through Single Sign-On mechanisms. Position requires a Bachelor's Degree or equivalent in Computer Science, Information Systems or Engineering (any) and a minimum of 2 years of relevant professional experience to include designing and implementing web-based applications using J2EE and Java technologies, object oriented programming concepts and SQL. Please send resumes to Aimee Romeo, Cono, 959 Skyway, Suite 100, San Carlos, CA 94070. EOE. Please reference Code 444CC.

SYSTEMS ENGINEER IV - SYSTEMS ARCHITECT

(Temple Terrace, FL) - Provide technical design & software programming for client server architecture applications in the telecommunications industry. Design, develop & construct software to solve complex business & internet business process automation requirements utilizing RDBMS products, Java, Windows 2000, Unix, HTML & SQL. Provide technical expertise in operating systems & applications systems in the telecommunications industry. Define deliverables & monitor technical assignments. Track the latest technology directions in the telecommunications industry. Position requires a Bachelor's degree in Bus. Admin or Mgmt. Info Systems plus 2 years of experience in the job offered or in the related occupation of Engineer or Analyst. 2 years of previous experience must include experience with RDBMS, Java, Windows 2000, Unix, HTML & SQL. $86,600/year, 40 hours per week, 9 AM - 5 PM. Submit resume to Workforce Program Support, PO Box 10869, Tallahassee, Florida, 32302-0869. Job Order # FL 2529738. Must have proof of legal authorization to work in the U.S

PROGRAMMER/ANALYST to analyze, design, develop, test, implement and maintain complex enterprise web-based application software using object oriented programming, Java, J2EE, EJB, JSP, Servlet, JDBC, XML, RDBMS, Struts, WSAD and WAS on UNIX and Windows platforms. Require B.S. degree (or equivalent) in Computer Science/Info Systems, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered. Each three years of progressively responsible work experience in the field will be considered equivalent to one year of college education. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to Sophie Mookerji, Software Paradigms International, Inc., 3801 Roswell Rd. Ste 134, Marietta, GA 30062. Attn: Job SG.

SOFTWARE ENGINEER to design, develop, test and maintain web-based applications in a client/server distributed computing environment using Java, J2EE, C++, Oracle, WebLogic Application Server, Apache Server XML, EJB, JSP and Struts on Windows, UNIX and SUN Solaris platforms. Require M.S. degree in Computer Science, an Engineering discipline, or a closely related field with 1 yr of exp in the job offered or as a Programmer. Experience gained before or after earning the M.S. degree will be accepted. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ravi Kandiwalla, Everest Computers Inc. 875 Old Roswell Road, Ste E-400, Roswell, GA 30076. Attn: Job HS

Programmer/Analyst / Software Art Corp., a software-consulting firm, requires software professionals with demonstrated hands-on experience in the following: Client Server MS VB .NET, ASP .NET C#/C++/Oracle/Sybase/Windows/Unix DBA Sybase/SQL Server Internet Computing JAVA/CORBA/XML, JAVA Websphere/Weblogic

QA Testers: Manual/Automated Business Analyst, National Account Managers SAS Programmers Send resume to

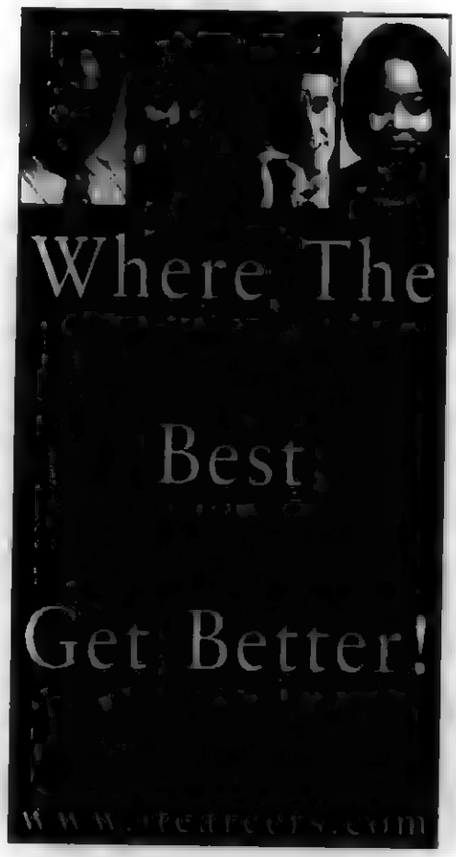
Software Art Corporation

cvsoft@softwareart.com

Programmer/Analyst - Structured systems analysis, design, development, testing, quality assurance, implementation, integration maintenance and support of integrated client-server based systems for business, financial, banking manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems. 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analyses, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr experience on job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B, or 2 of A and 1 of B, or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server, and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SQL, SQL*-FORMS, ESQL/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK). High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,533 - $76,000 per year. Qualified applicants should contact or send resume to Site Manager, PA CareerLink - Westmoreland County, 300 East Hills Street, Youngwood, PA 15697-1808. Refer to Job Order # WEB 430693

COMPUTER PROGRAMMER/ANALYST - 40 hrs week 8:00 - 5:00 p.m. salary $52374.00 Bachelors Degree or foreign equiv in computer science, maths, physics or engineering (any branch) 2 yrs in job offered OR 2 yrs in a related occupation in Software Engineer or Programmer, will be assigned to various unanticipated client sites throughout the U.S. as needed with expenses paid by employer in lieu of a Bachelors Degree or foreign equiv employer will accept a foreign degree equiv based on a combination of education & experience. Job located in Jacksonville, FL 32202. Gather user requirements & perform systems analysis. Design & Develop applications & database under close supervision. Will assist in the implementation of applications & preparing documentation including user manuals. Will work with related computer programming. Conduct user demonstrations and training. Tools include Visual Basic, MS Access & Java Database include Oracle, RDM (Relational Document Manager) & Intersel Coldfusion. Send resumes to agency for Workforce Innovation, P.O. Box 10869, Tallahassee, Fl 32302. JOFL-2531907

Computer - Software Engineer, Boca Raton FL. Develop and design system manager components, test, install configure, deploy, debug and monitor components, databases and servers, servers, coordinate system components, lease with other professionals developing other components, provide technical information and guidance regarding product specifics. Utilize JMS, TCP/IP, MQ, JMX & XML. Bachelor's Degree or foreign equivalent degree in Computer Science, Computer Engineering or Management Information Systems, and two (2) years of experience in the job offered or in the related occupation of Programmer. $80,137 per year, 40 hours per week, 8:00 am-5:00 pm. Please send resumes to Job Order number FL-2527530, Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869.



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JavaOne

"I've never even evaluated Sun tools," said Rick Davis, a Ravenswood, W.Va.-based senior systems analyst at Pechiney Rolled Products LLC, which uses IBM's WebSphere application server and, like most WebSphere sites, the development tool designed for it. Although Davis expressed curiosity about the new offerings Sun promoted last week, he added, "I'm curious about a lot of things, but I don't have time for them."

A random poll of more than a dozen attendees at JavaOne found that none use Sun commercial tools. A few said they use Sun's open-source NetBeans integrated development environment (IDE). Sun previewed a 4.0 version of NetBeans last week.

Daniel Vela, a San Antonio-based software engineer at Sierra Nevada Corp., said he has no need for Sun's commercial tools because NetBeans is more than adequate. He said several colleagues also use NetBeans, and two of them have opted for the open-source Eclipse IDE that IBM created and this year turned over to an independent nonprofit corporation to manage.

An architect at a big investment bank who asked not to be named said he uses Eclipse, NetBeans and IntelliJ. He said he abandoned Borland's JBuilder because of the expense and opted for the cheaper IntelliJ. He said he tends to favor Eclipse over NetBeans because it's "snappier."

The architect expressed respect for Sun as the "only viable steward of Java." But, he added, "it's difficult to see how they reconcile the investment they're making in Java. I find it hard to work out how Sun will make any money off the Java platform."

Sun is being creative with bundled options and subscription pricing, but the growing popularity of free open-source options such as Eclipse and NetBeans threatens commercial offerings. Thomas Murphy, an analyst at Meta Group Inc., said more corporations will take a mixed approach, using commercial and open-source tools to cut costs. A J2EE tools suite can cost $5,000 to $10,000 per developer, he said.

"People are pushing back against that," Murphy said.

Some development teams, however, still want the add-ons that a commercial tool provides. Joseph Saab, a Detroit-based development manager at Daimler Chrysler AG, said the automaker needs the Enterprise JavaBeans support, test environment and enterprise application integration modelers in IBM's WebSphere Studio Application Developer.

Developers expressed varying levels of interest in Java Studio Creator, the Microsoft-like drag-and-drop tool that comes free with a $99 annual Sun developer network subscription. Todd Reeser, a manager of application development at Choice Hotels International in Phoenix, said his group will evaluate Creator, even though he has heard some say "it's a toy." His group uses Eclipse. "It's open-source, it's free, and it's an excellent IDE," he said.

Christopher Randall, a Seaside, Calif.-based software engineer at Northrop Grumman Corp., said he typically has found Sun's new tools to be too slow, but he was impressed when testing Creator in labs at JavaOne. Whether he will actually use it is another matter. He said he doesn't use an IDE.

"When you use an IDE, you always have to learn some set of steps that may or may not be applicable to what you're doing," he said. Creator also has another strike against it. "I generally don't like programming with drag-and-drop," he said.

But Mark Driver, an analyst at Gartner Inc., said ease of use and rapid application development tools represent hardware-centric Sun's last chance to have an impact in the tools business, since there's no leader in that area. "This is a market for them to lose, and they have lost it," Driver said. "They have a long tradition of shooting themselves in the foot with anything that has to do with software strategy."

Murphy said that in order to make strides in tools, Sun will have to establish more of a presence with its application server. "You have to have the combination," he said.

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JavaOne Pavilion



Developers line up to troll for tools at last week's JavaOne

Gosling Discusses Java Tools Woes

James Gosling, the father of Java, is now chief technology officer for Sun's developer products group. He discussed the company's difficulties in the commercial tools space last week with *Computerworld*.

Few developers use Sun's tools. How do you feel about that? Until recently, our tools haven't been as interesting as they should have been. With NetBeans 3.6, we have a release that has crisp performance and a really good feature set. . . . NetBeans has been out as an open-source project for like four years, but it wasn't until a year and a half ago that it really got energy put behind it. And Creator is really the first product we've launched that has broad appeal, because it is targeted at the Visual Basic developer – the sort of person who [doesn't] want to spend all of their time thinking about the guts of writing code.



So Creator and NetBeans 3.6 will start to change the situation? Yeah. And the 4.0 release of NetBeans is very close to being ready. And it's lovely.

What's so great in the new version? We've put a lot of effort into cleaning up the user experience, making the workflow a lot smoother. We've had huge, huge pushes on performance to make it sprightly. The NetBeans team tended to be focused on academic purity. Getting them to be a little more blue-collar was a challenge. But they've really gotten the religion. And now they've put a lot of effort into polishing the details.

What's in store for the future of Java Studio Creator? You can drag and drop components and build these apps beautifully, and subsequent versions of Creator are going to broaden that scope. The next version of Creator, for instance, isn't going to be limited to generating HTML as the output but [will] be able to build rich clients. We'd been hoping to be able to put down all that this year, but it wasn't quite ready.

What has changed at Sun to cause this push in tools. Was it Jonathan Schwartz deciding he wants a tools business? Some of it was with Jonathan. Jonathan has just been a breath of fresh air. Part of it was, if you wind back the clock five or six years, that we tried to foster an external ISV community of people doing interesting tools. . . .

But the reality of the tool business is that the economic models are horrible. Microsoft set the list price of tools so low that it's almost impossible for an independent company that's focused on tools to survive. So you've seen this incredible winnowing of the tool market. There's essentially only one left – Borland. And it's pretty shaky. And the developer community has gotten addicted to this world where they spend less on tools than they spend on lattes.

How do you make money if so many people say that free tools such as Eclipse and NetBeans are good enough? There actually is a market where people are paying, and that's usually the more specialized tools. The way that NetBeans is architected, it's not so much a tool as a tool environment. We've all released these little higher-level tools that are built as plug-ins to it. So Creator is really just an extension to NetBeans, and Java Studio Enterprise is an extension to NetBeans. The mobility stack is an extension to NetBeans.

Is it your charge to make a lot of money on tools? For us, the real goal is to make it so that the software ecosystem is as healthy as possible. We don't have to be fabulously cash-positive. We just have to be not fabulously cash-negative, because these tools are enormous. They're tremendous engineering efforts.

– *Carol Sliwa*

THERE'S MORE ONLINE

To read the full version of this interview, visit our Web site:

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BPA ABM

FRANK HAYES ■ FRANKLY SPEAKING

Excuses, Excuses

IT'S INCREDIBLE — THAT'S THE ONLY WORD FOR IT. In May, the Justice Department said it couldn't copy what's supposed to be public information in one of its databases because "implementing such a request risks a crash that cannot be fixed and could result in a major data loss, which would be devastating. In addition to running the risk of data loss, this is a new feature request which would be costly and take a considerable amount of time to implement."

Yes, this Justice Department bureaucrat actually said that copying a database could destroy the data and produce an unfixable crash. *And* that it would be costly and take time.

And we've been worried about Sarbanes-Oxley. Silly us.

Details of this database problem are sketchy. All we know for sure is what's in a letter to the Center for Public Integrity, a Washington watchdog group. In the letter, the Justice Department denies the group's request for a copy of the government's database of foreign lobbyist activity under the Freedom of Information Act.

The database exists, and it's supposed to be publicly available. In fact, Justice is legally required to generate a report from it for Congress twice a year. But the most recent report was for the second half of 2002.

Since then, the database has been undergoing a "technology upgrade," according to the letter. As a result, the database can't be copied until December without risking a devastating data loss and a crash that can't be fixed.

What could possibly be better news to overworked, deadline-pressed IT shops? The Justice Department officially believes in databases that can be destroyed *just by being copied.*

And Justice also officially believes that's a perfectly good excuse for failing to comply with an information disclosure law.

So, if we can't manage to meet the deadlines or generate the reports required by Sarbanes-Oxley and other new laws and regulations that require access to databases, we know we'll get a sympathetic hearing at Justice — right? Well, won't we?

And there are a few other things we'd like to know. Such as:

■ Who is this brilliant contractor that leaves an organization unable to perform tasks it's legally required to do for between six months and two years?



■ If we hire this contractor for our Sarbanes-Oxley overhauls and our e-mail and instant messaging repository projects, will we be able to use the same copying-the-data-could-destroy-it excuse successfully?

■ Will our users believe us when we tell them accessing the data they need will destroy it, so they'll have to make do without it? OK, scratch that one — we already know the answer.

■ Will our CEOs accept that this is a new federal standard for data-intensive IT projects?

■ Since Attorney General John Ashcroft will be two years behind in filing required reports by the time the database is working again, can we get him to file a friend-of-the-court brief when the Securities and Exchange Commission or New York Attorney General Eliot Spitzer comes after us for not filing *our* reports?

■ How about just writing us an excuse note?

■ Is this copying-destroys-it feature available for digital rights management systems?

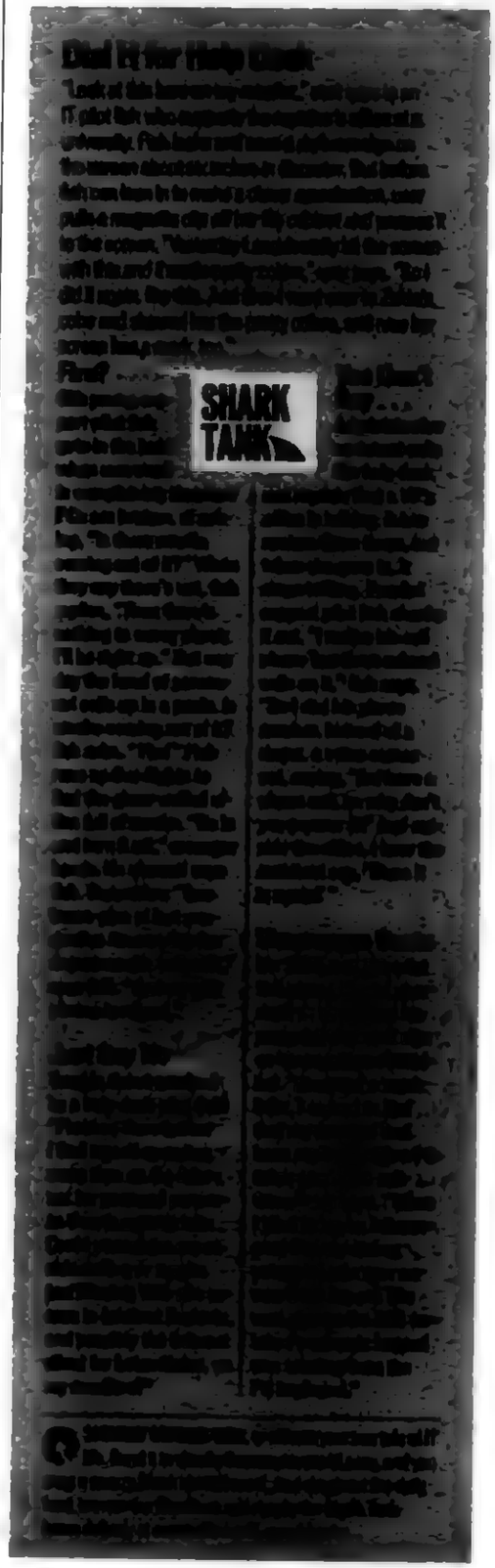
■ If we can't hire the contractor or buy the technology, can we at least see the résumé of the IT department staffer who came up with the phrase "a crash that cannot be fixed"?

■ How could anyone know that copying the data may cause "a crash that cannot be fixed" unless . . . uh-oh. . . .

■ Somebody *did* back up that database at some point, right?

They must have answers to these questions somewhere at the Justice Department. Maybe even in a database. Now if we can just get someone to make a copy for us. . . .

47901




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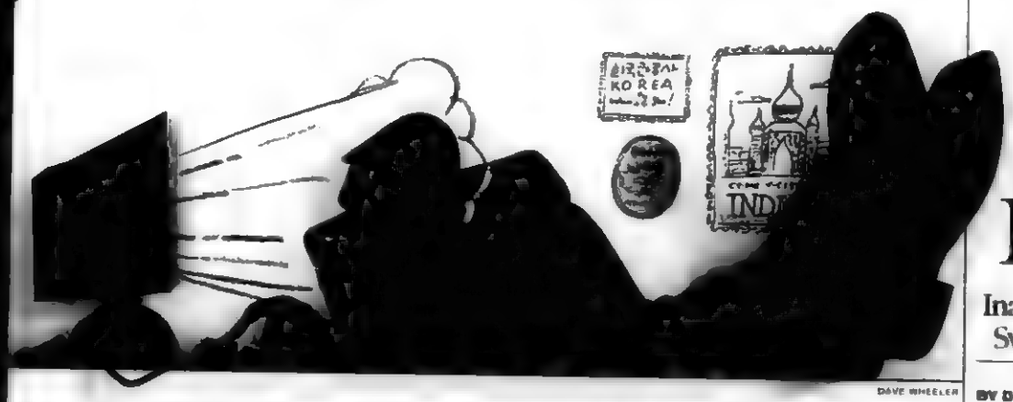
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DAVE WHEELER

Page 31 Outsourcing is fraught with political risks, from employee angst to customer dissatisfaction and PR nightmares. Julia King explains how to manage or even prevent the backlash.

DamageControl

E-mail Glitch Exposes Flaw In Privacy Law

Inadvertent release of county employee data to Swedish company leads to California inquiry

BY DAN VERTON

IT officials in Contra Costa County, Calif., last week launched an investigation into how hundreds of internal e-mails that contained private employee data ended up in the in-box of a Swedish company. And now legal analysts say the incident has revealed major weaknesses in California's landmark privacy law.

INVESTIGATIVE REPORT

The investigation was launched after *Computerworld* notified the county on July 6 that Robert Carlesten, managing director of Internet company Ord&Bild AB in Karlstad, Sweden, had produced dozens of e-mails that he said had been arriving at his Internet.ac domain regularly for the past two years. Carlesten said he responded to the senders of the e-mails on multiple occasions to inform them of the problem but never received a reply.

In addition to a deluge of administrative communications from the county's Department of Information Technology and its human resources director, the e-mails contained detailed discussions and attachments related to the payroll files for the county's Superior Court as well as current and former employee benefits. Many of the e-mails contain the names, employee ID numbers and benefits information of Superior Court commissioners and other workers. *Computerworld* broke the story on its Web site on July 6 [QuickLink 47999].

Tom Whittington, CIO for the Contra Costa County gov-

Privacy Law, page 45

Australian Firm Wrestles With ERP Delays, $11.5M Overrun

Problems lead to IT overhaul; PeopleSoft could face legal action

BY MARC L. SONGINI

Problems with the installation of an ERP system at Australia-based Crane Group Ltd. have led to an estimated cost overrun of $11.5 million and a reorganization of the company's IT operations. The difficulties may also lead to financial claims against PeopleSoft Inc., according to Crane officials.

No legal proceedings have been started against PeopleSoft, a Crane spokeswoman said last week. But she added that the company is exploring all options because the problems and delays on the ERP project caused "quite a disruption to Crane's business over the last couple of years."

The spokeswoman said Crane has spent an estimated $49 million (U.S.) on the project, which began in early 2001 and was originally due to be completed last year. She declined to specify the nature of the problems, saying only that the rollout has been difficult and that Crane and PeopleSoft are engaged in discussions about the project.

Crane, which expects to report revenue of about $1.5 billion for the fiscal year that ended June 30, makes prod-

ERP Delays, page 45

INSIDE PeopleSoft warns of a Q2 revenue shortfall – and it's not the only software vendor to do so. Page 10

IT by Committee



SPECIAL REPORT

IT governance and steering committees are winning adherents such as Cathy Brune, CTO at Allstate Insurance. But recent studies indicate that many companies remain holdouts. Thomas Hoffman reports on the adoption of formal IT governance processes. PAGE 6

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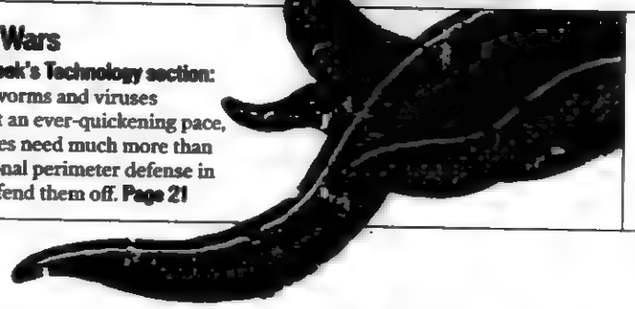
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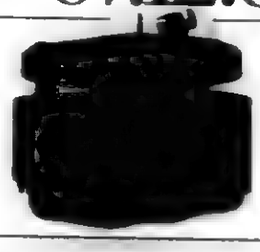


Worm Wars

In this week's Technology section: As new worms and viruses appear at an ever-quickening pace, companies need much more than a traditional perimeter defense in order to fend them off. **Page 21**

The Coming Robot Revolution

Also in this week's Technology section: After spending decades mostly in factories, robots will begin playing roles in homes and offices, experts say. **Page 26**



NEWS

IT by Committee

SPECIAL REPORT **IT governance committees vary in their approaches, and many companies don't involve their top executives – or even have such panels. Page 6**

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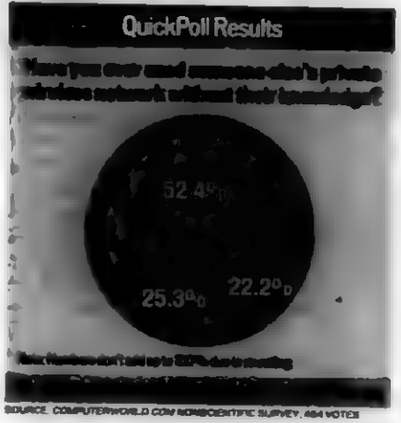
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How to Launch an Internet Use Policy

SECURITY: Companies can benefit in a number of ways if they set rules for employee Internet use. Jeff Hughes of Blue Coat Systems tells you how to do it. **QuickLink 47982**

Tips for Successful Server Recoveries

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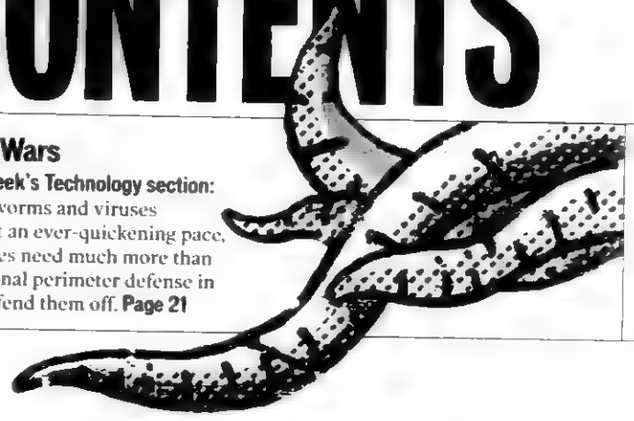
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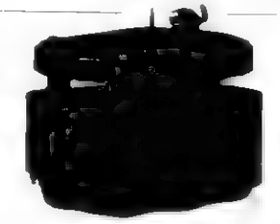
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IT Governance Is On the Hot Seat

Committees of IT and business execs oversee spending at some companies, but surveys find lots of skeptics. By Thomas Hoffman

BEFORE Allstate Insurance Co. formed a capital spending committee with IT governance responsibilities about 18 months ago, the process of prioritizing IT projects typically was decided by "whoever spoke the loudest or whoever had the biggest checkbook," said Chief Technology Officer Cathy Brune.

Now Brune and some top Allstate executives, including the chairman and CEO and the chief financial officer, collectively decide how to prioritize IT initiatives based on business needs. "They help me decide where to spend our money," Brune said, noting that the new approach to IT governance gives the business executives a better understanding of the IT spending process.

IT governance committees like the one at Allstate are becoming more commonplace as companies aim to better align their IT operations with business goals. The idea behind such committees is to bring together key IT and business managers and give them joint responsibility for making decisions about technology priorities and investments.

But the specific IT governance techniques being used by different companies vary widely, according to more than a dozen IT managers, researchers and academics interviewed for this article. Moreover, many companies have yet to adopt governance processes that include direct input about IT from CFOs, other senior executives and board members — a situation that some analysts think could hamper efforts to align IT and business.

"Top management is still not involved enough yet," said Gary Hardy, technical coordinator at the IT Governance Institute (ITGI) in Rolling Meadows, Ill. CEOs and other high-level executives often recognize IT's importance to their companies, he said, "but the CIO still tends to drive IT governance initiatives more than top management."

The use of IT governance committees is by no means universal. In a survey due for release this month that was conducted for the ITGI by PricewaterhouseCoopers, 76% of the 335 CEOs and CIOs who responded said they're aware of IT problems that could be resolved if they had a formal governance framework. But 42% said they have no plans to create IT governance programs involving executive-level steering and board-level strategy committees.

In a recent online survey of about 200 IT executives and CFOs at companies in North America and Europe, Meta Group Inc. found that less than 20% of the respondents have set up corporate or IT governance committees with formal memberships and charters [QuickLink 47304]. Meanwhile, analysts have said that they're aware of only a small number of companies with IT oversight panels that include members of their boards of directors [QuickLink 46892].

Even companies with IT steering committees may not be fully prepared from a governance standpoint if the panels include business unit managers and department heads but not top corporate executives, said Rob Austin, a fellow at Cutter Consortium in Arlington, Mass., and a professor at Harvard Business School.



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JAY GARDNER, CIO, BMC SOFTWARE

Such committees "don't address the overarching governance problem at an executive level," Austin said, adding that

MIT

Companies that don't have formal IT governance committees might want to take heed of the following: Businesses with superior governance practices generate 20% greater profits on average than other companies that share similar goals of making IT spending more effective and better aligning technology resources with business needs, according to an MIT study.

The study, conducted by the Center for Information Systems Research (CISR) at MIT's Sloan School of Management, examined IT governance processes and profitability at 256 companies from 2001 to mid-2003. The findings were published last month in a book titled *IT Governance: How Top Performers Manage IT Decision Rights for Superior Results* (Harvard Business School Press).

CISR Director Peter Weill, who helped lead the study and co-authored the book, said companies with effective IT governance tend to have joint decision-making between business and IT managers on prioritizing technology projects and other key issues.

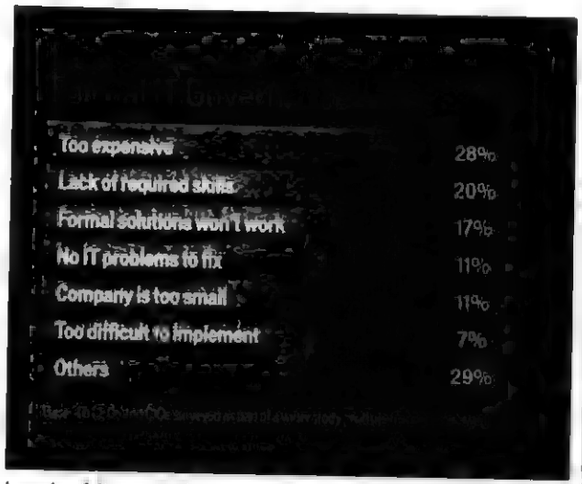
But Weill noted that companies with world-class IT governance techniques, such as State Street, United Parcel Service Inc. and insurer and financial services firm USAA, often use completely different approaches. "I think the lesson here is that you have to have governance tailored to what you're trying to achieve," he said.

State Street CIO Joe Antonellis said he hasn't done the kind of financial-return analysis that the CISR did to gauge the effectiveness of the bank's IT governance model. But he thinks State Street's governance processes are helping the company spend its IT budget more effectively and enabling it to earmark more money for projects that support business initiatives aimed at increasing revenue.

The bank's overall IT costs have remained flat since Antonellis became CIO, while its IT workforce is 23% smaller. In addition, State Street now invests about 30% of its IT spending on new-revenue projects and uses the other 70% for day-to-day IT operations, Antonellis said. That's an improvement over the 25%/75% spending split that he inherited. Antonellis added that his goal is to push IT spending related to new revenue opportunities to 40% of the overall budget by the end of next year.

— *Thomas Hoffman*

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boards of directors also need to be involved in overseeing IT. "It seems to me that there's a train wreck due sometime . . . where inattentive boards are not going to know what hit them when they have an IT disaster," he said.

At Allstate, business units are responsible for funding maintenance and upgrades of their own applications. But Brune said IT spending is managed at a group level, and money is moved around between units as needed. The capital allocation committee, which also includes representatives from the Northbrook, Ill.-based insurer's two main operating units, has to approve all IT projects budgeted at more than $5 million, or $25 million over five years.

Effective IT governance "makes you more nimble about what you do," Brune said, adding that Allstate's approach helps avoid political infighting that can slow down decision-making.

Other companies have IT governance goals that are similar to the ones espoused by Brune. But they have adopted somewhat different tactics for achieving their objectives.

Earlier this year, Cleveland-based KeyCorp formed a technology advisory board that includes CTO Robert Rickert, the bank's CFO and the head of each business unit. The board meets regularly to prioritize and manage the $100 million in IT project spending planned for this year, said Bob Dutile, an executive vice president in the company's Key Technology Services Group.

In the past, IT governance at KeyCorp consisted of the bank's CFO measuring IT spending by line of business, Dutile said. By last year, the prioritization of IT projects was done "more ad hoc at the corporate level," he noted. The more structured governance process now in place ensures that KeyCorp has an explicit approach for allocating IT funding, Dutile said.

When Jay Gardner became CIO at BMC Software Inc. three years ago, he discovered that the Houston-based software vendor had 128 IT projects in progress, many of which had no business owners or return-on-investment criteria attached to them. Gardner spurred the creation of an informal committee to oversee IT decision-making, and BMC made the group a formal entity last September.

The IT executive board meets at least monthly, but between February and May it met every two weeks because "we had a lot of projects to prioritize," Gardner said. The board includes senior managers from each department, a representative from BMC's international operations and its chief accounting officer. Gardner and BMC's director of IT operations are also members.

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Each of the six business units at Wyeth, a maker of pharmaceuticals and other health care products, has its own IT steering committee with a liaison from the IT department. But some large projects are vetted by an executive-level committee that includes CIO Bruce Fadem, plus Madison, N.J.-based Wyeth's CEO and CFO and the managers of its six business units.

For example, if Wyeth's consumer health care products group has 25 IT projects plotted out over the course of a year, the executive committee will monitor the largest two or three, Fadem said. Even so, much of the accountability for the IT projects resides within the business units themselves.

"What we've done is put the prioritization of IT investments in the hands of our business managers," Fadem said. "To think that senior management can sit in a committee meeting and rank projects in order just isn't practical. They might know the top five criteria for a project, but not beyond that."

One of the companies that analysts cite as a leader in IT governance is State Street Corp., a financial services firm in Boston. Nearly three years ago, State Street formed an IT executive council that currently includes CIO Joe Antonellis, the company's CFO, its vice chairman and the heads of its three business units. The group meets every six weeks to review IT spending levels and look at how State Street's 3,200 IT workers are distributed among projects, Antonellis said.

When Antonellis became CIO 18 months ago, he formed an office of IT strategy and governance within State Street's IT department. The strategy and governance office, which is run by his chief of staff, sets internal technical standards and oversees everything from IT architecture decisions to technology risk management procedures.

Despite State Street's two-pronged strategy for governing IT, Antonellis said the firm continues to wrestle with thorny issues such as how to migrate the governance model to its overseas divisions.

"That's a challenge," he said, adding that State Street hopes to ease the process by standardizing globally on development tools from IBM's Rational Software unit. 48025

A Governance Framework

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IT Execs Downplay Role of Sarbanes-Oxley in Governance

The relatively low levels of interest in creating IT governance committees found by the ITGI and Meta Group surveys are alarming, considering the heightened emphasis that the Sarbanes-Oxley Act has placed on overall corporate governance, said Adnan Bowles, director of education and research at the IT Compliance Institute in Seattle.

Bowles said he expects attitudes to change as the deadlines for complying with the financial reporting law begin to draw near. "Certainly, more companies are trying to get serious about IT governance whereas four or five years ago, not a lot of people were talking about it," he said. "As we get into crunch time for Sarbanes-Oxley [compliance], we're going to see more formal evidence of IT governance."

But none of the IT executives interviewed for this story said Sarbanes-Oxley played an instrumental role in driving their companies' IT governance efforts. Instead, they cited factors such as a desire to better align IT strategies with the needs of business units.

MasterCard International Inc. has an IT steering committee that meets every six weeks or so and includes IT representatives and business managers from each of the four regions where the Purchase, N.Y.-based company operates. The committee categorizes proposed IT projects and then ranks them in importance based on business needs and projected paybacks, said James Whalen, senior vice president of finance and administration at MasterCard's global technology organization.

MasterCard has changed from being a member-owned company to one that's publicly traded, increasing the amount of financial disclosures it needs to make. But Sarbanes-Oxley "isn't a primary driver" for its IT governance efforts, Whalen said. IT governance would have become more important at MasterCard even if the law never came into play, according to Whalen.

"I think this is tangential [to Sarbanes-Oxley], because our investment decisions are significantly more transparent and require a significant amount of communications," he said.

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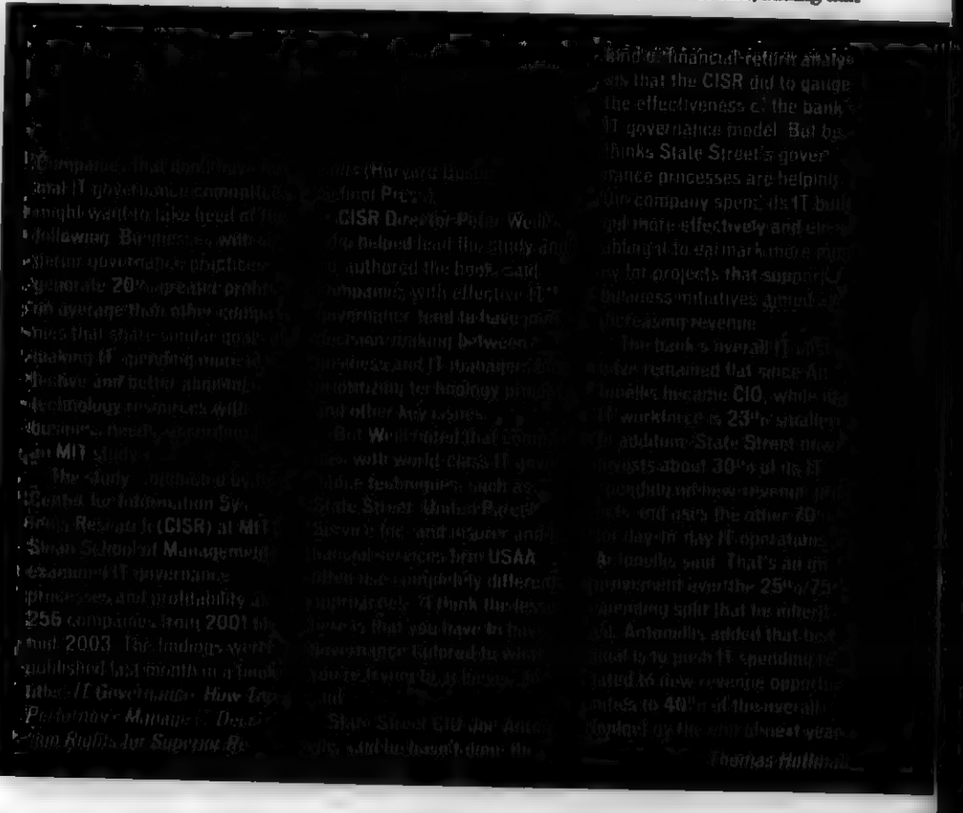
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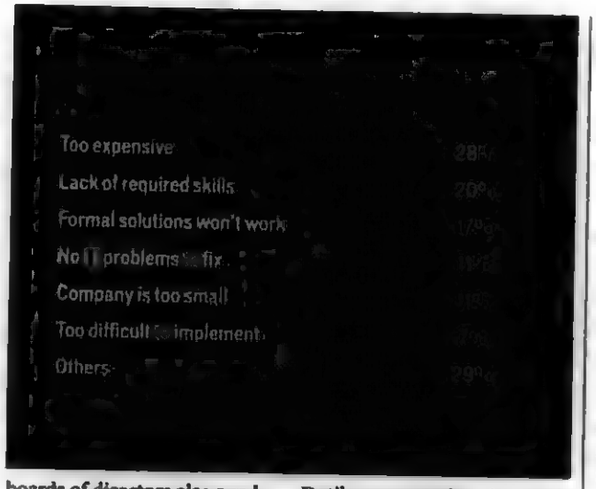


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Writer: Thomas Hoffman
Editor: Craig Stedman
Designer: Julie Quinn



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SOURCE: IT GOVERNANCE INSTITUTE, ROLLING MEADOWS, ILL.

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MasterCard has changed from being a member-owned company to one that's publicly traded, increasing the amount of financial disclosures it needs to make. But Sarbanes-Oxley "isn't a primary driver" for its IT governance efforts, Whalen said. IT governance would have become more important at MasterCard even if the law never came into play, according to Whalen.

"I think this is tangential [to Sarbanes-Oxley], because our investment decisions are significantly more transparent and require a significant amount of communications," he said.

– *Thomas Hoffman*

AT DEADLINE

Sprint Taps IBM For More IT Work

Sprint Corp. announced a five-year IT services deal with IBM that expands the scope of an initial agreement the two companies signed in September. Under the new contract, which is valued at more than $400 million, IBM Global Services will take over application development and maintenance on some Sprint systems. About 1,000 IT workers will transfer to IBM as part of the deal.

SAP Says It Will Top Q2 Forecast

SAP AG said it will report second-quarter revenue of about $2.2 billion, up 9% from the year-earlier level and slightly more than financial analysts had projected. Software license sales should total $614 million, a 15% increase over last year's second quarter. SAP's showing is in contrast to warnings by other software vendors that their results will be lower than expected (see story, page 10).

Mozilla Issues Fix To Windows Users

The Mozilla Foundation issued a software patch designed to plug a security hole that could affect users who run its open-source Mozilla Application Suite, Firefox browser and Thunderbird e-mail client on Windows systems. The patch disables use of the "shell:" external protocol handler, which attackers could exploit to run malicious code. Users of Linux and Macintosh systems aren't at risk, the foundation said.

Short Takes

A California judge approved the $1.1 billion settlement of a class-action lawsuit filed in that state against MICROSOFT CORP. over its pricing policies [QuickLink 35711] . . . . PEOPLESOFT INC. upgraded the manufacturing asset management module in its EnterpriseOne line of business applications for midsize users.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FAULKNER

Reach Path to 'Linux Nirvana' . . .

. . . with archiving tool for data center. That's the message from major software vendors that have jumped on the information life-cycle management bandwagon. SAP AG will release an ILM product, possibly this summer, based on technology from OuterBay Technologies Inc. And Sybase Inc. in Dublin, Calif., has just begun offering OuterBay's ILM technology, joining PeopleSoft Inc., Oracle Corp., EMC Corp. and other companies anxious to get users to migrate their dusty data from high-priced proprietary servers to cheaper Linux machines. But Michael Howard, CEO of Cupertino, Calif.-based OuterBay, thinks these software giants want to prod you toward "a Linux nirvana," where even your pricey production machines, not just the ones with archived data, are low-cost, commodity Linux boxes. Howard claims the software vendors are discovering that their products run plenty fast on Linux systems once the old data has been moved elsewhere, so they're encouraging you to dump virtually all of your proprietary Unix systems. "For software vendors, every dollar you take away from hardware procurement leaves you more to spend on software," he says. A diabolical plot? Or a gift from heaven?



Linux Lovers Should Forget Feud With . . .

. . . Windows and think above and below the operating system. That's the advice from Tim O'Reilly, CEO of O'Reilly Media Inc. in Sebastopol, Calif. The publisher of open-source books and the impresario of the O'Reilly Open Source Convention being held later this month in Portland, Ore., argues that by emphasizing the operating system struggle, open-source zealots overlook opportunities to build successful business alternatives to proprietary technologies. He points to Google, Amazon.com and other successful Internet businesses that are built on top of Linux, as well as Indianapolis-based hardware maker Progeny Linux Systems Inc., which builds its business below the operating system. "A lot of the Linux community is fixated on beating Microsoft," he says. "But value is moving up and down the stack, as these companies show." In contrast to what was written here two weeks ago [QuickLink 47772], O'Reilly thinks the desktop opportunities for Linux are alive and well. Especially with Novell Inc.'s purchase of SUSE and Ximian, which enables the Orem, Utah-based company's brand-name recognition in the enterprise to be used as ammo in the desktop wars.

IT Departments Worry That Chargeback . . .

. . . systems "will expose them much more internally," says Richard Simons, chief operating officer at MBG in New York. Once internal customers learn the minutiae of how much IT is charging them, they have critical data by which to measure IT against external offerings. However, the greater the detail, Simons argues, the less time CIOs will waste in acrimonious meetings justifying budget assessments. "Breaking out the costs shows the value users get," he says. "Visibility is what helps keep IT honest." MBG offers tools for detailing everything from IT to telecommunications charges. In the latter category, telcos have cut delivery costs nearly to the bone, so they're looking to automate on business processes using XML, he says.

26% The business process savings that Aberdeen says telcos can gain using new tools.

Automate Multisource Information . . .

. . . workflow in a high-volume environment with interchange, a new product from Captaris Inc. in Bellevue, Wash. Set to ship the first week of September, .Net-based Interchange takes vast numbers of files, like e-mails, faxes and spreadsheets, and routes them to the appropriate recipients, tracks their progress, handles exceptions and delivers reports to management on workflow status. Pricing will start at $20,000.

GIS Data Shifts IT Landscape . . .

. . . for tools in the field. Today's modern civil engineers plant stakes equipped with global positioning systems, and this year Caterpillar Inc. made GPS standard on all of its earth-moving equipment, observes Chris Bradshaw, vice president of the information solutions divisions at Autodesk Inc. in San Rafael, Calif. He says these are only some of the changes occurring in geographic information systems that are forcing IT to rethink the way it outfits systems deployed in the field as well as the way the data gets processed back in the data center. First, Bradshaw points out, real-time information isn't necessary for GIS users who carry laptops in the field — a daily update back at the office works fine. That means less concern about wireless problems. Another point that Bradshaw raises is the lack of a standard for storing GIS data. "Oracle is way ahead of the game," but only on the high end, he says. If an industry standard does appear, Bradshaw says Autodesk will support it. In the meantime, buy lots of disk drives; GIS data eats them like candy.



48069

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Purchasing Delays Cause Software Sales Shortfalls

Vendors miss second-quarter targets, blame spending drop-off in U.S. in June

BY LUCAS MEARIAN AND MARC L. SONGINI

SIX TOP SOFTWARE vendors warned last week that they will report lower-than-projected revenues for the second quarter, blaming a slowdown in spending by U.S. customers last month.

PeopleSoft Inc., Computer Associates International Inc., Siebel Systems Inc., Veritas Software Corp., BMC Software Inc. and FileNet Corp. all said they missed their revenue targets for the quarter. The cavalcade of announcements followed a similar warning from Sybase Inc. on July 1.

Sybase cited execution problems in its North American sales unit, and PeopleSoft pointed a finger at the fallout from the trial in which the U.S. Department of Justice is trying to block Oracle Corp.'s hostile takeover bid for the company. But a common thread among all seven vendors was that expected sales didn't materialize in the U.S. in June.

For example, Mountain View, Calif.-based Veritas said that sales of its storage management software met expectations in most of Europe and the Asia-Pacific region. But the sales in those areas were offset by a late drop-off in purchases by U.S. customers. "At the end of the June quarter, our anticipated order flow weakened," said Veritas CEO Gary Bloom in a statement.

Houston-based BMC said it signed just nine software licensing deals worth more than $1 million each during the quarter, the first in its 2005 fiscal year. In comparison, BMC inked 16 deals that topped the $1 million mark in the same quarter a year ago.

Some analysts said the widespread dip in sales is good news for users because it should increase competition and further drive down software prices. Others called it an indication that the long-awaited recovery in IT spending is already sputtering.

For some users, the recovery hadn't even begun.

"I haven't seen any increase in spending on our end," said Matt Fuoco, director of network services at the University of Kansas Medical Center in Kansas City. "People are asking more questions about the spending that's going on." Fuoco added that there is still plenty of economic uncertainty, which is keeping IT spending flat at the medical facility.

Jim Prevo, CIO at Green Mountain Coffee Roasters Inc. in Waterbury, Vt., said many companies could still be digesting software purchases they made in prior years. "Certainly, all of us are focused on getting more out of what we have already paid for, rather than writing checks for new software," said Prevo, who runs PeopleSoft's applications.

"Companies are still reluctant to make major software purchases," said John Moore, an analyst at ARC Advisory Group Inc. in Dedham, Mass. He predicted that there won't be any big uptick in sales until after the November election, at the earliest. **48066**

Q2 Misses

	EXPECTED SALES	REVISED FIGURES
CA	[illegible]	$830M-$850M
PeopleSoft	[illegible]	$855M-$865M
Veritas	[illegible]	$475M-$485M
BMC	[illegible]	$318M-$328M
Siebel	$305M	$301M
Sybase	$196M	$186M-$192M
FileNet	$100M	$93M-$95M

Storage Sales Telling for Industry

In addition to the warning from Veritas, storage hardware makers Emulex Corp. and Overland Storage Inc. have said they will miss their second-quarter revenue targets – a development that has made analysts nervous as the largest storage vendors prepare to report their results for the quarter.

"We're all anxiously waiting for the storage companies to report their numbers," said Gartner Inc. analyst Roger Cox. "This quarter will be a telling quarter. The weather reports don't give you all that much confidence."

Nitsan Hargil, an analyst at Arlington, Va.-based investment bank Friedman, Billings, Ramsey Group Inc., said in a research note that Veritas will continue to face increased competition from larger vendors such as EMC Corp., which last year acquired data backup and recovery software vendor Legato Systems Inc.

Dong Jin Kim, senior Unix system administrator for worldwide information systems at Eastman Kodak Co. in Rochester, N.Y., runs backup software from Veritas on his Sun Solaris servers.

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"Certainly, there's been more price competition in a lot of these [storage] markets," said Brian Babineau, an analyst at Enterprise Storage Group Inc. in Milford, Mass.

But Babineau said it's too early to tell whether the storage sales slump is industrywide or limited to specific companies.

Emulex and Overland Storage both blamed a lack of reseller sales for their shortfalls, which they disclosed two weeks ago.

– *Lucas Mearian*

MySQL, SAP Plot Upgrade Of Open-Source Database

MaxDB to get 64-bit capabilities

BY MARC L. SONGINI

SAP AG and development partner MySQL AB are readying an upgrade to SAP's open source database that will add support for 64-bit computing, along with new monitoring and management features.

SAP inked a deal with open source database vendor MySQL in May 2003 to take over much of the development, support and marketing of the SAP DB software, which MySQL renamed MaxDB.

Zack Urlocker, vice president of marketing at Uppsala, Sweden-based MySQL, last week said the two companies are working on a MaxDB 7.6 upgrade that's due by year's end.

The new version will run on additional operating systems, including 64-bit Linux and HP-UX, and support the Java-based Eclipse development framework, he said. It will also include support for MySQL Proxy, a stand-alone program that lets MySQL's namesake software share information with other databases.

User Appeal

The performance boost that should come with 64-bit support is of interest to Charlie Brann, SAP administrator at Swisslog TransLogic Corp., as are the automated monitoring and management features.

Denver-based Swisslog uses SAP DB 7.3 to support its R/3 ERP system and other applications. Brann said the maker of materials-handling systems is considering an upgrade to SAP's mySAP ERP software and a migration to MaxDB 7.6.

MaxDB is currently used in about 6,000 installations, Urlocker said. MySQL and SAP announced a commercial version last November as an alternative to the free release that SAP includes with its business applications. Pricing starts at $49 per named user on single-CPU systems.

Charles Garry, an analyst at Meta Group Inc., said he doesn't see MaxDB at user sites very often, but he frequently discusses the technology with his clients.

IT managers at many large companies are reluctant to deploy the database because they think it's more appropriate for midsize users looking to cut costs, Garry said. **48080**

■ Originally developed by SAP as a free alternative to commercial databases for users of its applications.

■ Released in an open-source version by SAP in 2000, then renamed and offered under a commercial license by MySQL last fall.

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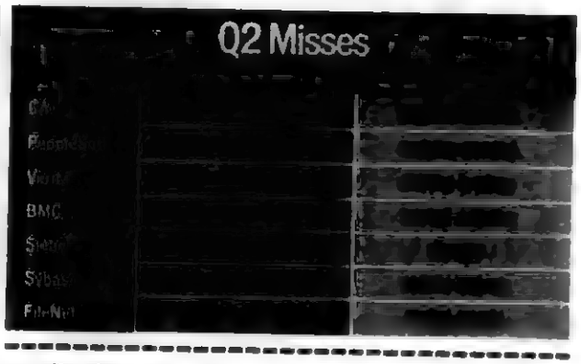
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Sun Exec Discusses Plans For Open-Source Solaris

No decisions yet about licensing model

BY CAROL SLIWA
SAN FRANCISCO

SUN MICROSYSTEMS INC. will make its Solaris operating system available under an open-source model by the end of the year, according to **John Loiacono**, the company's executive vice president of software.



Loiacono said no decision has been made about the open-source licensing model, but he discussed the philosophy behind the move to open-source during an interview at the company's recent JavaOne conference here. Excerpts follow:

Why is Sun going to make Solaris available under an open-source model? If you talk to CIOs about something like Solaris, you know what they say to me? "Why would you do that? It makes no sense to me." They say, "I want mission-critical, reliable, redundant, available, secure. That's what Solaris brings to me. I want that to continue. Open-source means very little to me."

Conversely, you go talk to the developers in that corporation, and they say, "Oh, this would be great. I can write drivers. I can do innovation."

So there's a sense of creating the community. This is about how I get more people developing software on the platform, because at the end of the day, it's all about applications. It's not about the OS itself. People like Windows because there's a lot of applications running on it. People are liking Mac more because there's a lot of applications on it. They like Linux because there's a growing number of applications on it.

The reason we're doing this on the whole is we're trying to create relevance in the fact that there's more people finding Solaris and being more able to use and modify and actually develop on top of Solaris. And that isn't just about the [people] that we sell to. It's about creating the community of tens of thousands or hundreds of thousands of people who want to innovate on top of the code we give them access to.

Will moving to open-source allow Sun to decrease its Solaris development staff? There's not going to be a huge decrease. The CIOs say, "My biggest worry about open-source is all the problems that things like Linux give me. What I want is your QA tests and all the rigidity you put behind a Solaris release." And my point to them is, absolutely. What we'll do tomorrow — whether it's open-source, or no matter what licensing model it is — you will get Solaris with all its QA, its tests, its hardening, all its security that you have today. All those resources required to do that, we will maintain.

In addition to innovation for things like container technology or fault recovery or dynamic tracing that I'm adding as new features in Solaris, I anticipate now that I'll have tens of thousands of people saying, "Here's an innovation on top of that." So could I get even more features built in, or could I over time reduce my cost of production? Yeah, absolutely — as long as I'm doing the QA and test cycle on what I call Solaris versus the open version of Solaris, which is probably called something slightly different, just to make sure people understand there are differences between the two.

Will there be two versions of Solaris? No. We will release the same version. But one will be open-source, no support. And one will be the one that we ship to Merrill Lynch.

Are you leaning toward a specific open-source licensing model at this point? We have some internal debates on what we think will be the most optimal. There are several to pick from. There isn't one hammer for every nail.

Is it possible you'll take an approach similar to what IBM did with Eclipse? Possible. You should also look at what Red Hat has done with Linux.

Any other models look appealing? I've got to be careful, because they do bring different things to the table. You have things like the Apache model, which gives you some of the branding rights. You have MySQL, which has some of the branding rights. You have the Mozilla license, which is a very popular license model. You have the CPL [Common Public License], which gives you some flexibility in different areas. And you obviously have GPL [General Public License] and LGPL [Lesser GPL]. Then we even have our Sun public license, something we call the SISL, the Sun Industry Standard License.

When will you make a decision about the licensing model? Shortly. I hate to be so vague, but by the end of the year, we'll have the whole thing announced.

Solaris is going open-source. Why not Java? We see ourselves as being the stewards of Java. Compatibility is a key issue. 48079

READ MORE ONLINE
The full interview with John Loiacono is available on our Web site:
QuickLink 48106
www.computerworld.com

Microsoft Partners Get New Support Options

BY CAROL SLIWA

Users turning to Microsoft Corp.'s ample stable of channel partners for products, support or consulting services are getting a new point of differentiation to help them make decisions about which vendors to select.

At its Worldwide Partner Conference in Toronto yesterday, Microsoft launched its Services Partner Advantage program to provide additional resources and support options to independent software vendors, systems integrators and other partners.

A standard prepackaged option gives a partner phone-based problem resolution support and various online resources. The higher-priced "plus" plan can be customized by the partner and adds a designated service professional at Microsoft as a resource. There is also a third plan, based on the standard and plus offerings, that applies to Microsoft Business Solutions products.

"We want to try to drive better credibility for the partner community so they become more of an asset for their end customers," said Thomas Dawkins, a product manager for worldwide services at Microsoft. His prior experience includes running a consulting practice and working at an independent software vendor. "I know how important it is to show credibility to a new customer," he said.

Partners in the past had to pay at least $40,000 to $50,000 to get premier support with Microsoft. They will now find an entry-level option for the standard plan starting at $5,000 to $8,000; the entry price point for the plus plan ranges from $27,000 to $32,000, a Microsoft spokeswoman said. The less expensive options are expected to enable an increasing number of Microsoft's partners to access more consistent support.

"It could be a selling point for partners. They might say, 'We can support your system better because we have a dedicated support resource at Microsoft,' " said Paul DeGroot, an analyst at Directions on Microsoft in Kirkland, Wash. Corporate users looking at competitive offerings from various partners might now ask what kind of support contract the partner has with Microsoft, he said.

The Partner Advantage program is available to Microsoft's Registered, Certified and Gold Certified partners. It is intended to help address partner complaints about contract terms, limited service options and the lack of consistency in the naming of programs on a global basis, Dawkins said.

"It arms the systems integrators and ISVs with services they perhaps did not have before or didn't have enough of to support their customers appropriately," said Paul Edwards, a Toronto-based analyst at IDC. "If partners can get access to the people they need [at Microsoft], the customers will benefit." 48082

Microsoft's New Services Plans

- Services Partner Advantage Standard Plan: Prepackaged option coordinated by a team of phone-based service representatives. Offers online resources, problem resolution support and proactive services.
- Services Partner Advantage Plus Plan: Customizable option managed by a designated service representative. Includes consulting services, workshops, problem resolution support, service delivery planning and online resources.



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BRIEFS

Microsoft Looks to Cut Costs by $1B

Microsoft Corp. plans to lower expenses by nearly $1 billion in its 2005 fiscal year, CEO Steve Ballmer wrote in an e-mail message to employees. Microsoft's costs have grown faster than its revenue over the past three years, according to Ballmer. "This is obviously not a trend we can continue," he said, adding that Microsoft executives "want to be prudent now as we avoid severe measures later." The company's new fiscal year began July 1.

Patent Ruling Goes Against Microsoft

The U.S. Court of Appeals in Washington reversed a lower-court ruling in Microsoft's favor as part of a patent infringement lawsuit filed in 1998 by Encinitas, Calif.-based TypeRight Keyboard Corp. The court said a decision invalidating two keyboard patents held by TypeRight was "improper" and sent the case back to the U.S. District Court in San Diego. Microsoft repeated its claim that no infringement took place.

Symbian Receives $93M for OS Work

The six hardware vendors that continue to own stakes in Symbian Ltd. pledged $93 million in funding to accelerate development of the London-based company's mobile operating system, which competes with software from Microsoft and PalmSource Inc. The infusion was part of a deal in which Psion PLC sold off its 31% stake in Symbian.

Short Takes

CISCO SYSTEMS INC. said it will pay $9 million to buy Parc Technologies Ltd., a London-based developer of network routing software. . . . ANTIVIRUS SOFTWARE VENDORS warned about two new variants of the Bagle e-mail worm that deposit copies of their source code on infected computers.

BearingPoint Move Raises China's Profile

But country still lags far behind India as offshore outsourcing destination

BY PATRICK THIBODEAU

BEARINGPOINT INC. has opened its second development facility in China, a move analysts see as part of a trend by U.S. firms to expand such operations in that country.

The McLean, Va.-based consulting firm said last week that it opened the 56,300-square-foot development center in the northeastern industrial city of Dalian. The facility currently has 60 employees, but BearingPoint hopes to have 1,000 people working there "as quickly as possible," said Craig Franklin, an executive vice president at BearingPoint and head of its Global Technology Services arm.

BearingPoint, which has 15,500 employees worldwide, also runs a development facility in Shanghai with 400 employees. It has a center in Chennai, India, with 100 people, which it plans to expand to 1,000 workers during the next year. The company also operates a development center in Spain.

Growing Interest

BearingPoint isn't the only multinational firm that's interested in China, but the country remains well behind India as a provider of development services, said Eugene Kublanov, an analyst at NeoIT, an outsourcing consulting firm in San Ramon, Calif.

In 2003, India had IT services exports of about $9.5 billion, compared with about $700 million for China, said Kublanov. Most of China's export work is for the Korean and Japanese markets, he said.

According to Michael Ye, general manager of business operations at Dalian Software Park Co., other IT firms with offshore operations in Dalian include Accenture Ltd., SAP AG, Hewlett-Packard Co., IBM Global Services and GE Capital Corp.

Wu Jiazhi is a China-based programmer who works for TopCoder Inc., a Glastonbury, Conn.-based firm that conducts online competitions for recruiting programming talent for outsourcing projects. Wu said he believes China's workers have the technical skills that will enable the country to rival or exceed India within several years. China lags not in technical skills but in development standards, he said. "Most Chinese firms are providing application solutions with relatively poor extensibility and documentation," he said.

Kublanov cited project management as a problem for China as well. However, BearingPoint's Franklin said he believes his company has the necessary resources in place, including bilingual workers based in the U.S., to ensure good project management and clear communication.

Sierra Atlantic Inc., a Fremont, Calif.-based outsourcing firm that specializes in research and development, has a development center in India. But it's eyeing China as a future development site because the country "has the best combination of cost advantage and supply of strong engineers," said Marc Hebert, a vice president. Market access is also a key factor in opening a development center in China, Hebert said.

Although labor costs in India are rising, Hebert said he sees nothing threatening that country's dominance as an offshore development center. Impediments to doing business in China include government bureaucracy and the language barrier, he noted. 48083



BearingPoint's development center in Dalian, China

BBC Awards Siemens $3.7B Outsourcing Pact

BY PATRICK THIBODEAU

British Broadcasting Corp. has picked Siemens Business Services Ltd. to take over its technology arm in a $3.7 billion deal that's one of the largest outsourcing pacts signed this year.

The 10-year agreement, the result of a contracting process that took only about six months, calls for the BBC to sell its wholly owned commercial subsidiary, BBC Technology Holdings Ltd., to Siemens. BBC Technology employs about 1,400 workers.

John Varney, the BBC's chief technology officer, said Siemens was chosen because the company "understood our technology vision [and] where we need to get to."


Siemens understands the BBC's technology vision

Most important, "it was a very, very strong cultural fit," said Varney, who noted that the Berkshire, England-based Siemens unit got the nod in part because of its willingness to be flexible. "They understand the nature of this contract, in that it will need to be very dynamic — it will need to evolve over the next 10 years."

Moreover, Siemens is "prepared to travel with us as we move toward a different world of broadcasting," Varney said. "The basis of our transformation is to use Internet technologies to bring program-making to every desktop."

The BBC began its selection process in December with an advertisement for bidders. It compiled a list of 31 vendors and quickly reduced that to nine and then three: Siemens, Accenture Ltd. and Computer Sciences Corp., which dropped out of the running.

Varney said it's possible to put together a complex outsourcing deal rapidly if enough people are assigned to it. The BBC assembled a team of about 70 people who conducted "1,000 man-days of negotiations" over a four-week period, he said.

The BBC used a combination of objective measures and subjective assessments in reaching its decision, Varney said. In a previous interview [QuickLink 47040], he said it was important that teams from the BBC and the vendor be able to work well together — something he said has been accomplished with Siemens. 48081

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Court Upholds Calif. E-voting Ban

Advocates for the disabled claimed it was discriminatory

BY DAN VERTON

A FEDERAL JUDGE last week upheld a California directive that decertified touch-screen voting machines and withheld future certification until vendors of those systems can meet specific security requirements.

The decision arose from a lawsuit, Benavidez v. Shelley, brought by disability rights advocates and four California counties that oppose California Secretary of State Kevin Shelley's requirement for voter-verifiable paper audit trails. The counties also oppose Shelley's order to decertify direct-recording equipment (DRE) voting systems.

The plaintiffs argued that banning the systems would disenfranchise visually or physically impaired voters.

In an order issued by the U.S. District Court for the Central District of California, Judge Florence-Marie Cooper wrote that "the evidence does not support the conclusion that the elimination of the DREs would have a discriminatory effect on the visually or manually impaired."

> **"The evidence does not support the conclusion that the elimination of [e-voting machines] would have a discriminatory effect on the visually or manually impaired.**
>
> U.S. DISTRICT COURT JUDGE FLORENCE-MARIE COOPER

Cooper also said that the secretary of state's "decision to suspend the use of DREs pending improvement in their reliability is certainly a rational one, designed to protect the voting rights of the state's citizens." Cooper noted that Shelley is responsible for ensuring that votes are counted accurately, and requiring a paper audit trail is one way of fulfilling that obligation.

Cindy Cohn, legal director for the Electronic Frontier Foundation, called the court's decision a "landmark" ruling.

"The court said in clear, unambiguous terms that requiring a paper trail for e-voting machines is consistent with the obligation to assure the accuracy of election results," Cohn said. "That's an enormous victory for secure elections."

The plaintiffs in the case did not respond to calls seeking comment.

State and local elections officials around the country are scrambling to ensure that e-voting systems in different jurisdictions are reliable and can be secured from tampering in time for the November election.

The decision follows the release of a report two weeks ago by an IT security panel that outlined a strategy for certifying the security and reliability of touch-screen DRE voting systems [QuickLink 47931]. The systems will be used in jurisdictions representing about 30% of registered voters in the upcoming presidential election. **48065**

GAO Says IT Mismanagement At Pentagon Wastes Billions

BY DAN VERTON

Despite years of modernization efforts that have cost taxpayers billions of dollars, thousands of IT systems at the Pentagon remain "fundamentally flawed" and have led to logistics and pay problems for forces serving in Iraq, according to a new report by the U.S. General Accounting Office.

The problems, primarily a lack of management oversight and investment control, stem from "long-standing" challenges to the Pentagon's business modernization efforts, GAO auditors told members of Congress last week.

For example, more than 200 inventory control systems at the Department of Defense still aren't integrated, offering little or no visibility into the Pentagon's $1.1 trillion in assets, according to the GAO. In addition, the Pentagon has no standard process for identifying critical business systems, nor does it even have a standard definition of what constitutes a business system.

"These problems have left the department vulnerable to billions of dollars of fraud, waste and abuse annually, at a time of increasing fiscal constraint," GAO auditors told Congress.

The Defense Department's IT management blunders have also adversely affected U.S. military units and service members, including those fighting in Afghanistan and Iraq, according to the GAO.

The lack of IT management at the Pentagon has caused military personnel to experience "substantial logistical support problems" in Iraq, the GAO concluded.

In a written response to the GAO's findings, David Norquist, acting comptroller at the Pentagon, cited the continuing development of a business enterprise architecture and a business IT investment governance structure that he said should begin to reap benefits during the fiscal 2006 budget cycle.

John Gilligan, CIO of the Air Force, said the GAO report tells only part of the story. According to Gilligan, the $19 billion that the DOD requested for modernizing its business systems, as cited in the GAO report, also covered infrastructure costs such as classified and unclassified networks and computing centers in both U.S. and overseas locations.

Gilligan said the branches of the military have made substantial progress in consolidating and modernizing their business systems, "on a scale larger than all but a few of the Fortune 500 companies."



Karen Evans, the White House's director of e-government, said the DOD's leadership "supports the president's management agenda and is committed to transforming the department's business operations." **48084**

NEW PRODUCT

Siemens Adds to Unified Communications Software

HiPath OpenScape Version 2.0

Siemens Information and Communication Networks Inc.

■ **PRODUCT SUMMARY:** The Boca Raton, Fla.-based subsidiary of Siemens AG today plans to announce an upgrade of its presence-aware communications and collaboration software, which includes buddy-list capabilities and provides consolidated access to voice, e-mail, instant messaging and conferencing services. Version 2.0 adds a Web services tool kit for developing real-time communications applications based on open standards such as the Session Initiation Protocol.

Siemens said the new release also can notify end users when someone they need to contact becomes available. Other new features include a text-based user interface, support for natural speech recognition and a rules wizard for setting automated changes in presence status or communications device preferences.

■ **USER EXPERIENCE:** America-Mideast Educational and Training Services Inc., a Washington-based company that operates educational exchanges between countries and provides language training, is using Version 1.0 of OpenScape and will upgrade to the new release in the fall. Ugur Usumi, director of IT at America-Mideast, said he wants to take advantage of new features such as the ability for end users to set their contact preferences via a phone call.

America-Mideast has 250 OpenScape users in offices worldwide, and Usumi said one of the big benefits of Version 1.0 is that someone setting up a conference call can quickly contact other workers instead of waiting for them to call in. "It's a scheduling device, in a sense," he said. "I just figure out the people I need to call."

■ **ANALYST ASSESSMENT:** Version 1 of OpenScape is presence-aware and supports real-time collaboration, but users should see increased capabilities in Version 2.0, said Gartner Inc. analyst Jeff Snyder. "This version brings us closer to unified communications, especially as companies replace traditional voice switches with IP telephony," Snyder said. He added that Siemens has an advantage over its rivals because OpenScape can work with any telephony switch.

■ **OTHER VENDORS IN MARKET:** Mitel Networks Corp. and Nortel Networks Ltd.; Snyder predicted that Cisco Systems Inc. eventually will enter the market.

■ **PRICE:** OpenScape 2.0 sells for $125 per user for basic presence capabilities. Collaboration support costs another $125 per user; a voice portal can be added for $100 per user.

■ **AVAILABILITY:** Version 2.0 is due in early August. **48057**

– Matt Hamblen



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MARYFRAN JOHNSON

Bracing for Backlash

ONE DAY, the political windstorm around offshore outsourcing will blow over. One day, the inflated numbers on both sides of the debate will be debunked. One day, the last angry letter from a displaced American IT worker will be published.



Unfortunately for IT managers everywhere, that day is not today.

The emotional backlash against any plans to outsource technology jobs overseas — regardless of how economically or competitively driven — is a force to be reckoned with in today's IT workplace. It dampens the morale of even the most valuable, talented employees, as we saw recently in our Best Places to Work in IT survey [QuickLink a4610]. One reader sent us a note last week suggesting that we include "foreign outsourcing statistics" in future Best Places reports, thereby revealing how many U.S. citizens are part of the IT head count of the companies on our list.

Negative reactions can blast back from customers as well as from affected employees, as Dell and Lehman Brothers discovered when they had to pull customer service operations out of India. Despite a few other widely publicized retreats, the majority of Fortune 1,000 companies are forging relentlessly ahead with offshoring plans — albeit with greater stealth, in hopes of avoiding bad publicity.

The bottom line driving what Gartner calls an "irreversible megatrend" is always the same: cost savings too compelling to ignore in an open, interconnected global marketplace. "To outsource offshore is not a political decision on the part of the company. It's an economic decision with political ramifications," says Mike Hoyt, CEO of Paradigm Works. He's one of our sources in "Damage Control" (page 31, and online at QuickLink 47609), a story about how IT managers can cope with the offshore backlash.

One impressive example of a company dealing effectively with the backlash problem is Union Bank of California, which created a "sourcing management office" to handle any concerns that might harm its reputation with customers. The office's duties include handling all communications about the bank's offshore plans.

The preventive measures we discuss in our story basically boil down to having honest, frequent, candid communication with everyone involved. *CFO* magazine gave similar advice last month in its cover story about offshoring, noting that the majority of the 275 financial executives surveyed had no intention of canceling their offshoring plans, despite the backlash. Some 42% of those CFOs said they were realizing net savings of more than 20% from their offshore projects, and 64% were planning to increase offshoring levels.

So where do companies go wrong in communicating their outsourcing plans? Let us count the ways. They overlook a basic communications plan for internal or external consumption (the offshoring version of a "don't ask, don't tell" policy). They fail to explain why a given project is going overseas or how such decisions are made. They try to downplay the negatives about workforce changes. They hide their plans for as long as possible, then look guilty and act defensive when the news leaks.

Some analysts are predicting that the backlash will fade away by next year, and I hope they're right. But in the meantime, IT managers must brace for the backlash and deal with it decisively.

"You don't want rumor to overtake reality," says Michael Treacy, cofounder of Gen3 Partners, an outsourcing consultancy. "In the end, you can only politicize so long, and then the facts will prevail." **48033**



MICHAEL H. HUGOS

The Systems Builder

I GOT INTO the IT business because I love to design and build systems. After doing a lot of designing and building and watching others do a lot of designing and building, one of the most important things I've learned is that successful projects are always run by a certain kind of person. This person can speak both the language of technology and the language of business. This person understands the specific business issues that a new system is supposed to address and is always looking for simple and effective ways to use technology to get things done. I call this person the systems builder.



The competence of the systems builder goes a long way toward determining the success or failure of any development project.

Often, the systems builder comes up through the technical ranks and learns about business along the way. Sometimes the systems builder comes up through the business side and manages to learn about technology. Either way, this is someone who can clearly demonstrate skills in two main areas: designing systems and leading projects to build systems.

Next month, I'll discuss the six skills that are the basis for success in leading projects. But now I'll look at the five basic skills the systems builder needs in order to be any good in the first area — designing systems. There are certainly other skills, but without these as a foundation, the systems builder can't excel in the design process:

1. Understand the business operation. The systems builder needs to have a good grasp of the concepts and rules that guide the business operation. This means knowing how the operation fits

into the overall business, how the work of the operation is performed and what the cost and profit factors are.

2. Create an inclusive process. Systems builders must be able to consistently produce competent (and sometimes even brilliant) designs in spite of high levels of complexity in both business and technology. Complexity loses much of its power to intimidate and confuse if groups of people with the appropriate skills and experience are brought together in a collaborative process where they can pool their collective insights. The systems builder is the one who orchestrates this process.

3. Tolerate not knowing. It's an act of real discipline to immerse yourself in the details of a situation and resist the temptation to rush to judgment. Because of the complexity inherent in most situations, it's unlikely that a great system design will be the first or even the second one that comes to mind.

The systems builder keeps an open mind and encourages others on the project to do the same as they investigate the issues.

4. Look for the simple underlying patterns. This is the creative leap where investigation and analysis give way to synthesis and the design emerges. At first, you're assailed by the surface complexity of the situation and all the potential technology that could be used. When you allow a range of possible solutions to be generated, some profoundly simple and yet very useful insights can emerge.

5. Use simple combinations of technology and process. Beware of the cleverness trap. Cleverness means complexity, and complex designs are very hard to build. Strive to create system designs that display an elegant simplicity. Use as few technology components as possible, and use each component for what it does best.

Use these components to support streamlined workflow processes that will achieve the performance levels needed to effectively respond to the business issues that the system is meant to address.

If you are a systems builder or want to become one, work at developing these skills, and your success rate will go way up. If you are an executive who sponsors or oversees systems development projects, make sure that a person with these skills heads each project.
47673

THORNTON A. MAY

Success With Word, Mind And Deed

FOR HIGH-LEVEL IT managers, career success could be a matter of WMDs.

No, those aren't weapons of mass destruction. In this case, *WMD* is shorthand for "words, mind-sets and deeds."

Words refers to the messages we send. *Mind-sets* are the mental models that are at work in our own brains and in those of key constituents. *Deeds* refers to how we and key constituents behave.

Words

Several years ago, the CEO of a major software vendor visited Tokyo. Wanting to reach out to his audience of very senior IT executives, he decided to pull a Kennedy: Just like J.F.K. in Berlin and Jackie Kennedy in France, he would open his remarks in the native tongue of his audience. He wanted to say, "I am tickled pink to be here. I am so happy I could die."

Instead he said, "I have a rash that will probably kill me."

The hygiene-conscious Japanese were in no hurry to meet with this CEO. The lesson: Have a message that matters and is connected to what you are trying to do. And while it's always a good idea to speak the language of one's audience, it's also important to make sure that the message translates correctly.



Mind-sets

Research sponsored by Lawson Software and conducted at a series of executive dinners across the country indicates that IT leaders with accelerating career momentum have a real-time inventory of the IT mental models that are at work in and around the enterprise.

An IT mental model is the particular way in which a person thinks about IT — values, beliefs, frameworks, stories.

Successful IT leaders understand their personal IT mental models, the IT mental models of their internal and external customers, and the IT mental models that are at work among their competitors.

Deeds

Many longtime participants in the IT game observe that for all our fuss and bother, the problems we are working on today are much the same as the problems we were working on 20 years ago. This is probably because we thought for the longest time that our job was to deploy technology. As new technology became available and expanded what we could accomplish with a computer, we deployed it. But deploying stuff isn't our real job. Although we're just now stepping up to it, our real job is to change workplace behavior.

Before starting an IT project, one should model "before" and "after" workplace behaviors. IT success now hinges on how people act — their deeds — not on which technical devices were shipped and plugged in.
47952

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READERS' LETTERS

Keep Users in Mind, And Keep It Simple

LARRY WILLIAMS' contribution [QuickLink 47099] to your May 31 letters column speaks volumes about how some techies view users with distaste and arrogance. Commenting on a column about the perils of Sasser, etc., Williams' retort is essentially that all one has to do is install hardware and software firewalls and disallow a bunch of software and secure-clear administrator rights, and so on.

For the minuscule percentage of technically adroit PC owners and users, this is certainly all child's play. The issue is that the vast majority of PCs are operated by folks who can no more do those things than they can replace the drivetrain of their cars.

If there were a plague of poor asphalt leading to more accidents, the cry would naturally be to improve the roads, but for folks of Williams' persuasion, the "simple answer" would be to just install extra low gears in your car to make it easier to drive those "supposedly dangerous" roads.

Bob Fately
Partner, Third Wave International, Van Nuys, Calif.

Not Rocket Science

IN THE ARTICLE "EU Seeks Quantum Cryptography Response to Echelon" [QuickLink 46947], the author observes that there are a number of technical challenges, including building "sensors capable of recording the arrival of photons at high speed." Because all photons travel exactly at the speed of light, it is uncertain why encrypted ones should require special treatment. More directly relevant to the apparent problem of unauthorized satellite eavesdropping would be the simple solution of not leaking communications skyward, where satellites could receive them. Clearly, quantum cryptography is not rocket science.

John Michael Williams
Redwood City, Calif.

Tech Issues Will Delay Music-Store Death

PAUL FOX thinks that in less than a decade, the big brick-and-mortar music retailers will be out of business ["The Day the Music Stores Died," QuickLink 46935]. He goes on to cite Internet downloading and the Apple iPod as the technologies that will destroy music retailing.

Although 10 years is a long time, it won't be long enough to destroy the music business. Many collectors enjoy the liner notes, and these don't come with downloaded tracks. But this isn't the only thing stopping the wholesale demolition of music retailers: The technology ain't all that great! My 40GB MP3 jukebox died after less than six months. What music aficionado wants to trust such unreliable technology?

Even more troubling is the greedy music industry. Until it can agree on a model and format that works on all devices, this transformation won't occur. The pricing needs to be fixed, too; $1 a track is highway robbery if all I'm getting are some bits and bytes and not a tangible disc or tape. And I want to be able to copy it from my PC to my MP3 player to my car to a tape and to a CD – multiple times. Once I've bought it, it should be mine. Let's solve these issues first, then we can talk about shutting down the CD shops.

Craig S. Mullins
Director of technology planning, Houston

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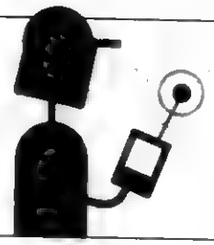
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Simplifying NAS Management
More companies are choosing technology that pools and virtualizes network-attached storage systems to consolidate NAS management. **Page 25**

CASE STUDY
Wireless CRM Takes to the Field
Pitney Bowes' new wireless field service system gives technicians both a broader wireless coverage area and expanded access to customer data. **Page 24**



SECURITY MANAGER'S JOURNAL
Four Steps to a Secure Budget
Our new Security Manager's Journal columnist outlines a step-by-step strategy for freeing up funds for critical IT security projects. **Page 28**



CHRISTIAN NORTHEAST

WORM WARS

Companies are throwing up layers of protection as new worms and viruses appear at an ever-quickening pace. BY JAIKUMAR VIJAYAN

CHRISTOFER HOFF is taking no chances when it comes to protecting his organization against worms and viruses. As the director of enterprise security services at Western Corporate Federal Credit Union (WesCorp), Hoff has put in place a multilayered architecture designed to set as many barriers as possible between the bad guys and his data.

Apart from the usual firewall and antivirus tools, the San Dimas, Calif.-based company, which has $25 billion in assets, has also segmented its networks and deployed an array of intrusion detection and prevention tools, client security products and threat-modeling software. Such defense in depth is precisely what's needed to keep marauding malware at bay these days, say security practitioners such as Hoff.

"The worm problem has completely catalyzed the relevancy of the information security function," says Hoff. "It's not about ROI any longer but about the reduction of risk on investment."

Worms and other malware have been around for years. But several trends are coming together to make them more dangerous than before, users say.

- **Worm writers are taking advantage of newly announced software flaws more quickly, giving users less time to defend their systems.** Last year's Blaster was considered fast when it exploited a vulnerability in 26 days. This May's Sasser worm took 17 days, while the Witty worm in March was out in one day. And there have been a few "zero-day" exploits, which appear before a flaw has been disclosed or a fix becomes available. Their damage has been limited, but it's only a matter of time before a virulent one is unleashed, experts say. "This is a war. If the users are to win, they have to beat the clock every single time," says Eric Litt, chief information security officer (CISO) at General Motors Corp.

But companies are still taking an average of 60 days to patch their systems, which is too long, says Gerhard Eschelbeck, chief technology officer at Qualys Inc., a Redwood Shores, Calif.-based provider of vulnerability management services. Also, every year half of the most critical vulnerabilities are replaced with new, equally serious ones, he says.

- **Exposure to risk is increasing as companies connect their secure networks with those of partners and other third parties.** The burgeoning remote and wireless user population adds to the problem.

"There are more avenues that can be attacked, which is why perimeter defenses alone are no longer enough," says Greg Murray, vice president of information security at Information Resources Inc. in Chicago. IRI does market research for some of the world's largest food, consumer goods and pharmaceutical companies.

- **Worms are being released at an ever-increasing rate, and they're becoming more lethal.** Four of the five worst mass out-

breaks of worms — MyDoom, NetSky, Bagle and Sasser — have taken place this year. Antivirus firm Symantec Corp. has rated more threats at Category 4 — its most severe — in the first part of 2004 than it did in all of 2003. For instance, MyDoom infected systems and then used them as launch pads for denial-of-service attacks against Microsoft Corp. and The SCO Group Inc. Other worms have attempted to block infected systems from downloading patches and antivirus updates, while others have been used to install back doors and steal data.

"The day of the digital Pearl Harbor that a lot of people have been talking about is fast approaching," says Jamie Chanaga, CISO at Geisinger Health System in Danville, Pa.

Preparing for that emergency requires a security architecture capable of automatically detecting and blocking threats, both known and unknown, says Litt. "The dominant [antivirus] technologies today are those that filter out infections based upon signatures," he says. This approach works only with known vulnerabilities and exploit code. Given the shortening time between vulnerability disclosures and exploit availabilities, that simply isn't enough, Litt says.

"The core reason why worms and viruses are so effective is that it is not always feasible for companies to patch production systems right away," says Chanaga. The goal should be to have enough defense layers so that a breach of one layer won't compromise your ability to do business, Litt says.

In WesCorp's case, the company's networks have been segmented by application function and business value. For instance, all of its SQL servers sit on one segment, and its mail servers sit on another. Each network segment is protected by an array of intrusion detection and prevention systems, and deep packet-inspection firewalls and signature-based antivirus technologies conduct filtering.

WesCorp uses a server-based scanning technology from WholeSecurity Inc. in Austin to scan client or partner systems for Trojan horses, spyware and other malicious code before letting another party log into its corporate network. A Qualys third-party vulnerability management service scans for holes and helps WesCorp quickly prioritize the assets that need to be protected in the event of an attack. Also deployed is software from Skybox Security Inc. in Palo Alto, Calif., that combines firewall, router, network and vulnerability data to model attacks.

Technology from Crossbeam Systems Inc. in Concord, Mass., allows WesCorp to consolidate the management of all of its security components. The result is impressive, but not perfect, security. "We will never be able to bring down the risk to zero," Hoff says.

It's crucial to install host firewalls, virtual private network support and intrusion-detection technologies on all endpoint devices and to have ways to enforce compliance with clients and business partners, says Murray. He uses a tool from Check Point Software Technologies Ltd. to do all of that.

"The days when you could simply have a titanium outer shell are over, considering you have to open your networks to trading partners, vendors and other institutions," Chanaga says.

Real-time monitoring of the network and all systems connected to it is also crucial for detecting vulnerabilities and prioritizing responses, says Chanaga, who is using Qualys to do both.

Lesson Learned

Sallie Mae Inc. has revamped much of its worm mitigation strategy after being badly mauled by the Nimda worm in September 2001, says Marc Houpt, the company's information security architect. Since then, Reston, Va.-based Sallie Mae has signed up with New York-based MessageLabs Inc. to scan its 80,000 daily e-mails and filter out executable files and other suspicious extensions. It has deployed antivirus software from Computer Associates International Inc. on all servers and workstations and has increased the frequency of its searches for updated virus signatures from twice a day to every four hours. The company's workstations check with the master antivirus server every 15 minutes.

Sallie Mae's information security team has also been given greater authority to make spot decisions about worms and viruses, Houpt says. When MyDoom started spreading, he was able to quickly convince his superiors to shut down the e-mail servers until the problem was fixed. Previously, such a shutdown would have required "two or three levels of authorization and a very strict on-the-spot change-control process," he says. "Now all it requires is a consensus between the network manager and myself."

It's important to keep certain issues in mind when deploying such a multilayered defense, users say.

The biggest is the integration of the various technology components. Where possible, it's important to use buying power to get vendors to do the integration for you before agreeing to buy a product, Hoff says.

Having a multilayered strategy also does little good without comprehensive analytical and reporting capabilities to interpret and present the information that's gathered by such systems, Murray says.

"More security technologies doesn't make you more secure; better management does," says Sam Curry, a vice president at CA.

And don't underestimate the support issues. For instance, integrating security into endpoint devices will inevitably result in more calls to the PC help desk, requiring the information security group to assume responsibility for some of the cost burdens as well, Hoff says. So end-user training is an essential component of any worm mitigation strategy.

Ironically, regulations can sometimes get in the way. For example, Geisinger is unable to deploy much-needed patches and antivirus software on exposed Windows-based clinical systems because it will break the FDA certification on those systems, Chanaga says.

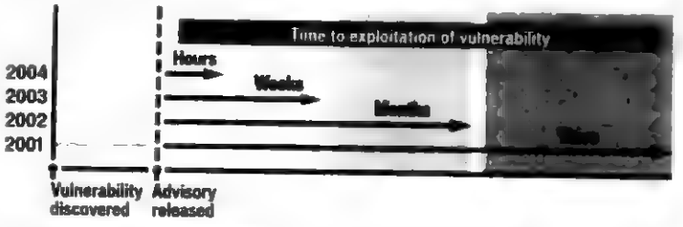
The effort also needs to be balanced against business needs, Houpt says. For instance, when the information security team gets the authority to shut down crucial servers, it must have a very good understanding of a problem's potential effect, he says.

"Your infosec team needs to have the technical know-how and the credibility to make an impact assessment, and the user teams need to be able to trust that knowledge," Houpt says. **47711**

DISCOVERY/ATTACK LIFE CYCLE

As this graph illustrates, the window between the time a vulnerability is discovered and the time it is exploited is shrinking. Consequently, security teams have less time to identify and fix problems before networks are subject to attacks.

SOURCE: Qualys Inc.



MORE THAN SIGNATURES NEEDED

Signature-based antivirus technologies will continue to play a role in future worm-mitigation strategies but won't be as prominent as they are now, users say.

Traditional antivirus products filter out worms and viruses by matching patterns in their files. The approach is still considered the most effective in blocking known threats, especially because some worms float around the Internet for years, users say. Companies that have kept their virus signatures updated have consistently been able to avoid even the more dangerous outbreaks.

However, the technologies don't work against previously unknown worms. For such products to be effective, vendors need to develop new signatures every time a worm appears. This is true even in cases of multiple worm variants that may all be exploiting the same vulnerability or use the same methods. The speed at which vendors can deliver such updates is becoming increasingly crucial as hackers exploit holes at a quicker pace.

Users also need a way to constantly poll for new signatures to keep their files updated. Because of the increase in the number of worms, companies have had to dramatically increase the number of times they check for updates with antivirus vendors, sometimes doing so as often as once every 15 minutes. "Worms are traveling faster than antivirus updates," says Gerhard Eschelbeck, CTO at Qualys.

In the future, big companies won't be able to count on antivirus vendors to win the race, says Eric Litt, CISO at General Motors.

That reality is forcing many of them, including GM, to look for technologies capable of detecting and proactively blocking threats.

Thermo Electron Corp., a $2 billion manufacturer of medical equipment in Waltham, Mass., is planning to deploy a new "memory firewall" from Determina Inc., a start-up in Redwood City, Calif. Instead of signature matching, Determina's technology uses an application memory scanning technique to detect and block even unknown threats.

Other products block attacks based on deviations in network traffic. While such products are being offered as alternatives to signature-based technologies, experts say it's too early to predict how effective they'll be.

– *Jaikumar Vijayan*

BAD GUYS FOR HIRE

The profile of those launching malware is changing.

QuickLink 47709
www.computerworld.com

breaks of worms — MyDoom, NetSky, Bagle and Sasser — have taken place this year. Antivirus firm Symantec Corp. has rated more threats at Category 4 — its most severe — in the first part of 2004 than it did in all of 2003. For instance, MyDoom infected systems and then used them as launch pads for denial-of-service attacks against Microsoft Corp. and The SCO Group Inc. Other worms have attempted to block infected systems from downloading patches and antivirus updates, while others have been used to install back doors and steal data.

"The day of the digital Pearl Harbor that a lot of people have been talking about is fast approaching," says Jamie Chanaga, CISO at Geisinger Health System in Danville, Pa.

Preparing for that emergency requires a security architecture capable of automatically detecting and blocking threats, both known and unknown, says Litt. "The dominant [antivirus] technologies today are those that filter out infections based upon signatures," he says. This approach works only with known vulnerabilities and exploit code. Given the shortening time between vulnerability disclosures and exploit availabilities, that simply isn't enough, Litt says.

"The core reason why worms and viruses are so effective is that it is not always feasible for companies to patch production systems right away," says Chanaga. The goal should be to have enough defense layers so that a breach of one layer won't compromise your ability to do business, Litt says.

In WesCorp's case, the company's networks have been segmented by application function and business value. For instance, all of its SQL servers sit on one segment, and its mail servers sit on another. Each network segment is protected by an array of intrusion detection and prevention systems, and deep packet-inspection firewalls and signature-based antivirus technologies conduct filtering.

WesCorp uses a server-based scanning technology from WholeSecurity Inc. in Austin to scan client or partner systems for Trojan horses, spyware and other malicious code before letting another party log into its corporate network. A Qualys third-party vulnerability management service scans for holes and helps WesCorp quickly prioritize the assets that need to be protected in the event of an attack. Also deployed is software from Skybox Security Inc. in Palo Alto, Calif., that combines firewall, router, network and vulnerability data to model attacks.

Technology from Crossbeam Systems Inc. in Concord, Mass., allows WesCorp to consolidate the management of all of its security components. The result is impressive, but not perfect, security. "We will never be able to bring down the risk to zero," Hoff says.

It's crucial to install host firewalls, virtual private network support and intrusion-detection technologies on all endpoint devices and to have ways to enforce compliance with clients and business partners, says Murray. He uses a tool from Check Point Software Technologies Ltd. to do all of that.

"The days when you could simply have a titanium outer shell are over, considering you have to open your networks to trading partners, vendors and other institutions," Chanaga says.

Real-time monitoring of the network and all systems connected to it is also crucial for detecting vulnerabilities and prioritizing responses, says Chanaga, who is using Qualys to do both.

Lesson Learned

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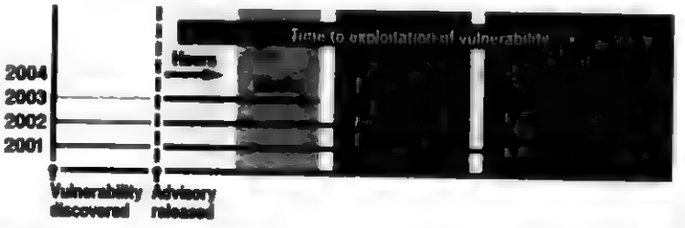
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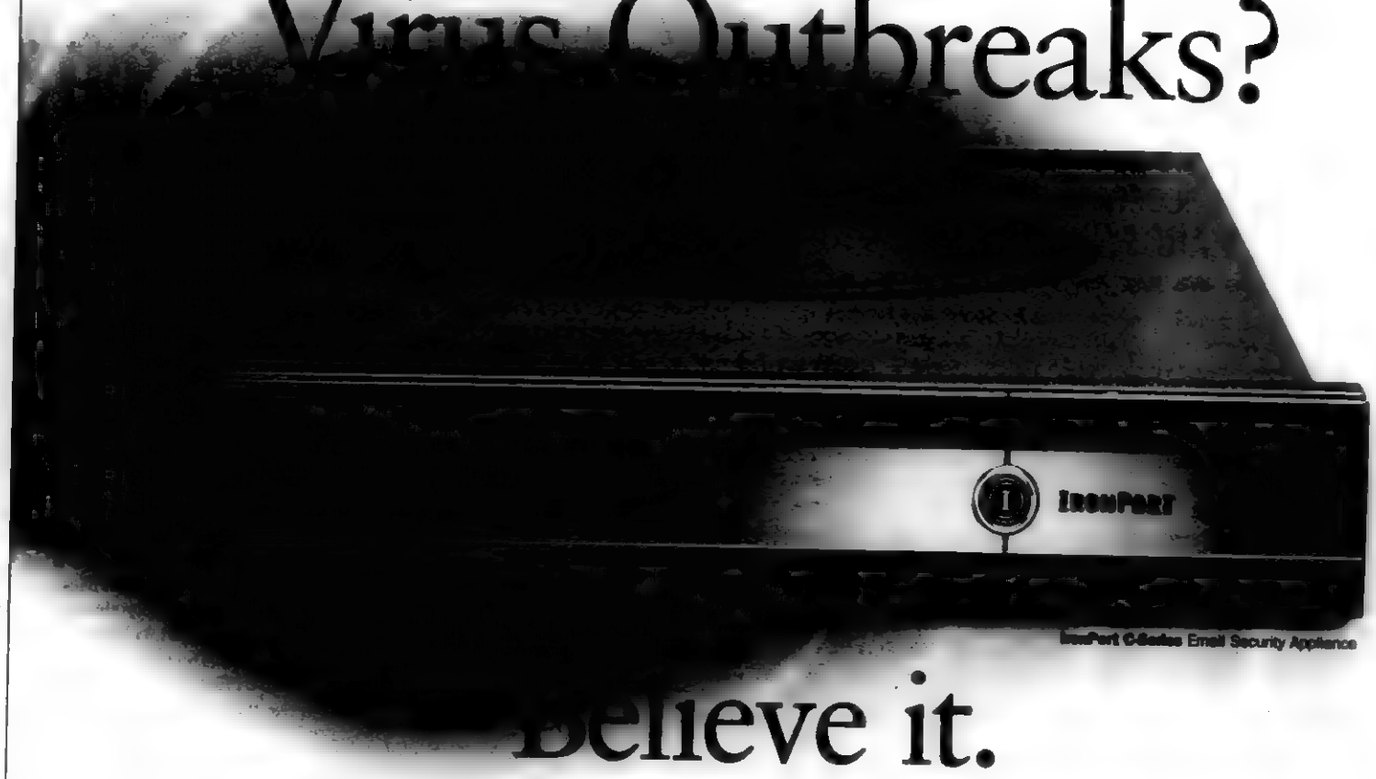


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Wireless CRM to the Field

Pitney Bowes' revamped field service system provides broader wireless coverage while giving technicians access to more customer information. BY MARC L. SONGINI

WHILE MANY companies are still testing large-scale wireless CRM projects, Stamford, Conn.-based mailing systems vendor Pitney Bowes Inc. is an experienced practitioner. The $4 billion company set up its first wireless system in the late '90s. Since then, it has deployed a second-generation system for 250 field service employees in its Document Messaging Technologies division, which sells high-end inserter mailing systems.

Now, the company is wrapping up a more sophisticated wireless CRM rollout for its Global Mailing Systems division, where some 1,500 wired employees service Pitney Bowes machines designed for the low-volume distribution of mail.

The newest system connects field service representatives to its back-end call center and service applications. Using pocket PCs, RIM 957s from Research In Motion Ltd. and other devices, service technicians can access a wide range of data from multiple back-end systems. Such data includes information about inventory availability and whether calls are billable or covered by contract.

Early Start

The company's first wireless CRM system was more limited. It relied on Motorola Inc. "brick" client devices that connected to homegrown CRM systems, and it retrieved service call data over Motient Corp.'s wireless data network, says Ralph Nichols, service program manager at Pitney Bowes.

In 1999, the company began moving to low-cost RIM devices and started work on an integrated field service and call center back end, says Mark Davis, vice president of customer service.

In 2001 Pitney Bowes installed field service software from San Mateo, Calif.-based Siebel Systems Inc. for its Document Messaging division, and it upgraded to cellular wireless service from Atlanta-based Cingular Wireless, which uses General Packet Radio Service (GPRS) technology.

For wireless connectivity middleware, Pitney Bowes uses software and services from Antenna Software Inc. Antenna A3 and SmartClient field service software links field workers with RIM handheld devices to Siebel sales force automation software and Pitney Bowes' parts ordering system.

Network coverage was important, so the company tested several carriers and devices before settling on Cingular's service and RIM's handheld devices. Jersey City, N.J.-based Antenna was the logical choice for gateway software and services, says Paul Weston, vice president of CRM at Pitney Bowes. Its software had the most features, included systems management tools for troubleshooting breakdowns, supported multiple carriers' networks and was already Siebel-approved.

Ensuring the convenience and usability of the devices was also key. "If the thing is difficult to use, the people will find ways around it," says Weston. So the staff made sure that menus on the RIM devices were easy to navigate and included special product codes to help users place inventory orders.

The workflow starts in the system when a customer calls the contact center to place a field service request. The Siebel application identifies the product needing repair, selects the representative to dispatch and pushes the request out to that technician's wireless device. The recipient then acknowledges the receipt of the order.

Messages from the devices are routed to Antenna's wireless gateways in New Jersey. XML-formatted data is then forwarded over a frame-relay or VPN connection to Pitney Bowes' data center, where it passes through a gateway server before being routed to the back-end applications.

The system delivers customer data to field service personnel in near real time, including the service history for a given customer or piece of equipment. It also tells the technician whether work is covered by contract or is billable and feeds data for billable work into the company's billing system. When parts are required, the Siebel field service application determines if the part is in stock and sends information on parts the technician uses to a legacy inventory application that in turn connects to the company's SAP supply chain management system.

For areas where wireless coverage is spotty, client devices either use a dial-up connection or store information and forward it later.

Weston says that better information has allowed field service staff to solve problems faster and complete more calls per day. Managers now can get up-to-date reports on what activities service personnel are engaged in and what steps were taken to satisfy customer requests. And by flagging the problems that require the most technician time, Pitney Bowes has been able to save money by scheduling proactive maintenance calls.

The company is nearly done rolling out a similar system in its Global Mailing Systems operation. The newer system features smart cell phones, RIM 957s, pocket PCs or other handhelds and GPRS services provided by several carriers. By using a mix of carriers and handheld devices with Antenna's SmartClient software, Pitney Bowes estimates that it can cover 95% of its territory, up from 85% with the previous system.

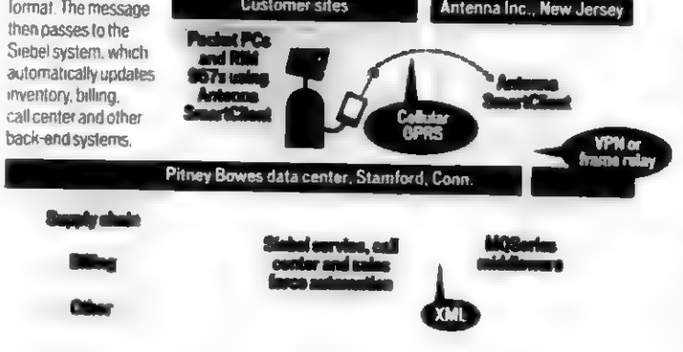
The Global Mailing unit's system is similar to that of the Document Messaging group, but it's completely separate. "There is a uniqueness between the organizations," Davis explains. "I'm more distributed [than the Document Messaging unit] with a greater breadth."

The Global Mailing rollout also was about five times more costly than that of the Document Messaging unit's system. The Global Mailing system uses more expensive Windows CE-based handhelds and required more extensive integration with the company's SAP, billing, call center and other applications. With this setup, Pitney Bowes hopes to create a single system of record and avoid re-entering the same data in different systems. With the resulting productivity gains, the company expects the system to pay for itself in three years.

Weston has some advice for others trying to build similar systems: Test the hardware and software thoroughly, make sure the devices have adequate battery life, and plan for the change management such a project requires. "The key," he says, "is understanding how these processes interact with the rest of your business and understanding that it's not just field service. It affects sales." 47707

Pitney Bowes' Service Management System

In Pitney Bowes' Global Mailing Systems division, field service staffers use handheld devices running Antenna SmartClient software to access customer information over a secure VPN connection. Information passes to a system running MQSeries middleware that converts the message into XML format. The message then passes to the Siebel system, which automatically updates inventory, billing, call center and other back-end systems.



Wireless CRM Takes to the Field

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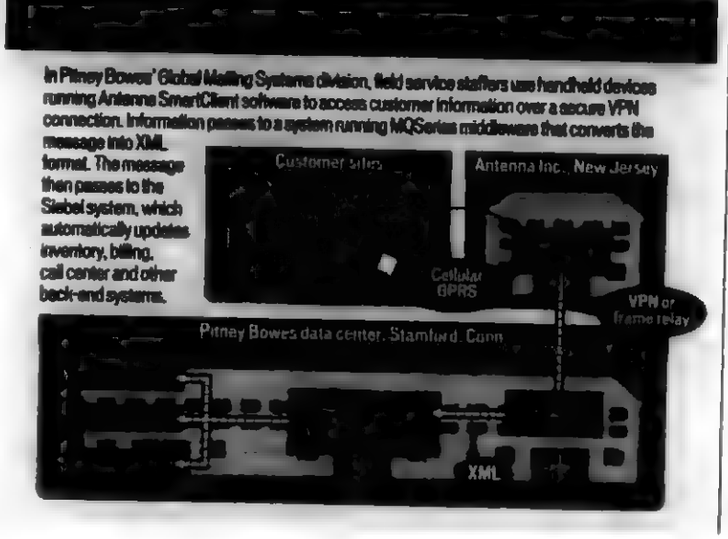
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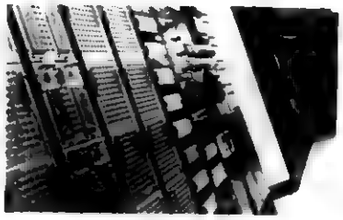
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9:30am – 11:30am	Primer and Tutorial Tracks
11:30am – 1:00pm	Luncheon
12:00pm – 5:00pm	Pre-Conference Golf Outing
1:00pm – 6:00pm	SNIA Technical Tutorials
1:00pm – 5:00pm	IDC Analyst Briefing
7:00pm – 9:00pm	Welcome Reception

TUESDAY, OCTOBER 26

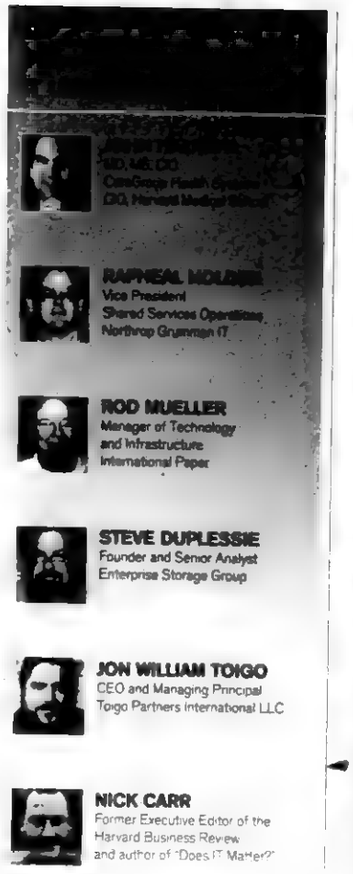
7:00am – 8:00am	Breakfast
8:00am – 12:00pm	General Conference Sessions
12:00pm – 1:30pm	Luncheon
1:30pm – 5:30pm	General Conference Sessions
4:00pm – 5:30pm	Concurrent Sessions
5:30pm – 8:30pm	Expo with Dinner and Interoperability & Solutions Demo

WEDNESDAY, OCTOBER 27

7:00am – 8:00am	Breakfast
8:00am – 12:00pm	General Conference Sessions
12:00pm – 1:30pm	Expo with Luncheon
12:00pm – 7:15pm	Interoperability & Solutions Demo
1:30pm – 3:45pm	General Conference Sessions
3:45pm – 5:15pm	Concurrent Sessions
5:15pm – 7:15pm	Expo
7:30pm – 9:00pm	Gala Evening

THURSDAY, OCTOBER 28

7:30am – 8:30am	Breakfast
8:30am – 12:00pm	Concurrent Sessions
12:00pm	Conference Concludes



RAPHEAL MOLDER
Vice President
Shared Services Operations
Northrop Grumman IT

ROD MUELLER
Manager of Technology
and Infrastructure
International Paper

STEVE DUPLESSIE
Founder and Senior Analyst
Enterprise Storage Group

JON WILLIAM TOIGO
CEO and Managing Principal
Toigo Partners International LLC

NICK CARR
Former Executive Editor of the
Harvard Business Review
and author of "Does IT Matter?"



The Ritz-Carlton Golf Club
Orlando, Florida

Pre-Conference Golf Outing

Complimentary for Registered IT Users

The Pre-Conference Golf Outing at The Ritz-Carlton Golf Club located adjacent to the JW Marriott Grande Lakes Resort, is complimentary ($125 value) for registered IT End-Users (other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses).

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For details contact Michael Meloedy at 1-508-820-8529



JW Marriott Grande Lakes Resort
Orlando, Florida

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SNIA

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Fax this completed application to 1-508-820-8254. Or apply online at: www.snwusa.com/cw

STORAGE NETWORKING WORLD
COMPUTERWORLD

October 25-28, 2004
JW Marriott
Grande Lakes Resort
Orlando, Florida

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Questions? Call 1-800-883-9090

If not indicated on your business card, please provide the following required information:

_____

_____

Registration questions?
Call 1-800-883-9090 or email snwreg@computerworld.com

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Please call 1-800-340-2262
or email eventhousing@idg.com

Please check ONE of the following:	Earlybird Registration (through September 14, 2004)	Full/Onsite Registration (after September 14, 2004)
❑ **I am an IT End-User*** **(Complete Attendee Profile below)**	❑ **$895** General Conference Package (October 26 & 27) (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,290** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)	❑ **$1,295** General Conference Package (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,690** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)
❑ **I am a Channel Partner/ Integrator/Consultant** **(Complete Attendee Profile below)**	❑ **$3,000** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference, Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)	❑ **$3,000** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference, Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)

* IT End-Users are defined as those who are attending Storage Networking World with an interest in and an IT spending budget for potentially purchasing hardware, software/services, etc. from our conference sponsors and are not themselves an IT vendor. As such, account representatives, business development personnel, analysts, consultants and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Interpretation and enforcement of this policy are at the sole discretion of Computerworld.

By participating in SNW's Channel Partner/Integrator registration package, registrants may enjoy the following benefits: One company representative may receive a full conference pass to SNW Fall 2004; additional company representatives pay $695 each for full conference passes; company may invite up to five IT User customers to attend SNW Fall; IT Users must be strictly compliant with IT User definition in the supplied reg form); companies registering for this package interested in joining the SNIA are eligible to receive a $2,000 discount, provided that membership is applied for prior to January 1, 2005.

Attendee Profile: This section MUST be completed by IT End-Users and Channel Partners/Integrators/Consultants only (optional for all other registrations) in order to process your application.

Your Business/Industry
- ❑ Transportation/Utilities
- ❑ Mining/Oil/Gas
- ❑ Non Profit/Trade Association
- ❑ Media/Publishing
- ❑ Banking
- ❑ Finance
- ❑ Accounting
- ❑ Insurance
- ❑ Real Estate
- ❑ Telecommunications
- ❑ Wholesale/Retail (non-computer)
- ❑ Computer Service Provider
- ❑ Advertising/Marketing/Public Relations
- ❑ Entertainment
- ❑ Education
- ❑ Food Industry
- ❑ Government/Military
- ❑ Healthcare/Medical Services
- ❑ Travel/Hospitality/Recreation
- ❑ Manufacturing (non-IT)
- ❑ VAR/VAD/ASP/System Integrator (Channel/Integrator/Consultants Only)
- ❑ Industry Consultant/Storage Solution Integrator (Channel/Integrator/Consultants Only)
- ❑ Manufacturing (IT Hardware/Integrator/Consultants Only)
- ❑ Computer Retailer/Dealer/Wholesaler (Channel/Integrator/Consultants Only)
- ❑ Software Development/Storage (Channel/Integrator/Consultants Only)
- ❑ Other Computer Related/Storage (Channel/Integrator/Consultants Only)
- ❑ Other

Your Job Title/Function
- ❑ CEO/COO/Owner or President
- ❑ VAR/CTO
- ❑ VP/GM/Director
- ❑ IS/IT Owner/Manager
- ❑ Other IS/IT Department Manager, Supervisor
- ❑ Other Corporate Business Manager
- ❑ CEO/COO/Owner or President (Channel/Integrator/Consultants Only)
- ❑ CFO/Controller/Treasurer (Channel/Integrator/Consultants Only)
- ❑ VP/GM/Director (Channel/Integrator/Consultants Only)
- ❑ Sales, Marketing, Product Staff (Channel/Integrator/Consultants Only)
- ❑ CIO/CTO/Other IS/IT Manager (Channel/Integrator/Consultants Only)
- ❑ Engineering Staff (Channel/Integrator/Consultants Only)

The one item that best describes your involvement in the IT purchase process
- ❑ Authorize the purchase
- ❑ Approve the budget
- ❑ Make the purchase
- ❑ Evaluate/recommend potential products/vendors
- ❑ Don't feel I have the need to purchase
- ❑ Influence

Number of employees in your entire organization (ALL locations)
- ❑ Over 10,000
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ Less than 500

What is the estimated annual revenue of your entire organization?
- ❑ Over $10 Billion
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ Less than $100 Million

Your organization's annual IT/IS budget for all IT/IS products, or if you are a Channel/Integrator Partner or Consultant, what is the annual dollar value of IT products/services you sell/resell/recommend/influence to purchase by your customers/clients.
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

Annual company IT budget (storage products and services)
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

Would you like to receive information about playing in the golf outing on Monday, October 25th?
- ❑ Yes
- ❑ No

❑ **My company is Sponsoring/ Exhibiting at SNW**	❑ **$895** (through September 14, 2004) General Conference Package (October 26 & 27) (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,290** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)	❑ **$1,295** (after September 14, 2004) General Conference Package (October 26 & 27) (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,690** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)

As a sponsor, you may be eligible to attend using a registration provided with your sponsorship. (If those registrations have already been assigned/used, then you may register at the prevailing rates above.) See the current list of sponsors at www.snwusa.com. Questions? Call 1-800-883-9090 or email snwreg@computerworld.com.

❑ **I am a representative of a Non-Sponsoring IT Vendor Company**

❑ **$5,000 Business Development Professional Package**
for Sales, Marketing and Business Development Professionals (includes General Conference Sessions, Expo, Meals & Receptions)

Vendors are encouraged to participate in Storage Networking World through sponsorship. (Details are available by calling Ann Harris at 508-820-8667.) Alternatively, vendors (as well as other "non-IT end-user" professionals as defined by Computerworld) may apply for registration at the "non-sponsoring vendor" rate of $5,000. Determination of what constitutes a "non-sponsoring vendor" registration is made exclusively by Computerworld. Please call 888-239-4505 with questions.

❑ **I am a Financial/Equity Analyst and/or Venture Capital Professional**

❑ **$1,290** (through September 14, 2004) Total 4-Day Package (includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA-Certification "Test-Ready" Courses)

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❑ **I am a qualified member of the press.** I can verify my press credentials.
Press should call Erin Keefe at 1-781-915-5009 to register.

Please fax this completed application to 1-508-820-8254

Payment Method

❑ **Check** (Checks must be received by October 5, 2004 payable to Computerworld)
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Cancellation Policy (All of the following require **written notification** by October 5, 2004.)
In the event of cancellation, the registrant has three options:
- ❑ [illegible] another attendee for this conference
- ❑ [illegible] after the end of this show, to the Storage Networking World Spring 2005 conference
- ❑ [illegible] with a $250 service charge (after the refund deadline of October 5, 2004)

Please send cancellation requests via email to: snwreg@computerworld.com

SIMPLIFYING NAS MANAGEMENT

Companies are using technologies that virtualize multiple network-attached storage systems into a storage pool. BY LUCAS MEARIAN

MIKE STREB RECENTLY found himself with a problem that's common to IT managers who consolidate data from file servers on network-attached storage devices. After years of growth, he wound up with 100 different NAS file systems to manage and faced increased downtime when he had to add application servers or update code.

The answer for Streb and a growing number of users like him is to pool or virtualize the NAS infrastructure.

Streb, vice president of IT services at Warner Music Group, installed intelligent switches on his network to generate a global namespace, or distributed file system, that creates a logical layer between servers and the NAS boxes that store their files. A global namespace spans multiple file systems but appears to end users as a single local drive on their computers.

Other storage administrators are opting for an appliance that sits in front of NAS devices and creates a logical view by pooling multiple NAS filers behind it. Policy-based engines contained in intelligent switches and appliances from companies such as Acopia Networks Inc., NuView Inc. and BlueArc Corp. can automatically balance I/O streams and capacity between servers and increase or move storage volumes without disrupting workflow.

Complication of NAS Growth

The NAS market has grown to $14.7 billion because the technology is easy to install and manage, according to market research firm IDC. But as storage needs grow, companies continue to install box after NAS box, and each requires individual management.

Over the past two years, adoption of NAS virtualization technology has been slow, according to Arun Taneja, an analyst at Taneja Group Inc. in Hopkinton, Mass. But interest among users has picked up in recent months, mainly because of the maturity of the NAS market. Now that many companies have "hundreds" of NAS boxes to manage, individual administration has become a nightmare, Taneja says.

To deal with that problem, New York-based Warner Music last month purchased two ARX1000 NAS virtualization switches from Acopia to handle millions of .wav, MP3 and graphics files on 128 Unix and 350 Wintel servers. Streb also plans to install four Celerra NS600 NAS servers from EMC Corp. as back-end storage.

Streb has five storage administrators who manage the distribution of files across Warner Music's NAS devices. That task alone takes up about 20% of their time, he estimates. "Now, through a policy engine, I can migrate the data from one box to another and take a brief outage by pointing the global namespace somewhere else, and the user doesn't even know it because it's all done behind the scenes," Streb says.

Streb is testing Acopia's switches on 20 Wintel servers and says he plans to complete the installation over the next two weeks. He also says that he hopes virtualization will open his data center to more storage vendors.

"In the past, it's been really complicated for me to introduce something from BlueArc or Network Appliance without creating too much management pain for me," Streb says. "Now I feel comfortable opening up the door to additional storage vendors and letting them compete more."

Different Approaches

Acopia's switches sit in-band between end users and file servers or NAS devices in the I/O stream, while products such as NuView's StorageX software reside on a Wintel server out of band, directing files to the appropriate NAS device or volume within a file server. StorageX is resold by Network Appliance Inc. under the name Virtual File Manager (VFM).

Mike Karp, an analyst at Enterprise Management Associates Inc., a consulting firm in Boulder, Colo., says the argument for in-band versus out-of-band devices is moot, and users should pay more attention to how well a device or software eases management of NAS devices.

"Typically, the knock on in-band technology is that it eventually becomes a choke point, but I rarely talk to a company that says 'I've maxed out pipeline to my NAS,'" Karp says. "Clearly, what you need is some kind of common interconnect, so commands — no matter what kind of storage you have — go out and manage the various units in the storage pool."

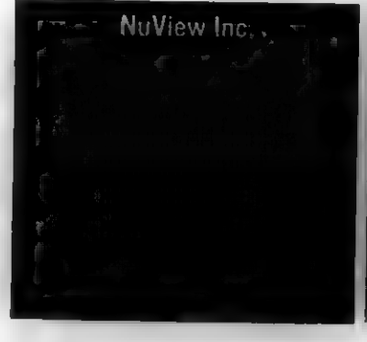
One problem with managing multiple NAS devices, Karp says, is that file servers based on Windows use the Network File System protocol to communicate over a network, and servers based on Unix or Linux use the Common Internet File System. The industry should agree on a standard way for servers to make requests for files or services over the network, he says. In the meantime, storage managers continue to virtualize Unix and Windows environments separately.

Clay Raedeker, a systems administrator at Bectel SAIC Co., says he recently purchased VFM and a second FAS960 NAS file server from Network Appliance to help control file distribution from more than 70 file servers with a combined total of 12TB of data. Las Vegas-based Bechtel SAIC is the prime contractor for the U.S. Department of Energy's program to use Yucca Mountain in Nevada as a repository for spent nuclear fuel.

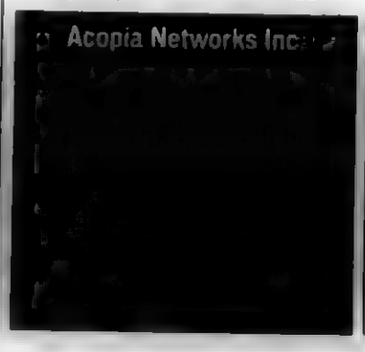
Raedeker says he currently has to come to work in the early morning when no one is accessing files so he can spend two or more hours remapping users when he adds servers or expands capacity.

"We're trying to map individual users to individual shares and individual servers, and it becomes extremely difficult to manage," he says. "Just contacting people and putting proper notices out is hard enough."

With the Network Appliance installation, Raedeker says his staff will be able to map to a shared file in a computer at any time, without having to specify the storage device it's on and "without having to interact with users at all." 47734









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NuView Inc.
Houston

PRODUCT: Storage...

HOW IT WORKS: ...creates a global name...

WHERE IT RESIDES: ...Windows 2003 server out of data path

PRICING: $...

BlueArc Corp.
San Jose

PRODUCT: Silicon...

HOW IT WORKS: Virtualization...resides on NAS box in data path...

WHERE IT RESIDES: On NAS box in data path

PRICING: $...

Acopia Networks Inc.
Lowell, Mass.

PRODUCTS: The high-end ARX6000 and the fixed-configuration ARX1000

HOW IT WORKS: Switches in data path, map file requests to NAS

WHERE IT RESIDES: In data path

PRICING: The ARX1000 is $45,000; the ARX6000 ... $150,000

Network Appliance Inc.
Sunnyvale, Calif.

PRODUCT: Virtual File Manager

HOW IT WORKS: Creates a global name space, aggregating files located on NAS systems and Windows servers to present a single logical "pool" of storage

WHERE IT RESIDES: On NAS box in data path

PRICING: $2,000-$50,000 per filer, roughly $2,000 per terabyte of capacity supported

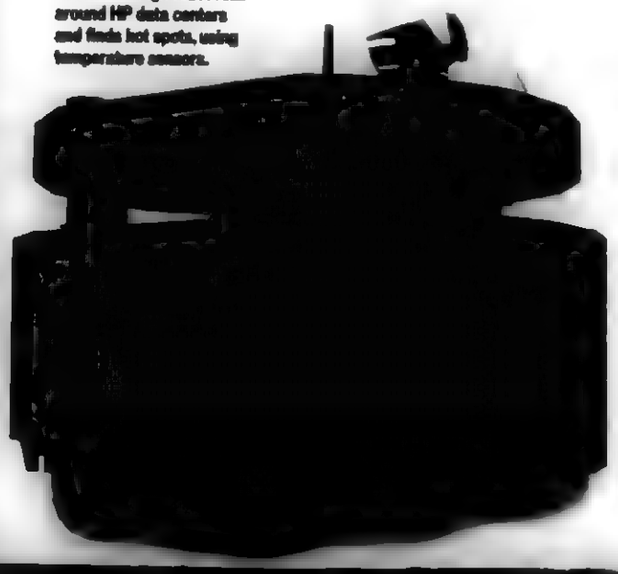
ROBOT REVOLUTION

They could fight wars, drive cars and patrol data centers. By Lucas Mearian

FUTURE WATCH *Robots, from mechanical dogs that can learn new tricks to automated vacuum cleaners that avoid furniture, are steadily becoming a part of everyday life. But the real robot boom lies just ahead, experts say.*

In the future, robots could help determine the outcome of wars and identify problems in data centers. Office buildings may come to life as they use Wi-Fi to dispatch robots to control human access, test heating and cooling systems, and fetch tools for workers.

Computerworld recently spoke about the future of robots with three experts: **Chuck Thorpe**, *director of Carnegie Mellon University's Robotics Institute;* **Jeanne Dietsch**, *CEO of MobileRobots.com in Nashua, N.H.; and* **Vijay Kumar**, *a professor in the Department of Mechanical Engineering and Applied Mechanics at the University of Pennsylvania. Here's what they said:*



This 18-in.-high robot rolls around HP data centers and finds hot spots, using temperature sensors.

WHERE WILL ROBOTS SERVE IN THE FUTURE?

KUMAR: They'll fight our wars. My robots will fight your robots. It's like playing chess. It'll be an expensive game, but I think it will minimize loss of life. I don't know it's something our leaders want to hear about, though.

WHAT'S THE FUTURE OF ROBOTS IN THE SERVICES SECTOR?

THORPE: That's the real frontier for robots — getting them out of the manufacturing world and interacting much more with people in our day-to-day chores. That's a little tougher. If you think about an assembly line, it's set up so that everything is predictable. If you think about the job of creating a robot butler to operate in your house, the difference between pile of clothes which should be picked up and a sleeping cat which shouldn't be picked up is a little bit tricky.

The manipulation skills required to make a bed — flipping up the corner of the mattress and tucking in a sheet so it looks straight — is complicated. Some of those jobs will take a long time before robots can really do them as well as people do them.

To really have a humanoid robot walking around like C-3PO or like Rosie on *The Jetsons* is still a long ways off.

DECADES?

THORPE: Probably.

CAN ROBOTS HELP INFORMATION TECHNOLOGY?

DIETSCH: Hewlett-Packard uses our PatrolBot in their data centers. It's got temperature sensors. It drives around several times a day, and the data from these patrols is used to create 3-D models of the heat in the facility. If there's a problem in the facility, the computer or a human can send the robot out to check on it.

Our robots are computers on wheels. When programmers start realizing, "Oh, I can drive my computer around and make it do things," they'll come up with all sorts of interesting things. For example, they could keep track of any asset in the facility based on RFID tags.



CHUCK THORPE — Director, Carnegie Mellon University's Robotics Institute, Pittsburgh



JEANNE DIETSCH — CEO, MobileRobots.com, Nashua, N.H.



VIJAY KUMAR — Professor, Department of Mechanical Engineering and Applied Mechanics, University of Pennsylvania

WHAT'S HARD ABOUT MAKING ROBOTS ACT LIKE HUMANS?

THORPE: I think you could turn that question around and say, "Wow, humans are a lot more complicated than we thought."

We're striving for a couple different things with robots. Sometimes we're trying to make them very much like humans, and sometimes we're trying to make them be a lot better than humans. Where we've had our greatest success is when we let the robots be robots and do what they're best at and let humans be humans and do what they're best at.

A couple of guys from my lab have spun off a company that makes a little TV camera that watches the road as you're driving. It doesn't drive your car, but it's there to watch, and if you start to get sleepy and start to drive off the road, it will beep at you and wake you up before you become an accident statistic.

WHAT ELSE ARE YOU WORKING ON?

THORPE: We've got 61 faculty members with 120 projects. We've got robots doing everything from cleaning paint off ships to search and rescue in hazardous environments. We have snake robots that can crawl through skinny little holes, and great big military scout robots. We have teams of robots playing soccer. That's a great way to study teamwork: How do robots coordinate to tackle a project? In the latest version of that, we have a team that consists of robots and people; how do robots and people collaborate to solve a difficult task?

CAN YOU SPECULATE ON SOME OF THE MORE FAR-OUT APPLICATIONS FOR ROBOTS?

KUMAR: My colleagues would argue the biggest opportunity for robots is in entertainment.

There are many, many prototypes of robots that are intended to be domestic companions. They walk like humans and talk like humans, but unlike pets, they don't dirty up your apartment.

DIETSCH: Our robots are made to work indoors. We're working next toward working outdoors. Everyone thinks GPS has solved the problem for robots, but it hasn't at all. If you're under tall buildings or trees, GPS is not reliable.

The problem with working outdoors is that you're working on three-dimensional terrain. Going from building to building, depending on terrain, is not so bad. I'm hoping we can do that in one to two years. Following streets and sidewalks — if we can do that reliably in three or four years, that will be good. But we'll still not be able to avoid cars going 40 mph.

THORPE: Certainly, within 25 years, we'll have robots assisting surgeons to be more precise, robots enabling elderly people to live in their houses longer and not have to go into nursing homes, [and] robots doing a lot of the dull jobs we don't like to do, so we can have more fun and do the more interesting jobs. **47844**

REMOTE BRAINS

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MAGAZINE OF THE YEAR FOR 2004.

For over a year the prestigious American Society of Business Publication Editors (ASBPE) selects one publication with 100,000 or more subscribers to receive this top honor. The award can go to any business publication in any industry category and covers all aspects of publishing, including editorial excellence, circulation growth, design, and overall contribution to the publishing community.

COMPUTERWORLD
THE VOICE OF IT MANAGEMENT

Four Steps to a Secure Budget

A seasoned security manager offers hard-nosed advice on how to get critical IT security projects funded. By Roger Foix

SECURITY MANAGER'S JOURNAL

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I've spent the past few days thinking about the many issues I face, trying to decide which one to discuss in this, my first column. In the end, it was an easy decision: extortion. I'm not talking about preventing employees or outsiders from stealing funds. I'm referring to my ability to "extort" appropriate funding from management.

There are less-cynical ways of looking at the budgeting process, but my experiences over the past few years at different companies have made getting blood out of a stone look simple in comparison.

Many security managers labor under the misapprehension that the budget process consists of working out how much you need, spending a few weeks coaxing your figures into the bizarre formats that the finance group requires, then defending your important projects in meetings. But my successful budgets have been the result of a different process — one in which I laid the groundwork well ahead of time. Here are four steps I follow to obtain funding from that parsimonious corporate bean counter.

Make the Business Case

Start by going back to your security basics and calculating your risk profile. Determine the potential financial loss arising from each of your threats, and multiply that by the annualized percentage likelihood of the loss occurring to get the annualized loss expectancy (ALE). Then demonstrate how much your project will reduce the ALE — and how much money it will save the company.

Assuming you have a sound business case, document this clearly, explain your reasoning in great detail, and then submit it to the finance people. It will get rejected almost immediately, of course, because no one in finance will understand a word of it. But don't worry; you have to go through this step only to show that you've done your homework and to lay the groundwork for more productive tactics later on.

Introduce FUD

Next, use fear, uncertainty and doubt to your advantage. FUD is the most important acronym to salespeople hawking IT security wares, and you are trying to sell your own IT security services to the corporate bean counters. Sow fear ("Did you hear about that hacker who broke into NASA? I hope that doesn't happen to us."), uncertainty ("Yes, I know we spent $500,000 on securing our network perimeter last year, but we need to make sure it's working.") and doubt ("70% of security breaches are internal. I wonder who the criminals are in our company?"). Sometimes this beginner's tactic works, but any chief financial officer who has been around the block a few times will blow FUD out of the water. Still, it's still worth trying just to see what answers you get. You can always use those responses the next time an IT security salesperson comes calling.

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Befriend Your Auditor

The next time you pass an auditor in the corridor, give him a big smile. These people write long-winded reports, and while no one reads the main text, everyone reads the executive summaries. Then these reports go on file, as do management's responses. Best of all, the auditors eventually check back to see whether management has addressed the issues the reports have raised.

While the threat of a hacker attack or a virus infestation makes the budget gods nervous, the thought of three years' worth of audit reports pointing a finger at their incompetence will give them night sweats. A scared budget-setter is a generous budget-setter, so your internal auditors are a major ally. The same goes for external auditors and your compliance team, too, if you're in a regulated industry.

So make friends with these people. That should be easy, since everyone else tries to avoid them. Then drop a few choice lines into the conversation like, "I'd really appreciate your opinion on our firewall setup." In no time at all, you'll have auditors crawling all over the areas in which you want to spend money. Six months later, senior management will get a report saying how dire the problems are in that area. Then, seven months later, you'll submit your budget request for money to address those issues.

Choose Your Allies

Every company has its alpha dogs, and they're rarely in IT. You may think that the CIO is at the top of the food chain, but in budget meetings, everyone complains to him about how much IT spends and how the help desk still can't sort out the small issues. This discussion invariably comes up just before his $17.5 million request to fund a project that even he doesn't understand properly.

The CIO has a hard fight, so you must look elsewhere to find your alpha dogs. In software houses, they're the salespeople; in investment banks, they're the senior traders; in pharmaceuticals, they're the research and development folks. Set up meetings with them and tell them what you need, using no more than two technical terms in any one-hour meeting. Then tell them what might happen to the company if security fails.

Three months later, when the budget cycle starts, submit your request to the CIO. He'll go into meetings expecting the usual beating, but this time the alpha dogs will be demanding to know why he isn't spending more on security. He'll have the answers on hand, you'll get your funding, and everyone will go away happy — or as happy as anyone can be after a three-hour budget meeting.

So there you have it: the four key steps to budgeting success. Good luck, and remember to get started now. If you do, you may just be in time to get the money you need for next year.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Roger Foix," whose name and employer have been disguised for obvious reasons. Contact him at roger.foix@hushmail.com or join the discussion in our forum. **QuickLink a1590**

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SECURITY LOG

WHERE THE MONEY IS

Average annual growth rate in base pay, from 2003-04, by job title:



SOURCE: FOOTE PARTNERS LLC NEW CANAAN, CONN. WWW.FOOTEPARTNERS.COM

SpamKiller Gets Mobile Security Tool Updated

Information Security Corp. in Deerfield, Ill., has released SecretAgent Mobile for Microsoft Pocket PC 2002 and Windows Mobile 2003. SecretAgent manages and secures documents stored on handheld devices. The new version, available now, includes support for ANSI-compliant digital signatures, has new workflow features, provides automated key history management and enables shared viewing and editing of encrypted, archived documents. Pricing starts at $69.95 per device.

SpamKiller Gets New Rules

McAfee Inc. has updated the rules set for its SpamKiller products. The monthly rules updates are now more granular, according to the Santa Clara, Calif.-based company. New features include 100 rules that follow the Federal Trade Commission's labeling standards for sexually explicit spam, URL rules that identify e-mail with Web addresses embedded in the body text and a rule to detect the Sober.h spambot Trojan horse, which propagates hate-mail spam. The updates, which work with SpamKiller for Mail Servers and SpamKiller appliances, will be available this month.

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BRIEFS

MontaVista Readies Linux Tool Kit

Next month, MontaVista Software Inc. will unveil its Linux Professional Edition Application Developers Kit, which is designed for building applications to run on MontaVista-embedded Linux. The Pro ADK tool set is built around MontaVista's Eclipse-based integrated development environment and includes core MontaVista Linux software libraries and header files, according to the Sunnyvale, Calif.-based company. Developers can use the tool kit on Windows, Solaris or Linux workstations. Pricing starts at $3,000 per developer.

IBM Unit Moves To Hyades Platform

IBM's Rational Software division announced last week that it will standardize its suite of automated software-quality tools on the Hyades open-source platform. The Hyades project is a subgroup of the Eclipse open-source project that IBM spun off as an independent, nonprofit corporation. By supporting Hyades, Rational plans to provide third-party vendors and IT organizations with a standard platform on which to build products that will work with its testing tools.

NLayers Aims For App Optimization

NLayers Inc. last week announced nLayers InSight, an appliance designed to provide application optimization. Working without agents, the appliance tracks application relationships, dependencies, usage, demand and service levels over time. InSight provides policy-based notifications, alerts and recommendations through a troubleshooting dashboard, according to San Jose-based nLayers. The appliance also tracks application usage, demand and service levels. Available now, InSight costs $45,000 for a perpetual license or $2,436 per month for a subscription.

TOMMY PETERSON

E-voting's Rush To Failure

IN THE WAKE OF the painful experiences of 2000, the choice of the mechanism used to record and tally votes in this year's presidential election may be almost as controversial as the battle between the candidates. Unfortunately, a hefty portion of state and local jurisdictions have prematurely adopted electronic voting systems.



E-voting in this year's election is a terrible idea because of both real technical limitations and the perception that the systems are unreliable and vulnerable to tampering. That's something of a problem, considering more than 30% of all voting in the election will be done on electronic machines.

This isn't just a public relations issue or one that will go away when citizens get used to the technology. A mounting record of problems with e-voting has tarnished elections in Georgia, California and Texas, among other places, and seems to justify widespread voter skepticism.

Part of the problem arises from the complexity of e-voting systems. The code that makes up these systems is so large that there's no efficient way for election officials to ensure that it's free of malware or to completely debug it, according to testimony Johns Hopkins University professor Avi Rubin gave before the U.S. Election Assistance Commission this spring.

The technology simply isn't ready to be used for the most basic and critical function in any democracy. And even if it were, the processes and protocols needed to monitor even high-performing systems aren't in place, judging by the report from IT security experts assembled by the Brennan Center for Justice at New York University School of Law and the Leadership Conference on Civil Rights. The panel's mandate was to devise a strategy for ensuring the security of touch-screen direct-recording electronic (DRE) voting systems.

The recommendations of the group are all eminently sensible: Train all election workers on security procedures. Develop random testing procedures to detect malicious code or bugs in e-voting software. Create and follow standardized procedures for responding to security threats and incidents. You get the idea. But it's a little alarming that the panel had to make these recommendations to fill an existing procedural gap.

To be fair, the chief recommendation of the panel isn't so obvious, and following it is essential to the success of any e-voting system. According to the report, each jurisdiction that plans to use an e-voting system should hire a well-qualified independent security group to evaluate the system's potential for failure and vulnerability to attack. The outside security team should be free of ties to systems vendors and be given unlimited access to software code and configuration information.

This is precisely the right approach to both harden the defenses of DRE voting systems and put to rest some of the public's basic fears about vote tampering. If an expert outsider can take a hard look at the code on a Diebold voting system, fewer citizens will be worried about, say, whether Diebold Chairman Walden O'Dell's support of President Bush (he's a big fund-raiser for Bush's campaign) might have influenced the system's design.

But most jurisdictions haven't put any of the recommendations in place, and it's too late to get it all done by November, as has been pointed out by a chorus of security experts [QuickLink 47931].

The headlong rush to e-voting grew out of demands for reform following the chaos of the 2000 presidential election. The $4 billion allocated by the federal government to enact those reforms got the attention of vendors that were eager to make a big sale. It's time to slow down, even if it means shelving e-voting until 2008.

Setting up a parallel paper trail for voters within an e-voting system, as some have suggested (including *Computerworld*'s Sharon Machlis — see QuickLink 47905), is not the answer. That would be cumbersome, threaten the secrecy of the ballot and still leave the system open to tampering. Which is why a federal judge's decision last week to uphold California's decertification of DRE systems until vendors provide voter-verifiable paper audit trails and other security improvements [QuickLink 48022] isn't enough.

In four years, processes could be in place that force transparency on all vendors of e-voting systems. The use of blind-signature encryption protocols could preserve secret balloting while giving voters a means to verify election results. There's not much upside in using e-voting systems for the election that's less than four months away, and the risks are enormous.

If you thought pregnant chads in the 2000 election were bad, wait until you see what a determined hacker could do to the democratic process this fall. That is, of course, if we're lucky enough to detect the attack. **46002**

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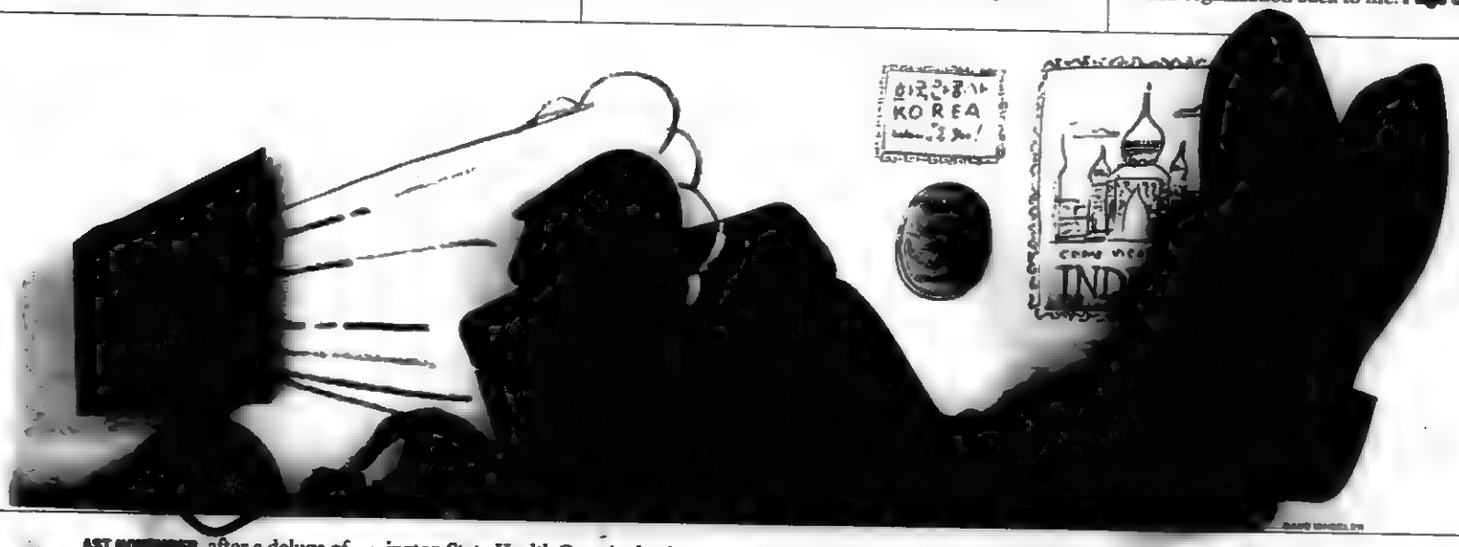

Congratulations, Depository Trust



Q&A
Managing 'Real' Risk
Risk management is an idea whose time has finally come, says Cutter Consortium analyst Tom DeMarco (left). He explains how project managers can help their businesses embrace risk and reap the rewards. **Page 34**

Q&A
Moving Targets
Companies go through innovation stages, so IT needs to provide the right help at the right time, says Geoffrey A. Moore of TCG Advisors. Depending on the stage, the company may need IT to support collaboration or hypergrowth or to help break down silos. **Page 35**

OPINION
Regenerating IT
Amputating a "broken" IT shop through outsourcing squanders precious time and resources, says Bart Perkins. You're better off investing in a sound project to bring the failed organization back to life. **Page 38**



How to combat offshore outsourcing backlash.

Damage Control

LAST NOVEMBER, after a deluge of customer complaints about unintelligible English, lengthy telephone waits and poor service, Dell Inc. rerouted technical support for its U.S. corporate clients from a call center in India to facilities in Texas, Idaho and Tennessee.

Weeks later, Lehman Brothers Inc. followed suit, shifting offshore help desk support for the financial firm's internal users back to the U.S.

Another company, Fremont, Calif.-based Everdream Corp., pulled the plug on its offshore help desk center in Costa Rica in April. The reason: plummeting customer satisfaction.

Elsewhere, a decision by the Washington State Health Care Authority to use offshore labor for a major IT contract prompted legislation that would effectively bar state agencies from future use of offshore contractors.

For CIOs, offshore outsourcing used to be a pretty straightforward dollars-and-cents decision — a relatively modest financial investment in cheap foreign labor in return for significantly lower ongoing operational costs.

Not anymore. Backlash from employees and customers has triggered productivity and revenue losses, plus more than a few public relations nightmares and political donnybrooks.

Clearly, U.S. companies are in the hot seat when it comes to offshore outsourcing. But despite the backlash, including the ongoing public outcry over lost U.S. jobs and the heated rhetoric of politicians in a presidential election year, most businesses have no intention of scaling back or delaying their offshore plans. Indeed, 86% of 96 attendees polled at a Gartner Inc. outsourcing conference in May said none of the backlash factors would cause them to change their offshore plans.

The reason is pure and simple: economics.

"Customers are constantly pursuing cost benefits. It's a constant, like gravity," says Mike Hoyt, CEO of Paradigm Works Inc., a chip design company in Andover, Mass., that sends design and IT work to India. "To outsource offshore is not a political decision on the part of the company. It's an economic decision with political ramifications."

Political Problems

But those ramifications are considerable, and mounting backlash from employees, corporate partners and consumers substantially increases the risks involved in offshore outsourcing, says Alfred Ricci, who heads the newly launched sourcing management office at Union Bank of California (UBOC) in Los Angeles. A technical decision to move work offshore could "absolutely" trigger enough of a backlash to affect a company's stock price, Ricci says.

DamageControl

As an example, he mentions California Senate Bill 1386 [QuickLink 47344], which requires a company to inform customers if their privacy may have been compromised. "A violation of that law [by an offshore outsourcer] would have a tidal-wave effect, which could result in a downgrading of the bank's creditworthiness," he notes.

To mitigate that risk and minimize damage, the UBOC created a dedicated sourcing office, which reports to an executive vice president and handles not only all contracts for professional services and staff augmentation, but also all strategy and communications regarding offshore plans.

Internal Issues

Two of the thorniest backlash problems around offshore outsourcing are rumors and employee flight, Ricci says. "The first reduces productivity, and with the second, the bank loses skills and knowledge," he notes. The sourcing office helps prevent both problems.

It assists senior management in preparing presentations to line employees about the effect outsourcing will have on them. It also provides managers with a list of answers to frequently asked questions so all information is consistent. Moreover, the bank has a person dedicated to tracking legislation and regulatory updates that could affect how and where the company outsources IT work.

Ricci emphasizes that the cost of running the sourcing office is "100% overhead. But the way you mitigate some of the risks associated with outsourcing is to plow some of the cost savings back into the monitoring and management of the [outsourcing] relationship." That includes managing employees and customers. "Basically, the cost savings is 50%. You take 25% of that and put it in legal, contracts, extra management. You can't be greedy," Ricci says.

Synygy Inc., a software and services company in Conshohocken, Pa., that has development centers in Pune, India, and Iasi, Romania, is hoping to minimize employee backlash. It offers U.S. employees who might otherwise be laid off the choice of working at one of those centers at a salary equivalent to what local IT employees earn, which is 30% to 70% less than in the U.S.

In addition to cost savings, the "exchange program" offers other benefits, says Chief Technology Officer Chetan Shah. "It helps people gain experience and understand why this global model is so important. They also gain respect for their foreign counterparts.

"You need to be honest with employees," explain the economics of the situation and offer them the right to return when jobs become available in the U.S. again, Shah adds.

But choosing which IT employees should remain after sending work offshore can be tricky, warns Gartner analyst Linda Cohen.

"Not all people are going to make the transition to higher-level positions here as the commodity work is moved offshore," she says, adding that CIOs often choose the wrong people to stay. "Typically, they choose the guys who stuck with them and stayed up all night to fix broken code. They usually pick people who do the very things they're choosing to outsource."

The solution, Cohen says, is to profile all IT employees, flagging as keepers "those with consultative skills who aren't wedded to how work is done but instead are wedded to the outcome."

CIOs should also be forewarned that IT workers aren't the only potential source of employee backlash. Business managers and workers in other departments are often resistant to change, says Kaushik Bhaumik, vice president of business technology consulting at offshore outsourcing vendor Cognizant Technology Solutions Corp. in Teaneck, N.J.

"Each one of those organizations has gotten used to working with IT in a certain way, and they may be used to Tom or Mary from IT. So you need to identify those users' key concerns, and it may mean keeping Tom or Mary where they are and developing a role around them," he says.

Bhaumik also recommends choosing "change leaders" to remain on board as employees. "Change leaders speak up at meetings and command respect from peers, regardless of their titles," he says. "People listen more and espouse change when they hear it from their peers."

Lay Out Plans

Counseling corporate customers about how to prevent or deal with worker and customer backlash to offshore outsourcing is a growing part of a consultancy's work, Bhaumik says. The most important advice he gives clients is to have what he calls an offshore road map.

"One of the most painful aspects of [offshore outsourcing] is when it comes out in dribs and drabs," he says. "It can be very disconcerting to people. It just stops work." Bhaumik advises clients who are offshoring more than 25 jobs to lay out what they are doing in three, six, nine and 12 months. "People respond better to a long-term road map and their place on it, rather than a road map that appears to be thought up on the fly," he says.

Regardless of the extent of work to be sent offshore, the absolute cornerstone of all backlash-control strategies has to be factual information, experts say.

"You don't want rumor to overtake reality," says Michael Treacy, author of several management books and cofounder of Gen3 Partners Inc., an Internet and offshore outsourcing consulting firm in Boston. "In the end, you can only politicize so long, and then the facts will prevail."

According to Treacy, the "hysteria" that surrounds offshore outsourcing doesn't reflect reality. He says the highest prediction of the number of jobs lost to offshore outsourcing is 300,000, yet the U.S. economy has 130 million jobs. "That means offshore outsourcing accounts for one quarter of 1% of the American economy," he says.

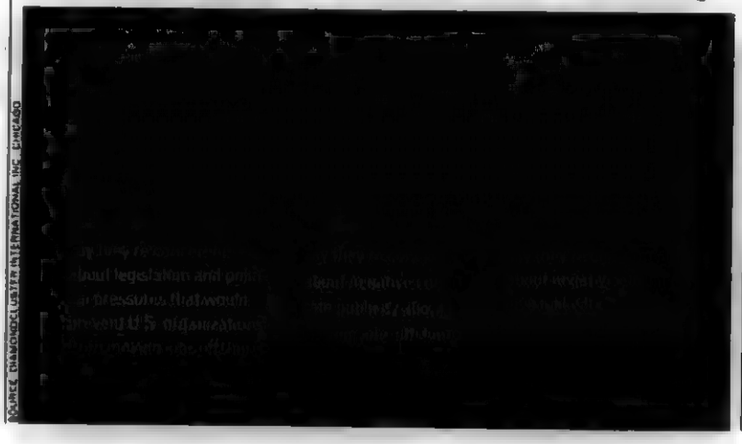


Customer Concerns

In dealing with customers, Treacy advises CIOs and other executives to always explain their decision to go offshore in terms of the value it brings to the customer. "Customers fundamentally don't care what you're doing with your employees," he says. "That's why every communication to customers must be couched in such a way that you're providing better value to them."

The best way to control damage, of course, is not to outsource offshore. That's the strategy at DSLExtreme, a Canoga Park, Calif.-based cable communications and Internet service provider with 50,000 subscribers. The company tries to offset its higher labor costs by touting itself as a hometown player — "a local company with a local feel," says CEO Ari Ramezani.

The downside, Ramezani says, is the unavoidable fact that consumers have to be willing to pay more for services from companies that don't outsource overseas. **47609**

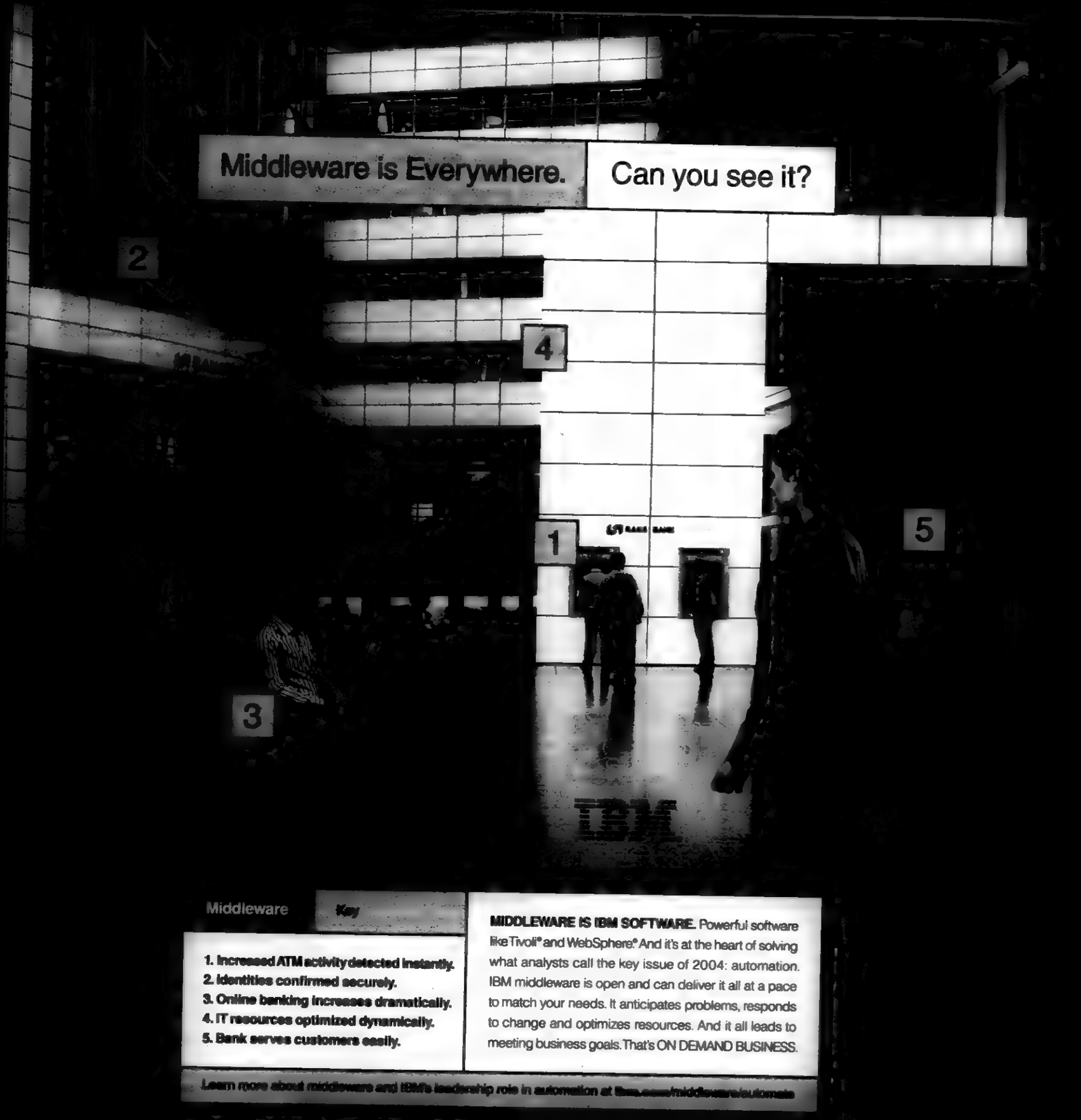


SOURCE: DIAMONDCLUSTER INTERNATIONAL INC., CHICAGO

AVOIDING MISTAKES

Learn 10 communications mistakes companies commonly make when they move IT functions offshore: **QuickLink 47612**

Off to India: One Synygy employee relates her experience moving offshore with her job: **QuickLink 47611**
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Managing 'Real' Risks

Tom DeMarco says knowing how to manage project risks enables companies to take bigger ones.

To get big payoffs, you need to take big risks, says Cutter Consortium analyst **Tom DeMarco.** *In his most recent book,* Waltzing With Bears, *he and co-author Timothy Lister explain how project managers can help their businesses embrace risk and reap the rewards. He told Kathleen Melymuka why risk management is an idea whose time has finally come.*

You and Tim Lister have written about many topics over the years. Why risk management now? We have moved from a focus on risk control to a focus on risk-taking. When you're trying to enable people to take risks, then you really need to use a much more disciplined approach that allows you to assess and track the risk. It sounds paradoxical, but it's the change in mind-set from, "Make this go away" to "Make it possible for me to take some really big risks without betting the farm on them." All the systems that are changing the world are very risky systems, but the payback is enormous. So we need much more methodical ways to take risks.

You call risk management "adult project management." Why? Children are allowed to maintain a blasé presumption that there is nothing bad in the world. Adults worry about the bad things that can happen. In pushing aside any consideration of failure, the can-do management philosophy is intrinsically childlike. We need to move past that. Can-do is a recipe for being able to take only small risks.

What are some of the benefits of good risk management? It makes risk-taking possible. It doesn't oblige you to abandon your stretch goal; it only causes you to consider your fallback plans for if that goal is not reached. It builds a much more healthy relationship between builder and buyer, in which people are able to talk maturely about uncertainty instead of pretending they're certain when they haven't got a clue. It's a way to scrub out the little white lies that are so much a part of the builder/buyer relationship.

What's the hardest thing about managing risk in an IT project? Risk is an abstraction: something that may or may not happen. We are not used to dealing with abstractions on project plans. Every activity on a project plan has to be done. Any that *might* have to be done are not on the plan. The whole notion of uncertainty is hard to wrap your mind around. It's anti-intuitive and also countercultural in some places. There are some places where you can be wrong but you're not allowed to be uncertain.

Risk management seems so obvious. Why are IT groups so averse to it? There's a presumption built into the heart of IT project planning that starting a project off toward unrealistic goals does no harm. But if you've been through a project that was done that way, you know it does terrible harm. It causes you to do things in the wrong order and leave out things that need to be done. But still, we figure out the most optimistic possible scenario and plan according to that.


Tom DeMarco (left) and Timothy Lister address risk-taking in their book *Waltzing With Bears*

Are IT people ready to do real risk management? There is a class of person who is reluctant to open this book. They know it will tell them about managing uncertainty in a reasonable way, and a lot of people don't want to hear that. It's like going for a colonoscopy. You know it's good for you, but you keep putting it off because you don't want to face the possibility of bad news. **47618**

THE ONUS OF UNCERTAINTY

CORPORATE CULTURE – whatever that means – poses serious challenges to the would-be risk manager. The most important of these is an attitude toward uncertainty, summed up as follows: It's OK to be wrong, but not OK to be uncertain. If that rule describes your company, you're sunk.

The rule says you may miss your promised delivery date, but in the months and days leading up to that date, you're not allowed to express any doubt that you will indeed deliver on time. Failure is tolerated as long as you don't commit the capital crime of admitting beforehand that you *might* fail.

This constraint may leave you prone to an infectious disorder called *selective myopia*. Projects that are stricken with this condition can see only small problems. Large problems may loom directly ahead – problems that would be in the center of any healthy project's field of vision – but they go completely unseen.

People take elaborate care not to trip over the railroad ties, but nobody can see the oncoming train. Risks are identified, a risk list is published, risks are reported on status reports, and mitigation strategies are approved. Risks are monitored and tracked. If one only reviews the risk lists and records, it appears that the project is low-risk. All the risks enumerated are at the inconvenience or nuisance level. The risk-tracking proceeds without variance until the project is suddenly canceled, often followed by a furious bone-picking of the corpse by litigation.



Fortunately, there's a vaccine. At the first go-round of risk identification, vaccinate everyone by naming all the catastrophic outcomes you can imagine. Ask for more catastrophes from the group. Speak the words *failure, rejection* and *cancellation*. See whether you can get others to speak them publicly as well. Now, work backward from your catastrophe list, asking for scenarios that could lead to each of the catastrophes. Take each scenario and try to describe the risk(s) that could bring it about. Now you have the beginnings of a risk list that might reflect future reality.

The essence of the technique is this: Attack your nightmares, not your petty worries; to discover the risks that really matter to your project, trace backward from effect to cause. Watch for oncoming trains. ▶

Adapted from **Waltzing With Bears,** *pp. 42-45, by permission of Dorset House Publishing Co. Copyright 2003 by Tom DeMarco and Timothy Lister. All rights reserved.*

Moving Targets

Companies need different types of innovation support from IT, depending on what stage they're in.



New ideas come in many forms, from the disruptive innovation of the first PCs to the business model innovation of Dell's decision to bypass the retail channel and sell directly to consumers. In the July issue of Harvard Business Review, **Geoffrey A. Moore** *says the way to get more bang for your innovation buck is to look at how any market evolves throughout its life cycle and tie your innovation efforts to that evolution. Moore, a managing director of TCG Advisors LLC in San Mateo, Calif., told* Computerworld's *Kathleen Melymuka that the challenge for IT is to support those evolving efforts with appropriate technology.*

Looking at innovation as an evolution is fascinating. What role does IT play in all this? IT is an enabler of each of these kinds of innovation. With disruptive and application innovation, the technologies that matter most are about communication and collaboration. People have been talking about concurrent engineering and collaboration problems for 20 years, but our clients say communication and collaboration are still not what they want them to be. IT has a long way to go to be better at those.

In product and process innovation, things heat up. How does the IT role change? With product and process innovation, where companies are ramping up and seeing hypergrowth, laying down the transactional systems really matters, and designing for scalability is a huge issue. You don't need IT to help you differentiate; you need IT to keep the wheels on the car, and it's vibrating madly. During this period, IT has its hair on fire. It gets very focused and even a bit siloed because at this point the functions in the company that it serves tend to be siloed.

How can IT avoid the siloing? During this hypergrowth phase you're growing so fast you may want to talk across functions, but there's no time to talk to anyone. Companies and IT tend to build those silos that they spend the rest of their lives trying to deconstruct, but there's no easy way around it. That's the classic IT of the go-go years.

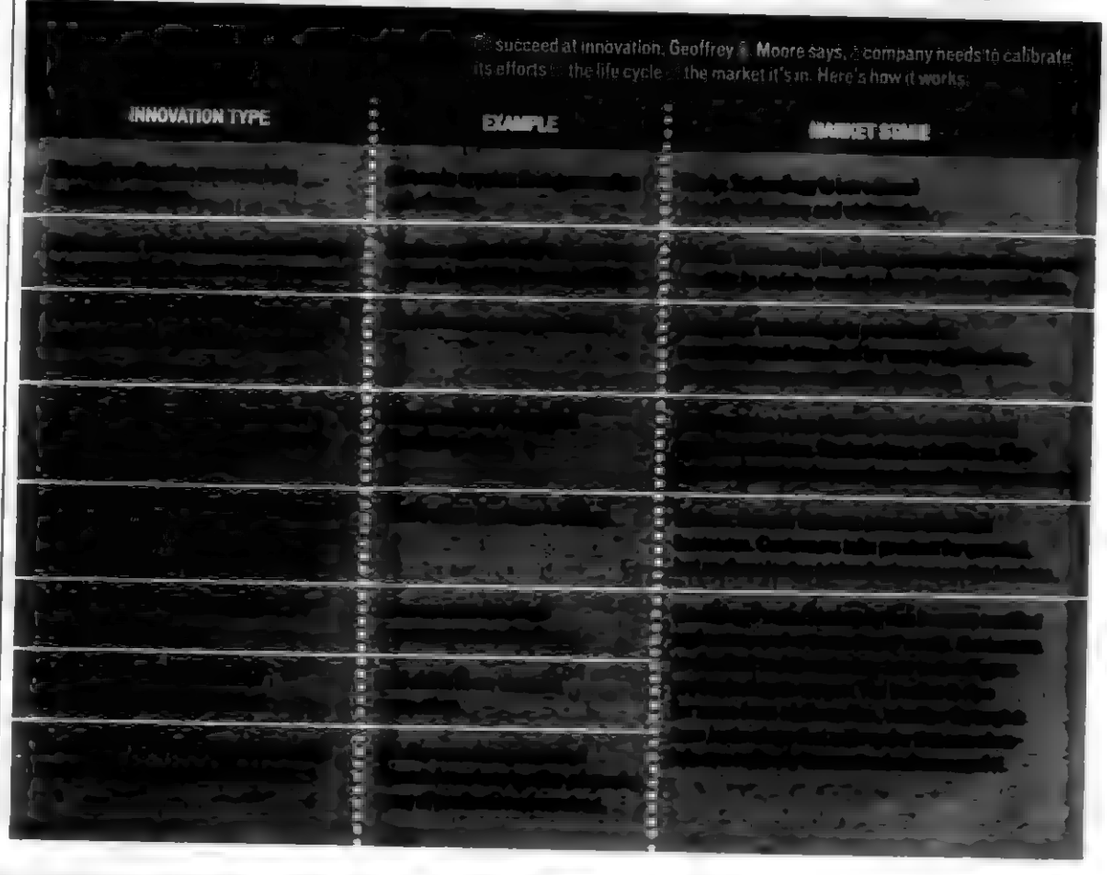
What happens after that? We're not in hypergrowth but not in decline. We're in that indefinitely elastic middle where IT can be a genuine source of differentiation. You're taking the costs out of processes, and there's a lot IT can do. In particular, you're trying to extract resources out of nondifferentiating processes so you can concentrate on the differentiating ones. Outsourcing some of the functions of the corporation can be very important here.

How does IT support that? Whenever you outsource, you need great visibility and control systems. IT has fallen behind here. IT systems tend to be about productivity for in-house workers. When we do the work, we're not so worried about visibility and control because management takes care of that. But now [with outsourcing] it's about visibility and control at a distance. It's really important to put in place service-level agreements around outsourced functions that keep everyone apprised. Process control knowledge is typically built into the chemical and oil industries, but average companies don't know squat about it. Sure, we have Six Sigma black belts running all over companies, but IT needs to develop software to take their place. That's still in the works.

What happens as the market declines? As the curve starts to decline and you come to business model innovation, the old transaction systems will need to be reworked. That's going to disrupt the heck out of IT, and I don't have an easy answer. You may be eliminating members of the value chain. Maybe you no longer need four companies; maybe you can make do with two or one. When you do that, IT systems become ground zero. Look at how Dell disintermediated the retail channels. They did it with IT. So value chain innovation is a big deal.

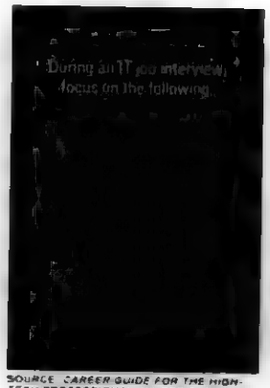
And at the end of the line? Structural innovation is all about merging companies and merging IT. There must be a place in purgatory where that's all you do, because nobody likes the outcome and everybody hates you for years. That's a place where IT is really challenged. If you have an enemy, this is a great assignment for him. 47712

This is the latest in a series of monthly discussions with Harvard Business Review authors on topics of interest to IT managers.


succeed at innovation, Geoffrey A. Moore says, a company needs to calibrate its efforts to the life cycle of the market it's in. Here's how it works.

INNOVATION TYPE	EXAMPLE	MARKET STAGE

Career Watch



SOURCE: CAREER GUIDE FOR THE HIGH-TECH PROFESSIONAL: WHERE THE JOBS ARE NOW AND HOW TO LAND THEM (CAREER PRESS INC., 2004)



Sleepless In . . .

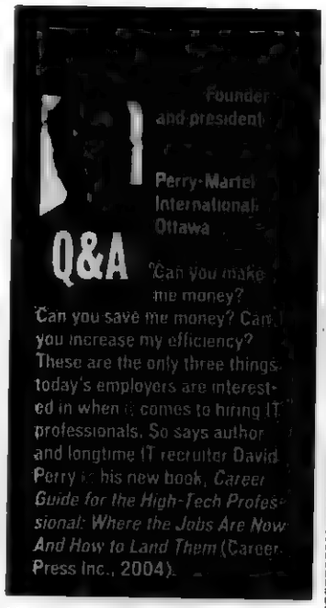
- **BRITAIN:** One out of three IT directors is working between **48 and 60 hours a week.**
- **FRANCE:** 3% of IT directors are working more than **60 hours a week.**
- **GERMANY:** 2% of IT directors put in the equivalent of **7.5 working days a week.**

SOURCE: SIRA RESEARCH CONSULTING, JOINTLY BY MERCURY INTERACTIVE CORP. AND THE MANCHESTER BUSINESS SCHOOL

What's on Your Nightstand?

FORMER PRESIDENT BILL CLINTON's new autobiography, *My Life*, is this summer's must-read for executives, according to a June survey of business and IT executives conducted by the Association of Executive Search Consultants in New York. Of 174 executives polled, **36% said they would be reading Clinton's book this summer.**

- Other top titles include *Alexander Hamilton*, by Ron Chernow; *Trump: How To Get Rich*, by Donald Trump with Meredith McIver; *Can You Keep a Secret?*, by Sophie Kinsella; and *Automatic Millionaire*, by David Bach.



Making yourself relevant to an employer's needs is what will get you noticed and hired, Perry says. IT job candidates need to think about their own accomplishments with their potential employer's requirements in mind. "As a job seeker, you need to become adept at direct self-promotion to executives and to showcase your answer to this question: 'How can I increase shareholder value?' " he writes. Perry recently spoke with *Computerworld*'s Julia King about the challenges of finding an IT job today.

What's your advice to IT workers who have been laid off or whose jobs have been outsourced? How should they be selling themselves in today's IT job market? It's about taking charge of your career and your life. If you've been in the high-tech industry for the past 15 years or so, up until 2001, there was always somebody like me on every corner saying, "Hey, do you want a job?" We have a whole generation of people who don't know how to go and ferret out their own opportunities. You need to start by figuring out what skill sets you have that employers are most likely to pay for, what industries you're interested in and then do a Google search. By doing a Google search by job title, industry, area code, geographic location, etc., you'll get to 80% of the job opportunities out there. Going through IT job boards, you'll maybe get to 2% of the opportunities out there.

And then what? Figure out who the people are with the responsibility for actually hiring you. Find something intelligent to say to these people, and then go after them in a direct manner. Typically, it's a VP. Do a search for quotes from them in business articles or find any white papers they've written and read them. Find the person's e-mail address and send them a note saying you read their white paper and get a discussion going. All of a sudden, you're no longer looking for a job, but you're having a business discussion. For so many people looking for an IT job, that is so far out of the realm of what they've been taught to do.

What are the top three mistakes you see IT job candidates make today? Sending their résumé to personnel. Sending their résumé to personnel and sending their résumé to personnel. **47820**

The U.S. House Appropriations Committee has voted to withhold $5 million from the budgets of the departments of Commerce, Justice and State until the federal agencies can prove that all eligible workers are permitted to telecommute. The 2005 appropriations bill also requires the federal judiciary, the Small Business Administration and the Securities and Exchange Commission to prove that eligible employees are permitted to telecommute.

"With all of the advances in technology today, there's just no reason to strap yourself into a metal box every morning just to drive to an office where you sit in front of a computer all day. Off-the-shelf technology even allows for face-to-face meetings via videoconferencing. So not being able to talk – or see – co-workers on a regular basis is no longer an issue.

REP. FRANK WOLF (R-VA), CHAIRMAN, COMMERCE-JUSTICE-STATE APPROPRIATIONS SUBCOMMITTEE

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CIOs and senior IT executives are finding that consolidating high-performance networks can play a key role in improving business application performance while significantly reducing operational costs.

The proliferation of network capacity and related storage and server infrastructure presents a daunting challenge for today's enterprises, many of which are positioning themselves for growth yet still seeking to reduce IT costs where feasible.

By leveraging the knowledge of industry experts and the real-world experience and advice of your IT peers, this IT Executive Summit will provide an overview of effective strategies for consolidating and connecting networks and data center applications.

*Complimentary registration is restricted to qualified IT executives only.

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8:15am to 8:45am	**Rebuilding the IT Foundation** Maryfran Johnson, Editor in Chief, Computerworld
8:45am to 9:15am	**Consolidation and the Data Center: Boosting Business Performance and Application Availability** Matt Eastwood, Research Director, Global Enterprise Server Solutions, IDC
9:15am to 9:45am	**Perspectives from a CIO**
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**User Case Study** Alejandro Lopez, System Architect, University of California Davis Medical Center
10:45am to 11:15am	**Customer Challenges and Solutions: Real-Life Scenarios Connecting Data Centers Over Distance** Steve Adolph, CTO, Enterprise Solutions Group, CIENA
11:15am to noon	**Panel: Overcoming Management Barriers — Making the Case for Consolidation** Panel Moderator: Maryfran Johnson, Editor in Chief, Computerworld Panelists: Joe Puglisi, CIO, EMCOR; Stephen Morin, CIO, TAC Worldwide; Frank Enfanto, Vice President, Operations Delivery & Information Security, Blue Cross Blue Shield of Massachusetts; Alejandro Lopez, System Architect, University of California Davis Medical Center
Noon	Program Concludes

Selected speakers include:



Maryfran Johnson
Editor in Chief, Computerworld



Matt Eastwood
Research Director, Global Enterprise Server Solutions, IDC



Steve Adolph
CTO, Enterprise Solutions Group CIENA



Joe Puglisi
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BRIEFS

Capgemini Targets Energy Sector

Capgemini Energy LP, a collaborative venture of Capgemini America Inc. and TXU Corp. and its subsidiaries, began operations in Dallas as part of a 10-year deal to provide IT, call center and business services initially to TXU and, later, to other energy companies. Bob Pryor, who previously served for four years as North American president of outsourcing services at Capgemini, will serve as CEO. Elizabeth Lavalley, who most recently served as Dallas-based TXU's senior vice president of IT, will join the limited partnership as chief operating officer.

CSC, Cinergy Sign IT Services Deal

Computer Sciences Corp. announced that it has signed a five-year, $71 million IT application services agreement with Cinergy Services Inc., the administrative arm of Cinergy Corp., a Cincinnati-based power provider. El Segundo, Calif.-based CSC will provide application development and support for noncore functions. Cinergy will retain application work related to mission-critical company programs. CSC has conducted project work for Cinergy for 15 years in areas such as application development, systems integration and supply chain management.

CIO, CTO Quit Citrix

Fort Lauderdale, Fla.-based Citrix Systems Inc. announced that Joanne M. Moreno, senior vice president of corporate services and CIO, and Bob Kruger, senior vice president of product development and chief technology officer, have decided to leave the company. Citrix also announced that it will reorganize the corporate services unit, including IT, facilities, purchasing and manufacturing. The unit will be integrated into the finance and administration organization under Chief Financial Officer David Hemphill.

BART PERKINS

Regenerating IT

MANY COMPANIES feel that their IT organizations are "broken" or irreparably damaged, and indeed, some are. The symptoms of a damaged IT organization are all too familiar: failed projects, big write-offs, high CIO turnover, an outdated technology base and uninvolved executives telling the latest CIO, "Call me when the problems are fixed." These companies are often tempted to succumb to the siren song of the outsourcers who offer to take over all of IT and promise to fix it.



However, companies that expect to leverage an outsourcer's expertise in this manner usually find that their costs increase dramatically. In addition, the outsourcer often requires numerous changes to corporate business processes, some of which may be unacceptable.

When an IT organization is badly damaged, outsourcing the whole thing is truly tempting, but such a desire often means "Let's abdicate all responsibility for IT." Such endeavors can be classified as "desperation outsourcing" and rarely succeed. Outsourcing IT can be successful, but not when the organization is damaged. Fix the problems first, then revisit outsourcing options.

Like the damaged arm of a starfish, the failed IT organization needs to be regenerated, not amputated. Successful regeneration efforts require a strong CIO who will say "no" loudly and clearly when needed, even if it makes powerful executives unhappy.

Regeneration efforts aren't a popularity contest. The leadership role is generally best performed by an OOTA (out of town agitator), a specialist from outside the corporation. The OOTA is hired as CIO to focus solely on successful regeneration, which usually takes two to three years. When the regeneration is complete, IT will be turned over to a new CIO whose skills are better suited to running a stable organization. Make sure to wait until completion to make this turnover; the two CIOs aren't interchangeable, since they have widely different skill sets. Switching too soon can undo everything that's been accomplished to date without reaping the full benefits of the regeneration effort.

Yes, the right OOTA can be expensive, but not as expensive as outsourcing your whole IT organization, and certainly not as expensive as outsourcing IT, failing and then having to bring it back in-house.

A firm foundation for successful regeneration also includes the following requirements:

- **Executive buy-in.** IT isn't a spectator sport. The other CxOs need to actively support the regeneration effort. Most new IT systems require changes to the underlying business processes, particularly when replacing outdated systems. Midlevel managers who prefer the status quo must not be allowed to withhold their cooperation or ignore or undermine the efforts of the regeneration team.
- **Sufficient time.** Problems that took many years to develop require substantial time to correct — usually measured in years, not months. Unfortunately, there are no silver bullets.
- **The right team.** Regeneration isn't sexy, but don't be tempted to put a second-level team on it. Regeneration requires a talented, focused and dedicated team, and prior regeneration experience is invaluable. While the team may find it helpful to supplement existing staff with experienced consultants, the internal members must be held responsible for the final results.
- **Stability.** Make any needed staffing changes at the start. Changing leadership or key employees midstream will almost certainly derail the effort.
- **Focus and execution.** Start regeneration with a clear, well-thought-out plan. Then focus ruthlessly on delivering against that plan. When an IT organization hasn't delivered for several years, there is inevitably pent-up demand for IT services. When the rest of the corporation realizes that the IT organization may be productive again, demand will be enormous. But the CIO must delay most new projects until regeneration nears completion. Undertaking unanticipated projects can severely hamper regeneration success.

Although it's tempting to believe that outsourcing a broken IT organization will magically fix it, this "out of sight, out of mind" approach usually spells disaster. When your IT organization is damaged, don't succumb to desperation outsourcing. Instead, take your cue from the starfish at the bottom of the ocean to make sure your IT organization doesn't end up at the bottom of the Dumpster. 47773

MORE ONLINE

IT Turnarounds: Is your IT shop chaotic, unfocused or demoralized? Here's a road map for fixing such problems: QuickLink 41360

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Advertising Supplement

IT Careers: Leaders of Top Education Programs Look to Future

The leaders of the nation's top computer science/software engineering degree programs agree on two things about preparing the IT workforce of the future. First, they need to attract more people to the technical professions. Second, the breadth and dexterity of what is covered in lifelong learning continues to grow.



U.S. News & World Report rated Rose-Hultman Institute of Technology, Cal-Poly (San Luis Obispo) and The Cooper Union as the top three institutions for undergraduate computer engineering.

Dr. George Campbell, president of The Cooper Union for Advancement of Science and Art in New York City, looks at the issue of technology education from two perspectives – in his current role as an academic leader and his previous role as CEO of NACME, a non-profit devoted to science and technology education and policy. "The most significant deficiency we have been unable to overcome is under-representation of women and minorities" in technical studies, Campbell says. "In the past we have filled the workforce needs by bringing technology workers into this country. This is no longer working. Other countries are investing a greater proportion of their gross national product in the education of their own technical workforce."

Cooper Union's situation is highly unique; the institution has 1,000 students, 100% of whom are on full tuition scholarships. Approximately 32% of the students are female. The number is higher than the nationwide average of women in technology (23%). However, the number of African-Americans, Latinos and American Indians enrolled in technology courses nationwide remains in low double-digit figures. Campbell believes change will occur only through intervention at earlier ages to attract children from inner city schools.

While demographics and numbers are critical, given that the vast majority of higher paying jobs is in the technology areas, so too is the breadth of studies undertaken. According to Campbell, "Most of the technology advances that took place in the 20th century resulted from major breakthroughs in physical sciences – quantum mechanics, solid state physics, chemistry and so on," Campbell explains. "In the future, more advances in technology will be driven by breakthroughs and greater understanding of processes in life sciences—self replication, DNA and the like. I believe all engineering majors should have a course in molecular cell biology, just as physics and chemistry are required today."

In addition to major shifts in curriculum to include life sciences, Campbell says educational programs have to avoid the trap of relying on simulations alone to help teach. "You really need to understand the ideas to comprehend the technology that is behind it," he says.

Dr. Cary Laxer, head of the software engineering/computer science program at Rose-Hultman Institute of Technology, says the breadth of capabilities required also must be addressed. Rose-Hultman already has added courses in critical areas – networking, computer security and cryptography. "We've added a required course in technical communications," Laxer adds, "to make sure our graduates can communicate with a variety of constituencies." Laxer and his peers at other U.S. universities continue to assess the longer term future of technology and adjust curricula accordingly. Adding courses is just one aspect of that change – professional development for faculty and equipment for students also has to be included.

The third critical aspect of IT education is lifelong learning, say Campbell and Laxer. "This isn't just a technical issue," stresses Campbell. "There needs to be a balance between liberal arts and technology learning throughout life. This is so important in understanding the context in which we do science and engineering – the ethics, societal implications and economic effects. These are the things that separate professionals and visionary leaders" from others, Campbell adds.

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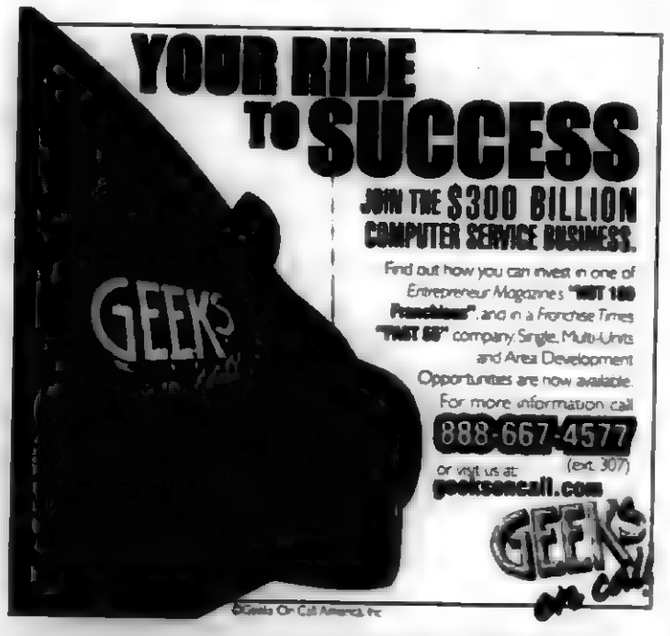
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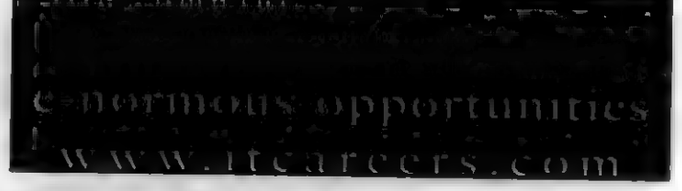
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Computer Support Specialist to support computing infrastructure including servers, email, apps, network, dbs & users. Requires MS in Comp Sci & min 2 yrs exp w/Novell, Solaris, Linux & MS Windows systems, LAN/WAN networking, web server & SQL server; familiarity w/Visual Basic, Oracle, .Net, XML & ASP required. Send resume to Human Resources, Sunrise Global Inc., 4000 Bordentown Ave., Sayreville, NJ 08872, or fax to 732-651-9998.

Software Engineer

Seeking individual with experience working with application servers (ATG Dynamo 4.1/ 5.1), operating systems (Windows NT, Sun Solaris, UNIX, Netware), programming languages (Visual Basic, JAVA, ASP, COBOL, C), software configuration tools (Rational ClearCase 3.2.1), and effective communication skills. Must have BS, 5 years experience as software engineer, Sun Certified Java Programmer, and significant experience programming. Salary $55,000. Send resume and cover letter outlining minimum qualifications to Provion, 1501 Commerce Ave., Carlisle, PA 17013.

Cignifi has openings for System Analysts or Software Engineers. Candidates must have BS/MS with experience. Use skills such as Java, Cobol, EJB, ERP, Oracle, SQL, VB, C/C++. Travel may be required for some jobs. Competitive salary. Please apply at info@cignifi.com. No calls. EOE.

IT specialists wanted by ARWANO, Inc. for positions using Oracle, SQL, VB, C/C++, SAP, AS/400, RPGLE, COBOL/ 400, CL, SQL/400, Query/400, Oracle RDBMS, Developer 2000, Windows NT. Minimum is BS degree with IT exp. Travel maybe required. Please apply at waseem@arwano.com. EOE

Sys Analyst to dsn, dev, impl, & maintain web enabled eComm, client-server & N-tier appls. Perform sys req study, sys analysis, Test Plan Prepar, Unit Testing, Sys Integrn Testing & Doc. Dev appl using Java, Servlet, JSP, J2EE, EJB, HTML, DHTML, VB-Script, JavaScript, ASP, VB6.0, COM/DCOM, VC++, IIS4.0, Weblogic 5.1/6.0, SQLServer 6.0, Visual Cafe 3.0, Visual Interdev 6.0, VSS 6.0, Solaris 7, WebSphere Appl Server 4.x/5.x, MQSeries, DB2 7.3/8.1, AIX 3.4, Win 2000, SOAP 1.1, ANT, JUnit, Websphere Studio Appl Developer 4.x/5.x, JProbe, PVCS, Versata Logic Ste 5.5 & respon for lifecycle of s/w proja. 24X7 tech supp. BS in CE + 2 yr exp. Certified Java programmer. Comp. salary. Apply to Unilinx - Code RB, 4625 Alexander Dr., #110, Alpharetta, GA 30022 with proof of perm. W/k authzn.

Actuate IT Technical Lead, Wachovia Securities, Chicago, IL. Develop, create and modify computer appl. software using Actuate software. Reqs. BA in Computer Science and 4 yrs exp. in pos. or as Software Engineer. The 4 yrs. must incl. developing software and web appl. solutions using Actuate software and work integrating Actuate into .Net appls. externalizing security (w/o use of LDAP), developing usage reports incl. transient reports, designing object oriented appl. in the Actuate framework, report dvlp., publ. tech. doc. and conducting stress tests and developing queries against Oracle and/or DB2. 2 yrs. of req. exp. must incl. developing appls. using Microsoft's .Net framework. Must be Actuate certified. M-F, 8-5. Send resume to Gen Attn Henderson, Wachovia Corp. 401 S. Tryon Street, NC 0958, Charlotte, NC 28288-0958. No phone calls.

Applied Optoelectronics, Inc. (Sugar Land, TX) is seeking a Database Administrator using Oracle9i, SQL, SQL DTS, TransactSQL, Pervasive 7, VB, PL/SQL, VMS, Linux, UNIX scripting, Tivoli, EMC environment, Erwin, and UML. Peoplesoft, SAP with Oracle, DB2 and Sybase. B.S. 3 mon. exp. Send resume to 13111 Jess Pirtle Blvd., Sugar Land, TX 77478/281-295-1888 (F). Attn: HR Manager.

K.T.J. Imports and Exports, Inc. (Houston, TX) is seeking a MIS Engineer/MIS Specialist using knowledge in business, OSAS, and SAP Data Warehouse software. B.S. 6 mon. exp. Send resume to 6500 Long Point Rd., #304, Houston, TX 77055/713-680-3124(F). Attn: Chyryi Shieu.

Carapac Arnerasi Industries, Inc. (Houston, TX) is seeking Systems Programmer. B.S. 1 yr. exp. using Microsoft.Net, ASP, VB.Net, Java, SQL, OLAP, XML, GeoFrame, HRS, Jason, Ergo89, ists, Sun Blade2000, Sun Ultra80, and SQI OCTANE. Send resume to 8303 S.W. Fwy., #488, Houston, TX 77074/713-771-6868(F). Attn: Eric.

Infobahn Technologies delivers innovative IT Solutions to business clients nationwide. We have immediate full time opportunities for Programmer Analysts. All applicants must have a minimum BS in Computer Science Engineering or Related field plus 2 years of experience. Send resumes to: Infobahn Technologies, (HR) 298 Walnut St. #410 Newton, MA 02460.

Requirements Analyst needed at client sites to gather business reqmts, analyze & dvlp scenarios, prgm in Siebel, Java, JSP, C++, SQL/ PLSQL; test using WinRunner, LoadRunner, Test Director; UML modeling using CaliberRM; data modeling using SAS, SPSS; OO data modeling & db dsgn. Resume to: Global Consultants, Attn: Hireme, 25 Airport Rd., Morristown, NJ 07960.

Programmer Analysts to analyze, design, develop and support computer systems using OS like MVS/ESA, DOS/VSE, UNIX, MS-WINDOWS, databases such as DB2, VSAM and Oracle, programming environments such as C, C++, COBOL, COBOL II, TSO-ISPF, CICS, JCL and tools including FILEAID, IDCAMS, SQL*PLUS and PRO*C, generate batch reports from existing data and debug for better performance. Require BS or foreign equivalent in CS or any branch of Engineering or related field with 2 yrs exp in IT. High salary, in position Travel involved. Resumes to HR, Smartsoft International, Inc., 3666 Johns Creek Court, Suwanee, GA 30024.

Manager, IT. (Rockleigh, NJ). Reqs 4 yrs exp IT management, incl secure databases & MBA or MPA w/undergrad Comp Sci, Math, or Elec Engineering major. Will also accept 4 yrs exp & MBA w/IT core. Send resumes: US Tender, 8 King Rd, Rockleigh, NJ 07647 Attn: HR/IT.

Communications Engineer - Homestead, FL - wanted by telecommunication & entertainment provider. Monitor & troubleshoot the uplinking, downlinking & transmissions of digital voice, image & data files. Monitor & troubleshoot the interconnectivity of satellite to fiber optic/fiber optic to satellite hardware. Troubleshoot reception & amplification issues during transmissions. B.S. Electronics & Communications Eng or foreign equivalence & 2 yr exp. in job offered. Fax resume to Setuplo, Inc. attn: Human Resources at 305-247-8911.

IT SPECIALIST to plan, design, implement, maintain and administer the company's information infrastructure, including hardware setup and maintenance, software installation, configuration and upgrades; network administration and troubleshooting; implement, evaluate and maintain networked computer hardware to meet user requirement; design, develop and maintain the company's website; provide programming, design and technical support for users and clients. Require Bachelor's degree in Computer Science/ Information Systems. Competitive salary offered. Mail resume to: Chief Manager, Lehl Investors, LLC, 1351 Dogwood Dr., Conyers, GA 30012.

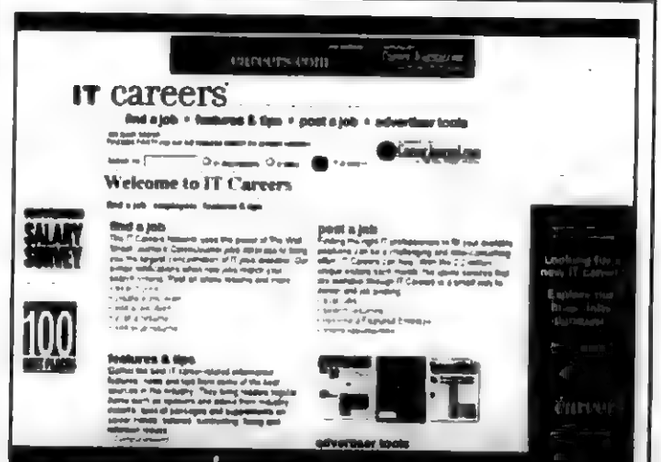
MPHASIS CORPORATION Has multiple openings for the following positions at its offices in New York, NY, Memphis, TN, Houston, TX, San Mateo, CA and unanticipated client sites throughout the U.S.: Programmer Analyst, Software Engineer, Project Manager, Management Analyst, Sales Engineer, Business Development Manager, Finance Manager. Please send resume, salary history and position applied for to: 460 Park Avenue South, Suite #1101, New York, NY 10016, Attn: H.R. Manager.

North East Fasteners, Inc is looking for systems developers to define and design page architecture and navigation models; develop data models and databases; and administer databases. Must have at least bachelors degree in computer engineering or related major. Please send all resumes to North East Fasteners, Inc. 8 Tramco Dr., Terryville, CT 06786, attn.: Human Resource Department.

Software QA Eng. IV, Team Leader - Est. overall test automation direction for one or multi. product lines, automate functional & scalability test scenarios. Review project req's, tech. documentation, define project test strategy. Review & define test case docs. Track defects & approve project release. Train/ supervise junior team members. REQ: BA/BS CIS/IT/Eng, 8 yrs as SQAE, 5 yrs test automation exp. 3 yrs DB testing exp, 3 yrs automated performance & scalability testing w/ comm'l perf test tool, project mgmt exp. 2 pos. avail. Resume: m013_04@onesource.com. OneSource is an Equal Oppty Employer.

Computers - Development Managers needed. Seeking qual. candidates possessing MS or equiv. and/or rel. work exp. Part of the req. rel. exp. must include 3 yrs. working with Java. Duties include: Design, develop & implement software systems & applications; Monitor & coordinate software systems using development & integration. Fwd. resume & ref. to: Globecom Software, Attn: HR, 1702 N. Fairmount St. #101, Wichita, KS 67208.

Applications Engineer required by Hayward, CA, based chain of shoe retailers. Requires Bachelor's degree in any engineering field. Must be knowledgeable in code development, Java 1.2 and 2.0, and Java with Oracle databases for web based projects. Send resume to Rosa Raherni, VP of Finance, Sheikh Shoes, 2247 Commerce Place, Hayward, CA 94545.



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Systems Analyst

Develops & implements systems for variety of industries. Must have Bach. in comp. sci. or eng. plus two yrs prof. exp. in senior Supply chain planning, logistics & business process transformation w/ Manugistics Advanced Planning & Scheduling, SAP R3, Oracle& rel. lang. & tools, Perl, SQL Loader & Web Intel. Frequent travel & relocation. $67,000/yr., F/T, hrs vary. Send resumes to Pgh/Alleg Cty Careerlink Attn: CL Program-Super., 425 6th Ave., Ste 2200,Pgh, PA 15219-1837. Ref Job Order # WEB 433084.

Systems Analyst needed at client sites to design, dvlp, implmt Web based applics using current technology incl Oracle Financials 11i (PO, AP, GL, AR, FA, INV, HR, Application Object Libraries & System Administration), Oracle 9i9AS, Oracle Web Application Server, PL/SQL Cannidges, Oracle Forms 6i/Reports 6i, Dvlpr 2000, Designr 2000 SQL/PLSQL Prgmng, UNIX Shell Prgmng, Pro*C, SQL Loader, SABLIME, HTML & Javascript. Resume to: Dolphin Solutions, 9567 Westover Club Cir, Windmere, FL 34786.

SOFTWARE ENGINEER

PCTEL Inc. a global leader in simplifying mobility seeks an experienced Software Engineer to research and analyze highly sophisticated applications for business users. Selected candidate will be responsible for all phases of software development including architecture, design, development, testing and debugging state-of-the-art software applications. As a member of a development team you will develop a multi-protocol interface for IP networks, using C/C++, JAVA, Linux (Unix), SQL, SNMP, TC/IP and wireless LAN's protocol. Duties involve both changes to existing software and the creation of new software applications. Will be responsible for formulating a plan outlining the steps to develop programs using structural analysis and design techniques, and preparing flow-charts and diagrams to illustrate the sequence steps a program must follow and describe the logical operation involved. Requires Bachelor of Science in Computer Science or its equivalent plus a minimum of two years direct experience in the job offered. Position also requires travel to Eastern Europe approx. 20% of the year. Candidate must be legally eligible to work in the United States for any employer. Send your resume directly to: jobs@pctel.com Please include Job code 407 Software Engineer in the subject line. Or mail directly to HR Dept., PCTEL, Inc. 8725 W Higgins Rd Suite 400 Chicago, IL 60631. PCTEL Inc is an equal opportunity employer

IT PROFESSIONALS

Manager

(Glen Mills, Pennsylvania and other locations through the U.S.) Will oversee consulting engagements for major corporate clients. Will meet with client management to assess strategic planning and business operational requirements in order to determine engagement scope, staffing, and budget. Will review engagement plans with assigned professional staff and oversee analysis of client global supply chain and operations including supply chain strategy, new product development process for Collaborative Product Commerce (CPC) such as PTC Windchill, & Agile Software implementation; logistics operations for Transportation/Warehouse Management Systems (TMS/WMS) implementation and operations; excellence for Enterprise Resource Planning (ERP) such as Oracle, SAP and MFG/PRO implementation. Will review analyses by professional Consultants and Business Analysts regarding industry and client specific data to formulate recommendations on operational issues. Will supervise the implementation of operational and system modifications by client corporations. The wage offered is $100,895 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Computer Science, Math, Engineering (any), Information Systems or Business Administration + 5 years of experience in the job offered or 5 years of experience as a Consultant, Technology Manager, Senior Engineer, Principal Product Designer. Related experience must include at least six months of Transportation/Warehouse Management Systems (TMS/WMS) and Enterprise Resource Planning (ERP) and Collaborative Product Commerce (CPC).

Please send your resume referencing Job Order Number **WEB433086** to the: PA Careerlink, FLC Unit, 235 W Chelten Avenue, Philadelphia, PA 19144. EOE

Sr. QA/Testing Analyst needed in Wichita to perform & lead team for complex testing on complex projects using Softbrands S/ware Products Portfolio. Internet based products, RIO, Leisure Mgmt, Landmark, IGS Worldwide, Medallion & Mercury WinRunner in Hospitality domain; assist w/installation problems, plan & implmt automated testing; research & dvlp mktg reqmts. Resume to: SoftBrands Hospitality, Two Meridian Crossings #800, Minneapolis, MN 55423.

Sr Programmer Analyst. Program & design s/ware components using Visual C++, Visual Basic, Visual SourceSafe, DB2, SQL, IIS, ADO, ODBC, ASP, SNA Server, ATL, Visual Studio, C++, COM/TI, N_tier, Laureate, DCOM and MTS. Bachelor, or equiv, in CS, Eng'g, Business, or similar, req'd. 2as is 2 yrs of exp in job off'd or a systems analysis position. Mail resumes to J Cunliffe, Job #1915.23, Sallie Mae, Inc., 11100 USA Parkway, Fishers, IN 46238.

IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.) Analyze client business requirements and perform business and technical comparisons to decide implementation approaches. Frame functional design and technical designs for implementation. Coordinate client meetings to bring about resolution on issues and clarity in communication. Implement Siebel as the Customer Relationship Management (CRM) package and integrate Siebel with multiple client boundary systems through Siebel Enterprise Application Integration (EAI) Layer. Develop interfaces with client middleware (Information Highway) and test transactions end-to-end with the boundary systems to successfully deploy and support the implementation. Perform Web Development. Perform software testing using industry-standard software tools such as Mercury Interactive Testing Suite. Perform database tuning of client systems including Oracle 8.

WAGE: $54,000/year
Hours worked: Monday-Friday 9:00am-5:00pm

MINIMUM REQUIREMENTS
Bachelor's degree or equivalent in Computer Science, Engineering (any type), Math, Business Administration or Information Systems + one and a half years exp. in the job offered or one and a half years exp as a Systems Analyst, Consultant, or Programmer. Related experience must include at least one year of Web Development, Customer Relationship Management/Siebel (CRM), Enterprise Application Integration (EAI), Oracle Databases (including Oracle 8) and Mercury Interactive Testing Suite. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials evaluation service.

Please send your resume referencing Job Order Number **WEB433184** to the: PA Careerlink, FLC Unit, 235 W Chelten Ave., Philadelphia, PA 19144. EOE.

Systems Administrator (with Bachelors degree and 5 years experience) - Columbus, OH. Job entails and requires experience in configuration and maintenance of systems using Veritas Backup, Windows Active Directory, Sun Solaris and Citrix Metaframe and Exchange Server. Develop Systems using P3, Expedition and Kana. Relocation within USA Possible. Attractive compensation package. Send resume to Priya Venkat, Technology Software Inc., 1515 Bethel Rd., Suite 304, Columbus, OH 43220

SYSTEMS ANALYST/PROGRAMMER - (LA) to design, plan & implement complex app's in ERP systems, mod'g SAP, modify, code & test new/enhanced systems & programs utilizing ABAP/4, SAP Script & Java programming languages, using Oracle db, dialog programming, SAP objects, config of SAP modules, etc. & evaluate business requests for new/reengineering appl's for current & future business needs. 35 hrs/wk. Must have bach's in comp sci, MIS, Elec Engrg or Mech Engrg & 2 yrs exp in job. Contact AIG SunAmerica, Attn: Pro Staffing Mgr., 1999 Ave of the Stars, Century City, CA 90067 & quote #12586

ComputerInfo Systems

Information Systems Professionals

To participate in analysis, problem solving, project design and technical implementation for major products. Participate in the timely and high quality delivery of product, implementation, integration, design, coding, testing and documentation of custom application software, evaluate user requirements and consult with design team to identify current procedures and needs; support and train end-users. Technologies/ Platforms used include UNIX, Windows NT, SQL Server, or Oracle using SQL, C/C++, Visual Basic, Java, Cobol and other appropriate programming languages in Client/ Server, Network and Mainframe environments. Must have a Bachelors degree, or its equivalent. We are hiring at all experience levels. Please send resume to Human Resources, Knightsbridge Solutions, 500 W Madison Ave., Suite 3100, Chicago, IL 60661 or recruiting@knightsbridge.com. EOE

Computer Professional (Multiple Openings) - Wasp in one or more of the following skills: C/C++, JAVA, Power Builder, Visual Basic, Oracle, Developer 2000, Sybase, Windows, Unix Admin, People Soft, SQl Server, SAP, Oracle Applications, Cobol, Db2, AS/400, ASP, .net.

Lucrative compensation. Please E-mail your Resumes to the following address:
RESUMES@COMDATAUS.COM

Attn. HR Department
Comdata Consulting, Inc.
2775 Algonquin Rd
Suite # 240
Rolling Meadows, IL-60008
VISIT WWW.COMDATAUS.COM For More Details

Sr. Quality Eng. wanted by company engaged in graphics and multimedia technology design, manufacturing and marketing. Requires Bach. in CS or EE plus 5 yrs exp including audio/video software. Reply to ATI Research, Inc. H.R. Dept., Attn: K.B., 62 Forest Street, Marlborough, MA 01752.

Technical Marketing Managers for company's IT products & services. Responsible for technical sales & marketing of custom IT solutions to clients in the banking & financial services industries. Determine customer IT requirements and develop tailored sales & marketing presentations. Bachelor's degree in computer science, engineering or a related field, plus 3 years experience in marketing of IT software products & services. Up to 1 year experience may be satisfied with master's degree in marketing, management or finance. Send resume and salary requirements to i-Rex solutions inc. 99 Park Avenue, 15th Fl. New York, NY 10016, attn. HR Manager. All responses must include job code BCS604

Systems Analyst/Programmer 3, Wachovia Corp., Charlotte, NC. Design, code, test client/server and web business apls. Reqs BA in Elect and Comm or Comp Science and 2 yrs exp in pos or as Software Eng or IT Consultant. The 2 yrs must incl full lifecycle new appl. Dvlp, conversion of specs into code, testing, prep of code for prod, debugging and correcting existing code, working with Sybase (or similar) on a Unix environ incl writing stored procedures, triggers and debugging database code. MS SQL Server, Oracle, PowerBuilder, MS Visual Studio.NET, or similar software programming. M-F, 8-5. Send resume to Meredith Eberson, Wachovia Corp., 401 S Tryon Street, NC 0958, Charlotte, NC 28288-0475. No phone calls.

Computer Systems Analyst to conduct software application development using ASP .NET, and Java technologies, and Cognos Impromptu/PowerPlay software application support and troubleshooting both for Hardware and Software, server configuration and installation of servers, getting data out of Legacy Systems and putting them in Relational database as well as analyzing and trending the data. Requires minimum of Bachelor's degree in Computer Science or related field and 36 months of working experience. Prior working experience with Cognos Impromptu/PowerPlay, Business Case Development, ASP, .NET and Java technologies and strong background in Oracle and SQL Server 3-D Data modeling (CUBE'S) is preferred. Some holiday on-call required. Please send resumes to Chris Jirsland, Vanderbilt University Medical Center, Informatics Center, B708 The Vanderbilt Clinic, 1301 22nd Avenue North, Nashville, TN 37232-5665

BlazeTech Corp. is hiring Senior Engineers. Design /Develop/maintain engg computational models & software applications, develop interfaces, maintain web infrastructure/content and RDBMS. Send resumes to BlazeTech, 24 Thorndike Street, Cambridge, MA 02141. Applicants must meet educational and work experience requirements.

Software Engineer to work on eGovernment and eCommerce software solutions. Analyze business & technical needs to develop customized programs and perform related duties. Bachelor's degree and 2 yrs related experience required. Send resume to Periscope Holdings, Inc., 319 Congress Avenue, Suite 200, Austin, TX 78701.

Systems Analyst sought by large employer in Electronic Print Services industry. Reqs BS in CS or MIS. Min 2 yrs prgmg exp using HTML, JavaScript, VB, ASP, VB Script & SQL Server 2 yrs exp using s/ware pkgs such as COP, Visual Knowledge Manager & Visual Studio. Knowl of print data files such as AFP, DJDE & METACODE reqd. Presentation, Documentation & Training skills reqd. Working knowl of Win NT 2000 operating systems. Knowl of XML, DCOM, MTS, FOP PDF, MS IIS, SMTP & URun reqd. M-F 8-5. Responses to Scott Erickson, HR Mgr, Moore Wallace, Businesss Communication Svcs, 630 W 1000 North, Logan, UT 84321

Sage IT is looking for IT professionals to develop applications using Cognos Impromptu PowerPlay, ReportNet, SQL Oracle, Teradata (NCR), Sybase, Essbase DB2, Red Brick, Informatica, Data Stage, Ab Initio, Web Logic/Sphere, JSP, ASP. Min BS or exp. Please contact info@sageinc.com EOE

Digital has long term position for EDI/System Analyst and DBA to implement e-commerce Gateway modules on Oracle application s; perform end-to-end EDI implementation (mapping, scripting), create database on SQL, use VB, Java, ERP tools. Please apply at contact@dcsys.com EOE

Software Engineer - System Analysis and Design. Temple Terrace, FL - design and develop business process automation software for large OLTP (On-Line Transaction Processing) system on a client-server architecture using C, C++, RDBMS, E-SQL, Informix database design and management, cross-platform middleware infrastructure distributed architecture and UNIX operating system with interprocess communication techniques; investigate and implement methods for improving execution, efficiency, accuracy and performance of corporate production applications, analyze, design, code, test, estimate and implement service requries for solutions to customer requirements; identify, recommend and document effective design methodologies and tools to be utilized during design, coding, testing, implementation and maintenance phases. Requires Bachelors in Computer Engineering and either r 3 years experience in the job offered or 3 years experience in the development of client-server solutions on large OLTP systems using C++ and RDGBMS on UNIX, distributed architecture and application performance tuning. Salary $72,100/yr, 40 hrs/wk, 8AM-5PM, Mon-Fri. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to J.O. # FL-2532338.

Software Engineer (in Temple Terrace, FL) to provide 24x7 technical support of critical applications by monitoring Sun and UNIX production servers using patrol monitoring and patrol scripting language, responsible for web server performance analysis and design of network wide file system layouts, identify tasks requiring automation and apply appropriate processes to each, develop and provide technical designs, capacity planning and architectural solutions using UNIX, Windows NT and TCP/IP protocol, write technical proposals and procedures, conduct presentations and serve as liaison with interfacing organizations; interact with administrators and developers to resolve application issues, increase productivity and plan the future development of software applications. Requires Masters degree in Computer Science and either 2 years experience in the job offered or 2 years experience providing 24x7 technical support of critical applications by monitoring Sun and UNIX production servers using patrol monitoring and patrol scripting language. Salary $69,000/yr, Mon-Fri, 8AM-5PM, 40 hrs/wk. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869 refer to J.O. # FL-2532346

Software Engineer. Designs, develops, modifies, and implements customized software applications in a large and diverse user environment within a broad framework of standards, policies and procedures in a multiple operating system environment using EJB, J2EE, Jdeveloper, Weblogic, Cocobase, Oracle 9iRational Rose, RPG/400 and related technologies. Develops and directs applications testing procedures and programming. Writes technical documentation. Must have BS or equivalent in CS/CIS Math/Engineering or related. Must have 1 yr exp in job offered or in software development with Weblogic, Jdeveloper, Cocobase and RPG/400. Will accept a combination of education and experience evaluated by a recognized authority as equivalent to a bachelor's degree. Must be willing to be assigned to unanticipated client sites throughout the State of Maine. Salary: $72,000/yr Hrs: 8:00am-5:00pm, 40/wk. Please send 2 copies of resume to: Bureau of Labor Standards, 45 State House Station, Augusta, Maine, 04333-0045 Please refer to Job Order #50565 for Software Engineer.

Software Engineer (in Temple Terrace, FL) to perform circuit-provisioning system design and development using C++, Oracle and J2EE on a UNIX platform, provide conceptual and high-tech solutions to complex business and technical problems, develop and implement standards and verify results; provide technical expertise in operating systems and applications systems in the telecommunications industry, design and develop business process automation systems for the telecommunication industry on client-server architecture using C++, Oracle and J2EE, provide technical solutions to meet documented requirements within schedule; identify, recommend and document effective design methodologies and tools to be utilized during the design, coding, testing, implementation and installation phases. Requires Bachelors in Engineering or Computer Science and either 1 year exp in the job offered or 1 year exp in circuit-provisioning system design and development using C++, Oracle, and J2EE on a UNIX platform. Salary $64,200/yr, Mon-Fri, 8AM-5PM, 40 hrs/wk. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to J.O. # FL-2532343.

Software Engineer. Temple Terrace, FL - perform client-server architecture application development using C/C++, CORBA and Informix on a UNIX platform; design and develop business process automation for the telecom industry using cross platform in-house middleware infrastructure that would perform inter-process communication and system calls to define the coordination model along with a configuration management system; provide conceptual, architectural solutions to telecom network business needs, provide senior management with design recommendations and alternatives; design and build provisioning and inventory telecom systems, interface and replace existing legacy systems, design coordination between distributed systems helping telecom network operations. Requires Masters in Electronic Engineering or Computer Science and either 3 yrs experience in the job offered or 3 yrs. experience in client-server architecture application development in the telecom industry using C/C++, CORBA and informix on a UNIX platform. Salary $84,800/yr, 40 hrs/wk, 8AM-5PM, Mon-Fri. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to Job Order #FL-2532351.

The Thalerus Group, a Schaumburg, Illinois Software Engineering Firm is looking for multiple IT professionals with B.S. Degree plus at least 1 yr exp. in XML/XSLT, SQL Server Design/Admin, ASP, Search Engine development and Visual Basic. Send resume to Lillian Yeh (Lillian.yeh@thalerus.com) or The Thalerus Group, 1111 Plaza Drive, Suite 510, Schaumburg, IL 60173

IT Professionals

Seeking qualified candidates for Sr. & mid-level IT professional positions including Programmer Analysts, Database Administrators, Software Engineers, IT/Software and similar type positions. Candidates must possess MS/BS or equivalent and/or related work experience. Please mail resume and references to:

Patel Consultants Corp.
Attn: HR
1525 Morris Ave.
Union, NJ 07083 EOE

Software Engineer (Temple Terrace, FL) to provide advice to management on complex technical issues and appropriate application of technologies relating to OLTP (on-line transaction processing) software applications development using C++, UNIX, Oracle relational database and Java; design, analyze, estimate and implement service requests to ensure solutions meet customer requirements; identify, recommend and document effective design methodologies and tools to utilize during the design, coding, testing and implementation of installation phases. Requires Bachelors in Computer Science and either 5 yrs exp in job offered or 5 yrs exp in OLTP software application development using C++, UNIX and Oracle. Salary $77,300/yr, Mon-Fri, 8AM-5PM, 40 hrs/wk. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to J.O. # FL-253118.

SOFTWARE ENGINEER to design, develop, configure, troubleshoot and customize various PeopleSoft modules, including GL, AM, AP, AR, EX, PC and CA, using PeopleSoft Financials, BPM, Peopletools and MS SQL Server while successfully adhering to company's project life cycle process. Require M.S. degree in Computer Science/Engineering, Info. Systems, or a closely related field with 2 yrs of experience in the job offered or as a Programmer/Analyst. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Rajender Gaddam, Director of HR, Orpine Enterprises, LLC 1004 Crooked Creek Court, Mableton, GA 30126, Attn: Job #HS

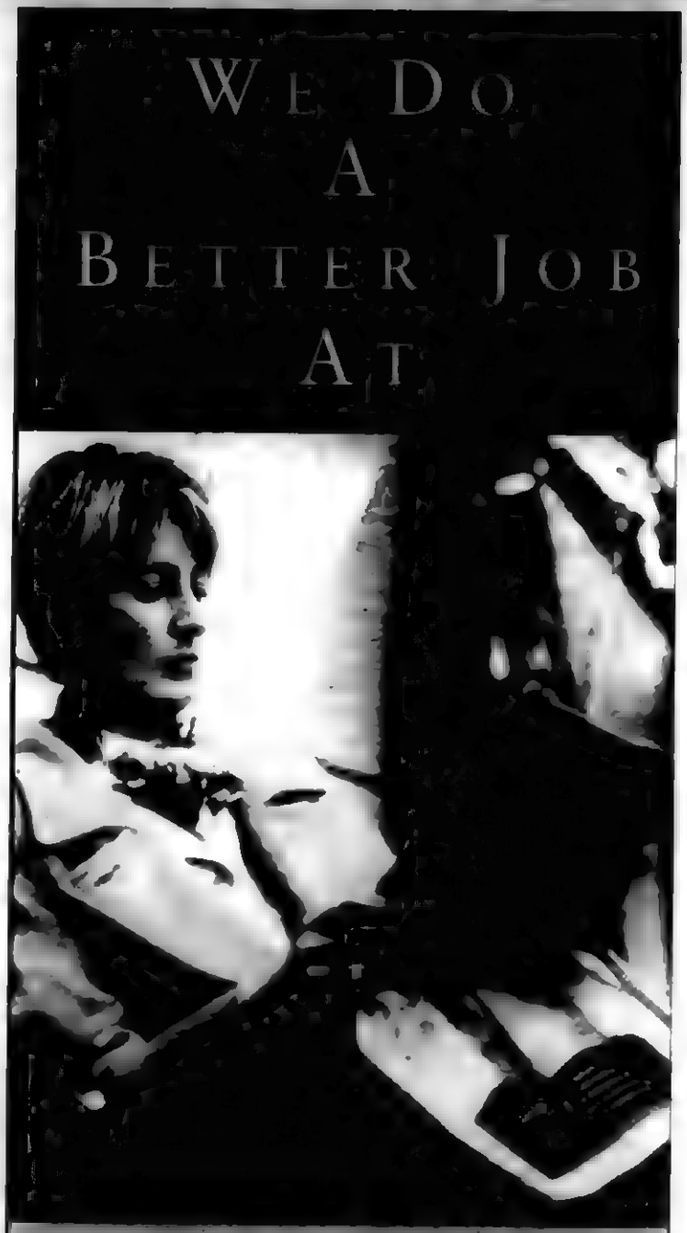


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Privacy Law

ernment, said the county became aware of the problem only after being notified by *Computerworld*. A preliminary investigation revealed that the problem, which has since been fixed, was the result of some county employees using erroneous e-mail address books and was not caused by a virus or worm infection, he said.

According to Whittington, the glitch stemmed from the county's Internet naming structure, which includes ".ac" for the auditor controller's office. "Now we need to research who has the bad address book that has this address," he said.

Whittington said his office was never directly informed about the problem by Carlesten and noted that any county employees who may have received e-mail responses from Carlesten never brought the matter to his attention.

Legal Applicability

Joanne McNabb, chief of California's Office of Privacy Protection, said an initial review of the language contained in California's Senate Bill 1386 concluded that the privacy law doesn't apply to local governments in the state. The law stipulates that individuals must be informed if their personal information has been compromised.

According to McNabb, SB 1386, which went into effect on July 1 last year, applies to "persons or entities" doing business in the state. Likewise, the Information Practices Act, which is the California equivalent of the Federal Privacy Act, applies only to state agencies and not to local government agencies, she said.

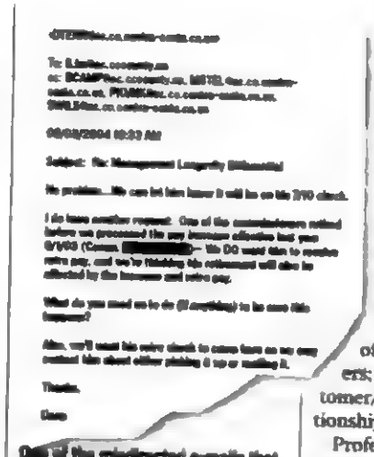
However, "our recommendation beyond minimum compliance with the law is to let people know" that their personal information has been compromised, said McNabb.

Whittington said the extent of the compromise is still under investigation and that no decision has been made regarding notifying affected employees.

However, some legal analysts said the law does indeed apply to the county. If it does, the Contra Costa County case would be the first major test of the new legislation.

Harold J. Krent, dean of the Chicago-Kent College of Law, said it's unclear whether local government agencies, even if exempt from the statute, fall within the definition of the term *person* as contained in a companion provision of the bill. If so, they would be required to notify individuals of any breach, he said.

"In similar statutory contexts, 'person' has generally been construed broadly to cover municipal corporations," said Krent.



One of the misdirected e-mails that contained private information about Contra Costa County employees

Moreover, even if the county is defined as a person within the meaning of the law, it's unclear if there is a remedy for a failure to notify, said Krent. "Only 'customers' can sue to recover damages due to a failure to notify," he said. "This suggests that county residents whose information is maintained because they consume water or waste removal services could sue." But residents wouldn't be able to sue simply by virtue of their status as taxpayers; there has to be a customer/service provider relationship in place, Krent noted.

Professor Jeff Matsuura of the University of Dayton School of Law said the e-mails appear to contain personally identifiable information that is covered by SB 1386. "It seems to me that such an incident would gut the statute if this kind of disclosure did not fall within it," he said. **48066**

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ERP Delays

ucts such as pipelines and copper tubing and sells plumbing and electrical supplies. The company is installing an ERP system based on PeopleSoft EnterpriseOne, a line of midmarket-oriented applications that were developed by J.D. Edwards & Co. prior to its buyout by PeopleSoft last year.

PeopleSoft declined to discuss the software rollout at Crane except to say that it's largely complete and that the two companies are cooperating with each other. "We continue to have a close working relationship with Crane in the ongoing rollout of their IT system," said PeopleSoft spokesman Steve Swasey.

Greg Sedgwick, Crane's general manager, said two weeks ago during a webcast for investors that all 42 of the company's manufacturing and warehouse sites are live with PeopleSoft EnterpriseOne, along with 207 of its 230 trade outlets. The rest of the stores are due to begin using the software this month, he added.

The ERP system has more than 2,100 active users per day and supports functions such as planning, forecasting, procurement and manufacturing, according to Sedgwick. He said Crane hopes to use the system to modernize its business processes and to add capabilities such as support for electronic data interchange and collaborative forecasting with customers and suppliers.

Cause and Effect

Crane has made changes in its IT unit and at some business operations as a result of the rollout problems. The company said it named a new corporate CIO who has had extensive experience on ERP projects, consolidating a previous IT management structure in which its four divisions had their own CIOs. Crane also plans to downsize its IT department by 30 people after the ERP rollout is finished.

From a business standpoint, the company plans to take a $21 million write-down to cover the cost overruns and productivity losses. Sedgwick said the ERP delays have also exacerbated financial problems faced by the company's Tradelink plumbing supplies unit, which plans to close 13 of its stores and lay off 200 workers. **48066**



Groove Aims To Boost Ease of Use

BY TODD R. WEISS

Groove Networks Inc. today plans to release an upgrade of its end-user collaboration software that it said offers improved security and scalability capabilities as well as better performance and ease of use.

Beverly, Mass.-based Groove, which is headed by Lotus Notes creator Ray Ozzie, began beta-testing the Groove Virtual Office 3.0 upgrade in March. The new release launches and transfers data more quickly and lets end users open multiple project workspaces without suffering noticeable performance hits, said Andrew Mahon, Groove's director of strategic marketing.

The upgrade also includes an on-screen launch bar for managing workspaces and contacts with other Groove users, as well as Windows folder synchronization capabilities that let users share any files stored on their PCs. On the server side, Groove said it's adding support for third-party public-key infrastructure user authentication tools.

Ethan Schoonover, e-business director at London-based ad agency Lowe & Partners Worldwide, said about 300 of the company's workers use the existing Groove Workspace 2.5 to prepare ad pitches, manage accounts and do strategic research. Many of the new features in Virtual Office 3.0 are "a great example of a company really listening to user feedback," said Schoonover, who works in Hong Kong.

The improved launch speed "addresses a key issue with 2.5 – that it was sometimes sluggish," said Schoonover. "Even our technophobe users could get the hang of it."

David Marshak, an analyst at The Patricia Seybold Group Inc. in Boston, said Groove's key strength is that it combines real-time online collaboration with the ability to do work off-line and then synchronize data with other employees. Groove's integration of those features "is much better than anyone else has even attempted," he said. **48067**

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BPA ABM

FRANK HAYES ■ FRANKLY SPEAKING

Mail Mishap

YOU'VE GOT TO FEEL FOR TOM WHITTINGTON. The CIO of California's Contra Costa County, across the bay from San Francisco, just found out that copies of hundreds of internal e-mail messages containing financial data and private employee information have been inadvertently sent to a Swedish company over the past two years (see story, page 1).

It's not as if Whittington sat on his hands, ignoring the problem. He didn't know about the address book glitch that caused it. There was no indication of anything being wrong. He was blindsided.

Was there *anything* he could have done?

Not that I can see. Or at least, not without the kind of unlimited budget that doesn't exist in any real-world IT organization, much less in a government IT shop at the county level.

Actually, Whittington was comparatively lucky. The e-mails, many of which were stuffed with financial and personal data, were intended for someone in the county auditor's office. Instead, they ended up at Ord&Bild, a Swedish Internet company. And after they started arriving there, Ord&Bild repeatedly sent messages to tell senders of the wayward e-mails about the problem, according to Ord&Bild managing director Robert Carlesten.

But those messages got no response. And nobody told Whittington about the messages. He didn't learn about the problem until Carlesten contacted *Computerworld* reporter Dan Verton, who called Whittington.

Whittington was lucky that the data was kept confidential and not put to some malicious use. But he would have been a lot luckier if there hadn't been any wayward e-mails in the first place.

But what could he have done to prevent it? What can he do to keep it from happening again? That's what Whittington and his staff are trying to figure out now. None of the obvious options are very good.



Cut off the e-mail system from the rest of the Internet? That would protect the data, but then residents couldn't use e-mail to communicate with their government.

Put in two parallel e-mail systems — one for internal messages and another for e-mail going to the outside world? That's a huge kludge for users to navigate.

Install outgoing-mail whitelists (which specify legal destination addresses) or blacklists (which list addresses that mail *won't* be delivered to)? That's impractical — whitelists are too restrictive, and blacklists can never be comprehensive.

Eliminate address books from county users' machines so they have to type addresses manually? That would have avoided the glitch that caused the misdirected e-mails: a garbled address in one user's address book. But it would generate many more mistyped addresses.

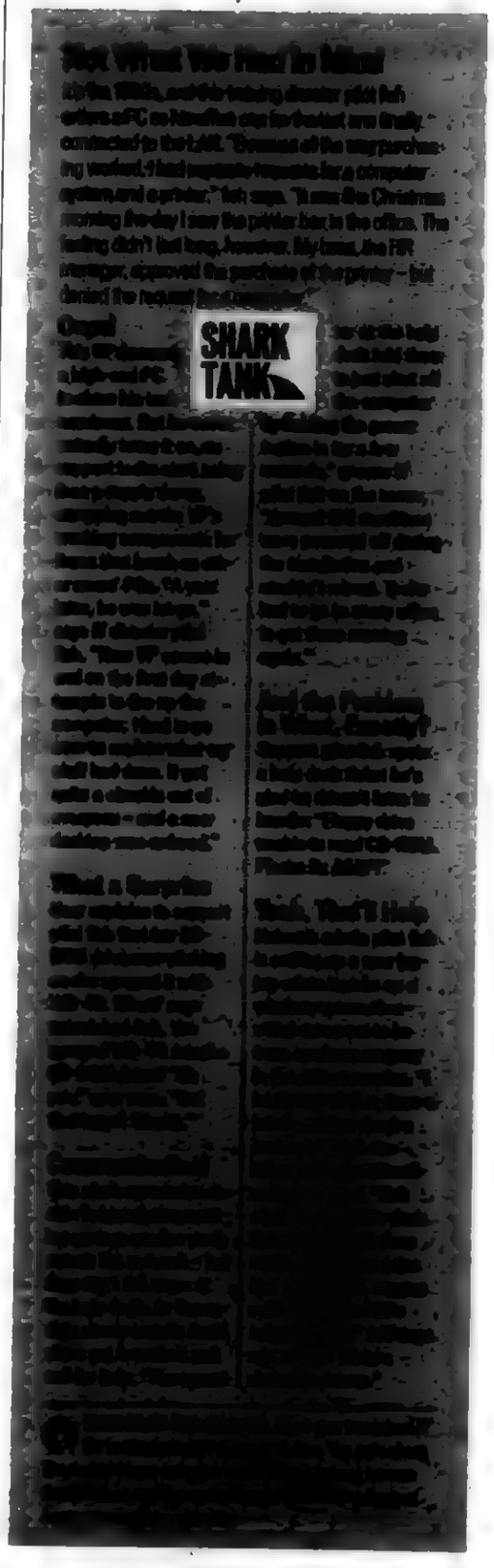
Set IT staffers to work poring over outgoing e-mail logs, looking for potentially inappropriate destination addresses? That would be spectacularly labor-intensive and would generate huge numbers of false positives to investigate. And how would they know what to look for, anyway?

The perfect solution might be to somehow tag sensitive data so it could be automatically blocked at the firewall. That would only require rebuilding all the county's systems from the ground up, embedding tags in all the data and then customizing the e-mail system to make sure the tags don't get removed. Good luck getting the budget for *that* past the county board.

Whittington's team is still investigating what happened and what to do next. Whittington himself hopes better training for users and clearer policies about attaching data to e-mails will help.

Think there's a better way? Whittington would like to hear it. So would the rest of us.

Because what happened to Tom Whittington and Contra Costa County is just waiting to happen to every other organization. And the next one the problem hits may not be so lucky. ● 40030



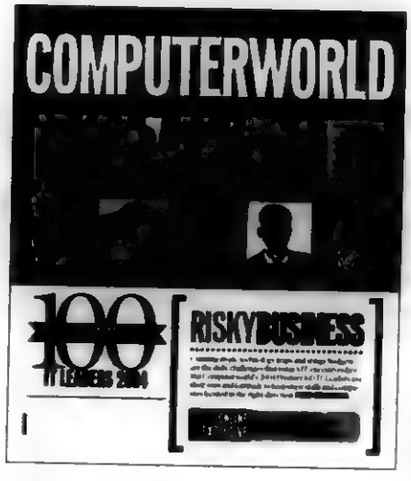
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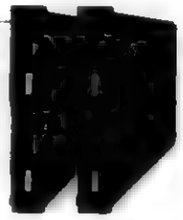
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2004

The 10-year federal [illegible] spending spree is over, a new study shows.
A start-up formed by former Red Hatters readies a new version of Linux.

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Big Decisions



Nothing affects the workplace like a change in e-mail systems or collaboration tools. This special report covers the choices IT managers face regarding suites and upgrades. Stories begin on page 35.

Ever misfired a sensitive e-mail? Readers reveal their worst e-mail nightmares.

Microsoft Delays Ship Date of Windows Update Services

Vendor must finish XP Service Pack 2 first

BY CAROL SLIWA
TORONTO

Users will have to wait even longer for already-delayed updates of security-focused products and services that Microsoft Corp. pledged would be ready by now.

At its Worldwide Partner Conference here, Microsoft officials disclosed that Windows Update Services won't ship until the first half of next year. WUS, which was formerly known as Software Update Services, can be used to automate patch distribution to employees on a scheduled basis.

At last October's Microsoft Worldwide Partner Conference, CEO Steve Ballmer said the free patch management service would be ready in the first half of this year. In March, Microsoft revised the release date to the second half of this year, and last week, the vendor pushed it back again.

Mike Nash, vice president of Microsoft's security busi-

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NEWSPAPER

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MORE INSIDE

Users Freeze IT Systems as Sarb-Ox Looms

Software installations, upgrades put off until 2005 to avoid last-minute compliance glitches

BY THOMAS HOFFMAN

Many companies plan to lock down their financial systems and other applications in order to help streamline efforts to meet Sarbanes-Oxley compliance deadlines that start taking effect late this year, according to a dozen IT managers and consultants who were interviewed last week.

ONLINE
QUICKLINK 43250

Section 404 of the Sarbanes-Oxley Act requires companies with market capitalizations of $75 million or more to attest to the effectiveness of their IT and financial controls when they file 10-K reports for fiscal years that end after Nov. 15. To help maintain controls that have been fully audited and tested, IT executives such as Mark Thompson have decided to postpone until early 2005 systems rollouts and upgrades that otherwise would have taken place during the fourth quarter — or even earlier.

"We went through a whole reprioritization of IT projects for '04," said Thompson, senior vice president of finance and IT at Crown Media Holdings Inc., a Greenwood Village, Colo.-based cable TV company that distributes the Hallmark Channel and other programming in 120 countries.

For instance, Crown Media postponed a planned replacement of accounting applications from The Sage Group PLC with Microsoft Corp.'s

Sarb-Ox, page 53

Boeing Bets Big on Cisco With VoIP System for 150,000

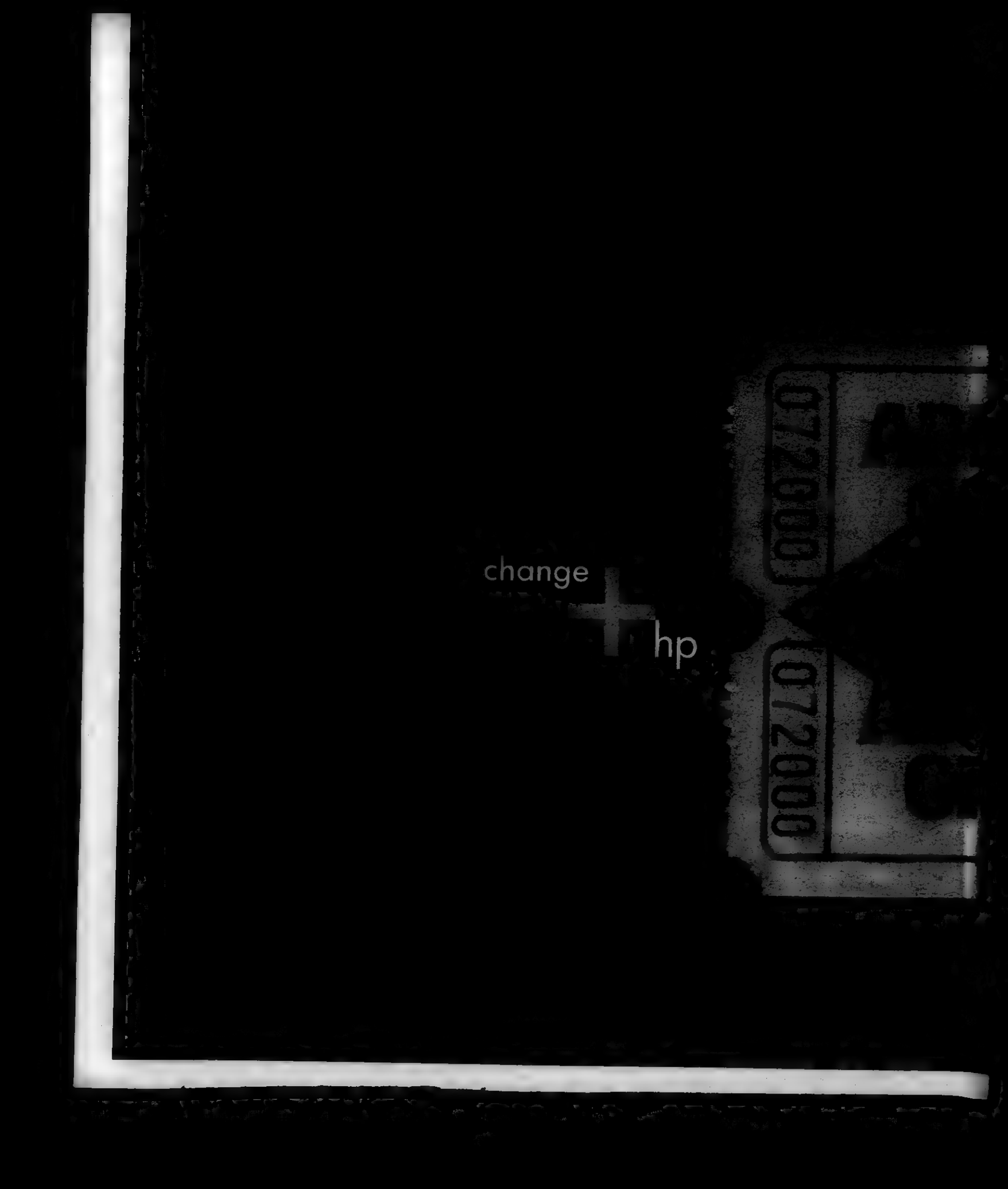
Deployment called largest for one vendor

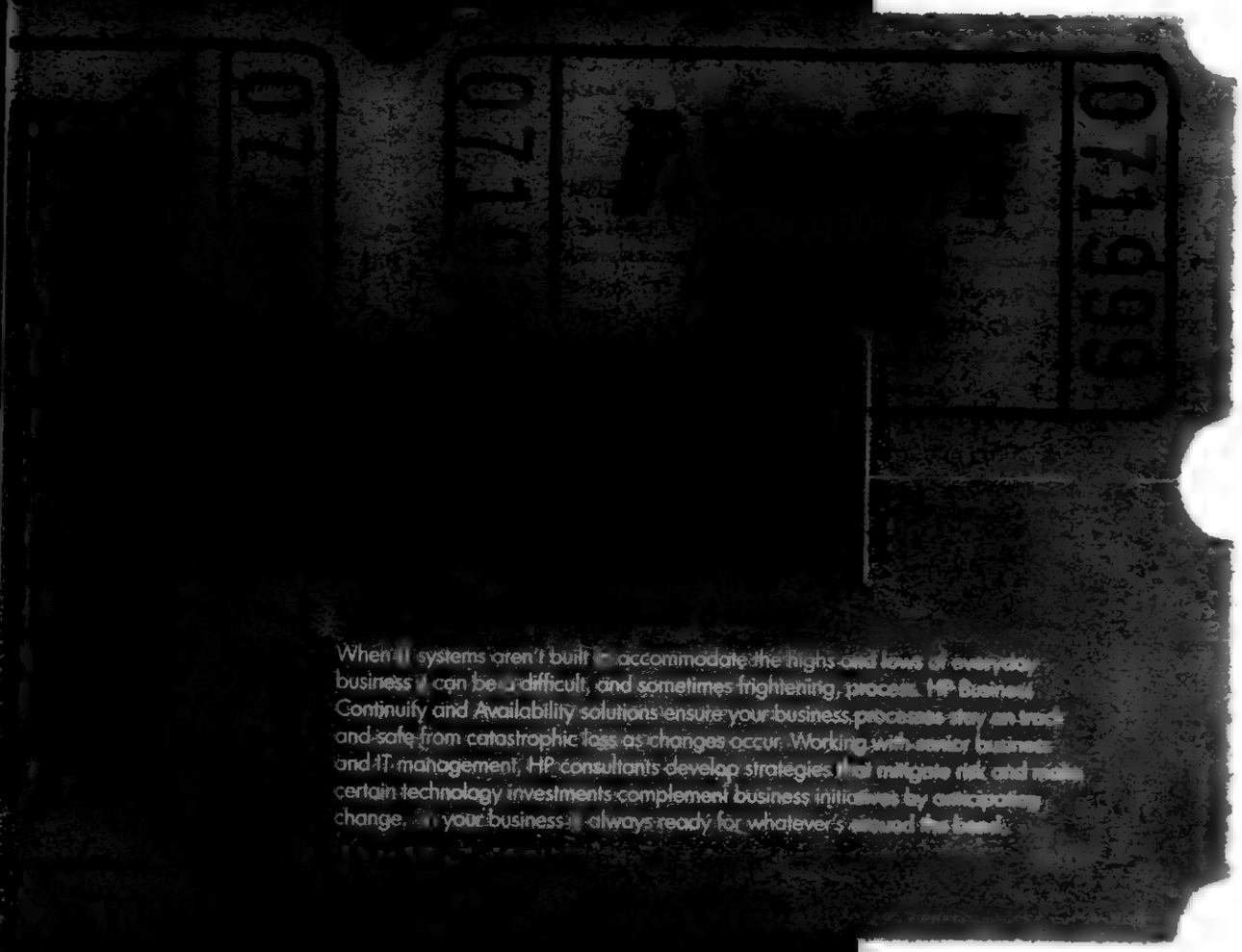
BY MATT HAMBLEN

The Boeing Co. last week said it will install up to 150,000 voice-over-IP phones and other networking equipment from Cisco Systems Inc. over the next five to seven years — a project that analysts called the largest VoIP deployment thus far involving one vendor.

Boeing expects to buy 130,000 to 150,000 of Cisco's VoIP phones as part of the planned rollout, said Mike Terrill, program manager for network convergence at the Chicago-based aircraft manufacturer. It will also replace about 125 circuit-based telephone switches with an undisclosed number of Cisco-made IP switches, he said. In addi-

Boeing, page 53


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Protecting the Data Jewels

In the Management section: A list of your company's best customers is a prized asset and possibly a trade secret. But it could wind up in the hands of your competitors unless you take several legal, management and technical steps. **Page 29**

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Big Decisions

Should you buy a collaboration suite or assemble the best products yourself? Should you upgrade to the latest version of your messaging system or stay on the lagging edge? This special report will help you decide. PACKAGE

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38 Suite Dilemmas. Like Minnesota Life's Jean Delaney Nelson (left), most IT managers choose messaging and collaboration suites because of their simplicity and ready-made integration. But they don't fit every company.

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Editor's Picks
A guide to the best of Computerworld's coverage of e-mail topics, such as viruses, spam and regulatory compliance.
QuickLink 49961

Top Five Mistakes
E-mail is so important to companies that it must be available and secure around the clock. Mirapoint's Jeff Brainard lists the most common mistakes that can threaten e-mail security.
QuickLink 49927

You've Got Mail
Readers tell us about the problems they've had with e-mail in this collection of Shark Tank anecdotes.
QuickLink 49940

Best Buy, Accenture Finalize IT Contract

Best Buy Co. said it has finalized a seven-year IT outsourcing and consulting contract with Accenture Ltd., which will take over management of the retailer's IT infrastructure plus application development and maintenance. About 600 IT workers will shift from Richfield, Minn.-based Best Buy to Accenture as part of the deal, which took effect on Friday. The financial terms weren't disclosed.

Sun May Open Up Its Server Software

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IBM Tops Profit Plan, Lags on Sales

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Short Takes

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Federal IT Spending Expected to Slacken

New spending controls, offshoring and contractor scandals are key factors

BY DAN VERTON

A DECADE-LONG growth spurt in federal IT spending is about to come to an abrupt end, according to a report released last week.

The report by New York-based Datamonitor PLC forecast a 4% compound annual growth rate for federal IT spending during the next five years. In the past 10 years, spending grew at an annual rate of 5% to 10% and has been steadily increasing, according to the report.

AT SEA

The Navy doesn't even know how much it spends on telecommunications services.

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The federal government's fiscal 2004 IT budget stands at $46 billion. Datamonitor predicts that federal spending on IT will grow to only $56.5 billion by 2009. According to the report, customer citizen relationship management, enterprise resource planning and security will be the driving factors behind the increase.

However, Datamonitor analysts said new management and spending controls, recent contractor scandals such as CACI International Inc.'s involvement in Iraqi prisoner abuse [QuickLink 47209], and fallout from Bermuda-based Accenture Ltd.'s win of the multibillion-dollar US VISIT program [QuickLink 47639] are presenting challenges to an unbridled spending romp driven in recent years by homeland security requirements.

"Shadows have been cast on the federal vendor community through these recent events," said Jocelyn Young, the author of the study and Datamonitor's research director for health care and public-sector technology.

Security Not a Catalyst

But even homeland security spending, which Young said is a key driver of growth in overall federal IT spending, is being scrutinized more closely, particularly as that spending relates to federal grants for state and local governments.

Referring to the size and scope of state and local spending requirements, former Virginia Gov. James Gilmore, who chaired a congressionally mandated commission to study terrorist threats, said last week that the U.S. "is in danger of expending all of our national treasure and breaking the economy of this country on homeland security." Gilmore made the comment at the Iowa Governor's Homeland Security Conference in Des Moines.

But a key to understanding IT funding for homeland security is distinguishing between new money and money that's being reallocated from other projects, said Young. As a result, "the net impact of homeland security funding on IT spending by the federal government may not be as dramatic as one might think," she said. 48203

U.S. Federal IT Vendor Opportunity by Technology Segment

	FY2004	FY2009
Communications	$9,430.5M	$9,781M
Hardware	$5,490.8M	$5,605.3M
Services	$21,384.6M	$29,184.4M
Software	$7,945.7M	$9,788.5M
Other	$2,152.9M	$2,148.3M
TOTAL	$46,403.4M	$56,488.5M

ITAA Fires Back at Critics of E-voting

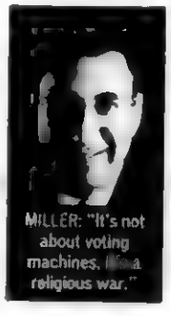
Sees open-source agenda at work

BY DAN VERTON

The president of an influential IT vendor association is accusing electronic voting system critics, many of whom are IT security researchers, of using the issue of e-voting security to wage a "religious war" that pits open-source software against proprietary software.

Harris Miller, president of the Arlington, Va.-based Information Technology Association of America, said a recent ITAA survey showed that 77% of registered voters are unconcerned about the security of e-voting systems. Miller said critics who claim to be concerned about the security of e-voting systems are really using the issue to push a political agenda on behalf of the open-source community.

"It's not about voting machines. It's a religious war about open-source software vs. proprietary software," said Miller. "If you're a computer scientist and you think that open-source software is the solution to everything . . . then you hate electronic voting machines. But if you're a person who believes that proprietary software and open-source software can both be reliable, then you don't hate electronic voting machines."



MILLER: "It's not about voting machines. It's a religious war."

Eric Raymond, president of the Open Source Initiative, a nonprofit organization promoting open-source standards and criteria, said Miller has the issue wrong. "Most [e-voting] critics, including me, aren't focusing on open-source vs. closed-source at all, but rather on the lack of any decent audit trail of votes — one that can't be corrupted by software," he said.

Kim Alexander, president of the California Voter Foundation, called Miller's argument "nonsense." "Every technologist that I have worked with believes that even if we had open-source software, we would still need a paper trail," she said. "There would be no guarantee that the software that was inspected by the public would be the same software that is running on every machine in every jurisdiction in the country."

Miller acknowledged that security has to be a priority, but he was firm in his stance. He said that asking open-source proponents of open-source software to comment on the security of e-voting systems "is like asking a bunch of clergymen what they think of premarital sex." 48210

SUIT FILED

The e-voting debate heats up in California

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AT DEADLINE

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The Navy doesn't know how much it spends on telecommunications services.
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Security Not a Catalyst

But even homeland security spending, which Young said is a key driver of growth in overall federal IT spending, is being scrutinized more closely, particularly as that spending relates to federal grants for state and local governments.

Referring to the size and scope of state and local spending requirements, former Virginia Gov. James Gilmore, who chaired a congressionally mandated commission to study terrorist threats, said last week that the U.S. "is in danger of expending all of our national treasure and breaking the economy of this country on homeland security." Gilmore made the comment at the Iowa Governor's Homeland Security Conference in Des Moines.

But a key to understanding IT funding for homeland security is distinguishing between new money and money that's being reallocated from other projects, said Young. As a result, "the net impact of homeland security funding on IT spending by the federal government may not be as dramatic as one might think," she said. QuickLink 48203



ITAA Fires Back at Critics of E-voting

Sees open-source agenda at work

BY DAN VERTON
WASHINGTON

The president of an influential IT vendor association is accusing electronic voting system critics, many of whom are IT security researchers, of using the issue of e-voting security to wage a "religious war" that pits open-source software against proprietary software.

Harris Miller, president of the Arlington, Va.-based Information Technology Association of America, said a recent ITAA survey showed that 77% of registered voters are unconcerned about the security of e-voting systems. Miller said critics who claim to be concerned about the security of e-voting systems are really using the issue to push a political agenda on behalf of the open-source community.

"It's not about voting machines. It's a religious war about open-source software vs. proprietary software," said Miller. "If you're a computer scientist and you think that open-source software is the solution to everything . . . then you hate electronic voting machines. But if you're a person who believes that proprietary software and open-source software can both be reliable, then you don't hate electronic voting machines."



Eric Raymond, president of the Open Source Initiative, a nonprofit organization promoting open-source standards and criteria, said Miller has the issue wrong. "Most [e-voting] critics, including me, aren't focusing on open-source vs. closed-source at all, but rather on the lack of any decent audit trail of votes — one that can't be corrupted by software," he said.

Kim Alexander, president of the California Voter Foundation, called Miller's argument "nonsense." "Every technologist that I have worked with believes that even if we had open-source software, we would still need a paper trail," she said. "There would be no guarantee that the software that was inspected by the public would be the same software that is running on every machine in every jurisdiction in the country."

Miller acknowledged that security has to be a priority, but he was firm in his stance. He said that asking open-source proponents of open-source software to comment on the security of e-voting systems "is like asking a bunch of clergymen what they think of premarital sex." QuickLink 48210

SUIT FILED

The e-voting debate heats up in California:
QuickLink 48228
www.computerworld.com

IBM Adds Mainframe Technology to Unix Servers

Power5 line seems to deliver big performance leap

BY PATRICK THIBODEAU

Gregory Martin, integration manager at Royal Caribbean Cruises Ltd., is interested in IBM's Power5-based servers, including a new Unix server line announced last week. But he wants IBM to produce benchmarks comparing application performance across various IBM systems — not just against competitors' products.

Martin's Miami-based company uses IBM iSeries (formerly the AS/400) and pSeries Unix/Linux servers. Benchmarks showing operating system performance across multiple IBM lines would help him make the best server choice for his applications, he said.

"If we don't have a benchmark that compares a pSeries to an iSeries from an OS perspective, then it's hard to compare that to a different technology" from another server vendor, he said.

IBM has no plans to produce internal benchmark comparisons because the iSeries and pSeries hardware architectures are identical, said Jim McGaughan, director of IBM eServer strategy. If a company is interested in comparing the performance of the eServer i5/OS operating system with that of AIX, it's likely to be considering a migration, he said. In that case, IBM would help the user evaluate workload performance on both systems, McGaughan said.

The RISC-based Power5 processor is dual-core, but unlike the Power4 chip, it has simultaneous multithreading capability. That means it can run two instruction streams in real time, or up to four threads in parallel.

A Game of Leapfrog

Server makers are in an endless game of leapfrog with chip performance, say analysts, but the Power5-based Unix and Linux servers appear to be a significant leap.

IBM is "now pulling in intellectual property from other lines of business," such as logical partitioning from its mainframe group and virtual engine technology from its Tivoli Software group, said Brad Day, an analyst at Forrester Research Inc. in Cambridge, Mass.

But while these Unix systems are becoming more mainframelike, they aren't mainframes.

Dave Ennen, IT director at Winnebago Industries Inc. in Forest City, Iowa, uses an IBM zSeries mainframe to run his company's most critical applications. He doesn't see Unix or other servers replacing the mainframe, despite the addition of microprocessor partitioning technology to the Unix servers. "The reason we have the mainframe is we don't ever want it to go down, and anything short of the zSeries doesn't have that kind of dependability," said Ennen.



... wants benchmarks to compare IBM systems to one another.

IBM officials said a wide gap remains between the capabilities of mainframes and those of systems running Unix. For instance, unlike with Linux or Unix systems, the risk of someone cracking into a mainframe system "is almost zero," said Ravi Arimilli, an IBM fellow and chief architect of the IBM Systems Group.

Unix will eventually close the gap with improved security, availability and virtualization, said Arimilli. "When will that crossover happen? I don't think it's anytime soon," he said, estimating that it would be at least a decade.

But the mainframelike processor virtualization capability in eServer Power5 systems will help Benton Harbor, Mich.-based Whirlpool Corp., which just took delivery of a two-way Power5 system.

Virtualizing on the processor level means that Whirlpool can reduce the number of separate network and storage-area networking cards it needs, as well as cut licensing costs on management and monitoring systems that charge on a per-CPU basis, said Robert Gamso, senior principal systems architect at the appliance maker. The Power4 hardware required separate adapters; the Power5 does not. It "doesn't always make economic sense" to add cards to achieve virtualization, Gamso said. **48212**

Some Say U.S. Supercomputing Needs a Jump-start

BY PATRICK THIBODEAU
WASHINGTON

Legislation intended to strengthen supercomputing development in the U.S. is being endorsed by a Ford Motor Co. IT official who maintains that the government's emphasis on parallel processing in supercomputing is undercutting research and hurting the country's ability to compete.

The U.S. House of Representatives this month passed two supercomputing-related bills: HR 4218, the High-Performance Computing Revitalization Act of 2004, and HR 4516, which seeks about $200 million in funding for supercomputer development at the U.S. Department of Energy.

The legislation aims to bring a coordinated approach to federal supercomputing development and require U.S. agencies to make supercomputers available to researchers.

Vincent Scarafino, manager of numerically intensive computing in Ford's supercomputing program, has testified in Congress on the need for a larger federal role in supercomputing development.

In an interview, Scarafino said the U.S. has been losing its edge in supercomputing because of a shift, beginning in the mid-1990s, to parallel processing using relatively inexpensive commodity components instead of concentrating on developing new kinds of processors. That has led to reduced investment by the government, he said.

Not Pushing the Envelope

Parallel processing has cut prices and helped increase productivity. But there has been a trade-off, said Scarafino.

"We can do analysis now that is cheaper than it was five years ago, and that's great. But we're not pushing the envelope like we used to," he said. "Instead of learning how to do new things, we're learning how to do old things cheaper." Scarafino compared it to eating one's seed corn.

Parallel processing is also labor-intensive, requiring the expertise of computer scientists to program so problems can be solved simultaneously. In contrast, classic supercomputers that rely on very fast, specially designed vector processors "could be programmed in Fortran," Scarafino said. "They could be programmed in a language that mere mortals . . . could program in."

Kevin Wohlever, director of operations of the Ohio Supercomputer Center's Springfield facility, agreed that the push toward parallel processing in the U.S. has been a hindrance.

"If we keep trying to make all codes fit into the cluster environments, we're losing the opportunity to make the codes that run best in the vector environment," said Wohlever. He said government-backed supercomputer development efforts in Japan and Europe have improved weather forecasting there. Japan has the world's largest supercomputer.

The Washington-based Computing Research Association, which represents academic and business research groups, praised the legislative effort but noted that next year's proposed federal budget for IT research is 0.7% below this year's allocation.

Rep. Judy Biggert (R-Ill.), one of the bill's authors, said she hopes the measures will get federal agencies "to really jump-start the next generation of high-end computers." Biggert's legislation has White House support.

Biggert said she believes that the U.S. has lost ground competitively and that U.S. companies need federal research leadership in supercomputing. "What goes into providing this type of computer they can't do on their own," she said. **48211**

Glossary

SUPERCOMPUTER: A very large system built to handle computationally intensive workloads. What constitutes a supercomputer is a moving target, and the list of the most powerful supercomputers is constantly changing. See www.top500.org.

PARALLEL PROCESSING: A computing method that uses two or more commodity processors, all working on different aspects of the same program at the same time.

VECTOR PROCESSING: A computing method that uses specially designed processors to handle large amounts of data.

BRIEFS

Nortel Restates 2003 Earnings

Nortel Networks Ltd. last week said its net earnings in 2003 will be restated downward by 50%, and net earnings based on continuing operations last year will be eliminated with the change. The restatement will essentially wipe out its net earnings for the year, the Brampton, Ontario-based company said.

Adaptec Buys Snap Appliance for $100M

Network adapter card maker Adaptec Inc. last week said it will acquire storage server vendor Snap Appliance Inc. for approximately $100 million. San Jose-based Snap Appliance, which makes network-attached storage servers for file sharing, will become a division of Milpitas, Calif.-based Adaptec. Adaptec said the acquisition will expand its external storage product portfolio and systems channel business.

IBM Expands Analytics Offering

IBM last week announced that it's acquiring privately held AlphaBlox Corp. in Mountain View, Calif., to gain technology that makes it easier for developers to embed intelligence technology into business applications and processes. IBM said AlphaBlox software will be offered first as a stand-alone product and will then be embedded through IBM's middleware suite. The value of the deal wasn't disclosed.

Short Takes

CISCO SYSTEMS INC. appointed Charles Giancarlo to the position of chief technology officer, a post that has been vacant since 2000. . . . ORACLE CORP. and the U.S. Department of Justice filed closing briefs in the government's case to block Oracle's hostile takeover bid for PeopleSoft Inc., paving the way for closing arguments this week.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



Ma… Outsourcing Deals . . .

. . . involving more than one outsourcer operating from more than one location is increasingly common for many IT shops, says John Bostick, CEO of dbaDirect Inc. in Florence, Ky. He says more and more of his 100 corporate customers have struck outsourcing deals with the likes of IBM Global Services, Electronic Data Systems Corp., Keane Inc. and other big outsourcers. But they still want to take advantage of his company's focus on databases as well as the low overhead he has from running his main data center out of Boone County, Ky. That means he's coordinating work requests from user sites and giant outsourcers' data centers. Despite Bostick's fervent belief that U.S.-based specialized outsourcers such as dbaDirect can effectively compete with offshore operations, he's had to add database administrators in Bangalore to meet "follow-the-sun" demands from clients. Currently, dbaDirect manages 2,500 databases, with 45 to 50 being run by a senior DBA who has an operations specialist in tow. At the moment, Bostick says, Oracle and SQL Server are running neck and neck, each with 45% of the database work dbaDirect has under contract. "But Microsoft is growing like a weed," he says. Sybase makes up 8%. DB2 and Informix fight over the scraps. MySQL has cropped up in a couple customer conversations, he says, "so we're looking into it for the future."

750k
Events projected by dbaDirect among databases managed in 2005.

Catching Killer Calls for . . .

. . . complex document management operations. Dave Ryan, IT director and senior deputy prosecutor for King County in Seattle, recalls that nailing Gary Ridgeway, the infamous Green River Killer, began with a paper trail of three-ring binders investigators used in the 1980s when the string of brutal murders began. Eventually, Ryan says, he had "a whole roomful of three-ring notebooks." Not having the staff on hand to digitize the mountain of information, Ryan turned to Chameleon Data Corp., also in Seattle. CEO Derek Dohn says his team had to digitize the data and organize it in three formats for different users — the prosecution, public defenders and, ultimately, the public at large. Ryan says that a key moment in the gathering of evidence came when investigators discovered that unique paint samples from Ridgeway's workplace were discovered on three victims' bodies. The prosecution had already tied Ridgeway to four other murdered women who were prostitutes that the then-suspect claimed he had coincidentally met. Technology from eCopy Inc. in Nashua, N.H., "that feels like a garden-variety copier to paralegals" was used to scan the paint-sample lab-report information into the document management system so that it was immediately available in the different formats used by both the prosecution and the defense. Once the defense attorneys had the new data, they knew "the coincidence argument fell apart," Ryan says. Ridgeway soon pleaded guilty to 48 murders, ending the hunt for the worst mass murderer in U.S. history.


Managing docs key to prosecution

Swift Data Center-To-Data Center . . .

. . . backups possible with HyperIP, a proprietary network appliance that uses your IP network. That's the claim from Craig Gust, CEO of Network Executive Software Inc., also known as Netex, in Maple Grove, Minn. He says HyperIP sits between a standard IP switch and a very-high-speed WAN link. Gust boasts, "HyperIP achieves 90% throughput with 1% packet loss at up to 46,000 circuit miles distance." And that's before the appliance applies data compression. HyperIP works with a host of "qualified applications," says Gust, and this week will add Veritas NetBackup, McData iFCP and others to the list. One appliance costs $19,750 for 10Mbit/sec. performance. You'll pay incrementally more for up to 480Mbit/sec. Remember to multiply that by two because you need one device on each end.


HyperIP suffers only 1% packet loss.

PHP Developer Makes Splash . . .

. . . this week with the news that it's moving its headquarters from Israel to the U.S., releasing Version 5 of the world's leading server-side scripting language, unveiling two product upgrades and picking up more than $8 million in venture capital. Zend Technologies Inc., now in Cupertino, Calif., has kept its R&D operations in Israel, but CEO Doran Gerstel says that with more than half its customers here, it makes sense to move to Silicon Valley. Its release of open-source PHP 5 improves the language's object-oriented capabilities. And the company's Zend Studio 3.5 for PHP developers will include 30 templates to speed coding. Also, Zend Performance Suite 4.0 boosts PHP performance two to three times through improved content caching and other techniques. It's all available now. **48190**



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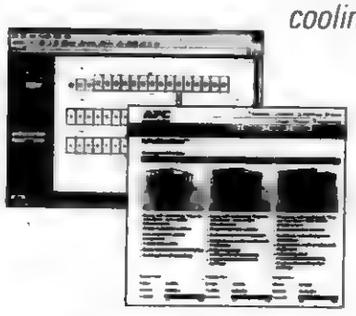


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Start-up Pitches Customizable Linux OS to Corporate Users

Novel Specifix plan enables full support

BY TODD R. WEISS

TWO FORMER Red Hat Inc. Linux software engineers are creating a version of Linux for corporate users that they say will allow custom code modifications to be made while maintaining full support for the rest of the operating system.

San Jose-based Specifix Inc., which was founded last year, was preparing to launch an alpha release of the unnamed operating system last week, according to co-founder Erik Troan. The release of a shipping version is expected by the end of the year.

Troan said corporate users are often unable to customize Linux software without invalidating support from the original vendor. Specifix hopes to solve that problem by allowing users to modify the desired code and provide their own support for changes. Specifix will continue to support the rest of the unmodified Linux operating system.

Tracking Changes

Specifix has also created an open-source application called Conary — a distributed system that allows developers to track and monitor changes made to the Linux code — to allow user companies to modify and tailor the software as needed.

Conary will allow the construction, deployment and management of a single Linux code base across an unlimited number of configurations and hardware platforms, according to the company. Conary was released last week to the developer community under IBM's open-source Common Public License.

Several corporate Linux users said the new offerings from Specifix are innovative but predicted that demand for them will be fairly limited.

Scott Clark, director of IT systems at call center outsourcer Sitel Corp. in Omaha, said most corporate users he hears about are using Linux for "bread and butter" things such as e-mail, Web and file servers, and other infrastructure tasks where major code changes aren't needed. "All those kinds of things are well documented and easily done and supported by the major Linux vendors," he said.

Clark said he hasn't yet had to change the Linux code, though Oracle Corp. has provided a kernel tweak when one was needed for a database application. "It strikes me as somewhat of a niche market," he said of the upcoming products from Specifix.

> **"In our case, we don't have the time . . . to experiment and to play with the kernel."**
>
> JOE POOLE, TECHNICAL SUPPORT MANAGER, BOSCOV'S

Joe Poole, technical support manager at Boscov's Department Store LLC in Reading, Pa., said his organization has no need for such services because its Linux operating systems are "plain vanilla" as delivered by the vendors. "In our case, we don't have the time to do that sort of thing, to experiment and to play with the kernel," Poole said. "We have not come up with anything yet that would require that."

However, at least one enterprise Linux user said that while such help may not be needed very often, there are cases when it could be valuable. Such a service could be useful in situations where Linux doesn't perform as well as Unix, said Mike Prince, CIO at Burlington Coat Factory Warehouse Corp. in Burlington, N.J. "In those cases, having somebody out there that could pick up the support on these systems might actually be an asset," he said. "I think there's a market out there and it is indeed an issue. I think the approach is very rational."

Leigh Day, a spokeswoman for Raleigh, N.C.-based Red Hat, said her company welcomes Specifix to the marketplace to help serve customers who want to make changes to their operating system software, which would be outside of Red Hat's standard support policies.

"Red Hat ultimately endorses choice for the customer," Day said. "The more choices, the better." 48213

Microsoft to Link Enterprise Instant Messaging Server With Rival Networks

BY JUAN CARLOS PEREZ AND TODD R. WEISS

In a move that advances instant messaging interoperability, Microsoft Corp. will open up communication between its enterprise IM server and the IM networks run by its MSN division and by rivals Yahoo Inc. and America Online Inc.

Microsoft's Live Communications Server (LCS) 2005, due to ship in the fourth quarter, will allow users to exchange instant messages with users on AOL Instant Messenger (AIM), Yahoo Messenger and MSN Messenger.

"This has been the top request from our corporate customers. They have told us that anything we could possibly do to make this happen would make them the happiest," said Taylor Collyer, Microsoft's senior director for LCS.

Graham Lawlor, chairman of the New York-based Financial Services Instant Messaging Association, which represents seven Wall Street financial firms working to promote IM standards, called the LCS release "the most significant announcement in the enterprise IM industry since there was such an industry."

IM is critical to investment banks for trading, sales operations and more, he said, but the challenge has been that users have had to run multiple IM clients. Being able to connect users to all three of the largest IM systems using LCS brings a "fundamental sea change in the industry," Lawlor said.

The link between LCS and the three IM networks will be provided through add-on modules that will be sold separately, Collyer said. Pricing for the modules will be announced later this year.

Representatives from AOL and Yahoo indicated separately that the collaboration with Microsoft is a significant step for their respective IM services in the corporate market.

"This will open up new opportunities for all of us," said Brian Curry, senior director of AIM network services at Dulles, Va.-based AOL.

"Through our relationship with Microsoft LCS, we are able to increase the distribution, usage and presence of Yahoo Messenger while providing our users with a secure, convenient and seamless experience," Lisa Mann, senior director of Yahoo Messenger at Sunnyvale, Calif.-based Yahoo, said in a statement.

Robert Mahowald, an analyst at market research company IDC, said the LCS announcement will change the market dynamics for companies such as IMlogic Inc., FaceTime Communications Inc. and Akonix Systems Inc., which make gateway software that lets different IM clients interact. "They're definitely going to have to sort out a new role" that stresses how they can help customers gain control over IM use for compliance with logging, archiving and other regulatory requirements, he said.

> **"[The pending LCS release is] the most significant announcement in the enterprise IM industry since there was such an industry."**
>
> GRAHAM LAWLOR, CHAIRMAN, FINANCIAL SERVICES INSTANT MESSAGING ASSOCIATION

Francis deSouza, CEO of Waltham, Mass.-based IMlogic, said LCS will do for IM what SMTP did in solving a bottleneck for e-mail. "We've been waiting for this for almost eight years," deSouza said. "This is very exciting for everybody."

Dmitri Shapiro, co-founder and chief technology officer of San Diego-based Akonix, said LCS interoperability will mean "much wider adoption of IM" in the workplace. Customers will still want Akonix to provide its layers of management, security, archiving and auditing, he said, even after LCS is in use.

"This in no way damages our business," said Shapiro. "This dramatically increases our business." 48207

Perez writes for the IDG News Service.



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NBC Seeks Network Stability for Olympics

Works with AT&T on six redundant connections for feeds from Athens

BY MATT HAMBLEN

WHEN NBC Universal begins its television coverage of the summer Olympic Games from Athens next month, the broadcasting and cable TV company will use three satellite network linkups and three land-based connections to ensure that its video, audio and data transmissions are redundant.

The six connections, which were set up by AT&T Corp., are designed to ensure 99.99% reliability, or about one minute of downtime per week, according to officials from the two companies. NBC will be able to send live feeds from Greece to the U.S. over all six links at once or use them for separate transmissions.

"An Olympic event is a one-time event, and there are no do-overs," said Bob Kiraly, director of broadcast and telecommunications operations at NBC, in an interview from Athens last week. "Everything we plan for in our networks or our Athens operations center is really based on a failure scenario. You certainly can't tell a marathon runner that you need to run it over [because of a network issue]."

Kiraly added that the six layers of network redundancy are accompanied by built-in systems redundancy at NBC's on-site network operations center. All servers, switches, routers and power supplies have one or two backups, he said.

"We have to be very careful how we move our pictures back and forth, because that's our product," said Kiraly, who arrived in Athens in May, although network preparations for the broadcasts began a year ago. Kiraly and his staff, which he wouldn't number for security reasons, will work 12-hour days leading up to the games and expect to be on the job almost around the clock during the 17-day event.

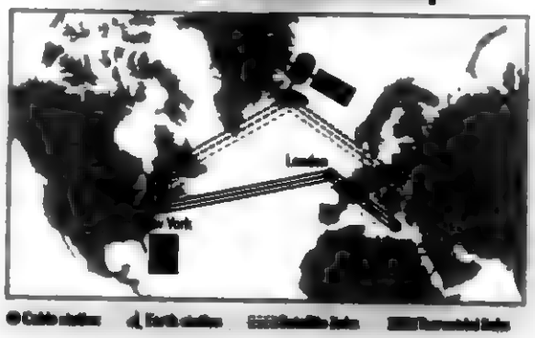
From Aug. 13 to 29, NBC plans to carry 1,210 hours of coverage on its various TV outlets — its flagship broadcast network plus MSNBC, CNBC, Bravo, USA Network and the Spanish-language Telemundo. That's about three times the amount of coverage that NBC provided from the 2000 Summer Olympics in Sydney, Australia. In addition, high-definition broadcasts will be offered for the first time from several Olympic venues.

AT&T is helping NBC design, deploy and manage the satellite networks and land-based circuits, which will connect to NBC's facilities in New York via undersea fiber-optic cables owned by AT&T, said Mike Jenner, the vendor's vice president of enterprise networking services. NBC and AT&T have an eight-year contract to broadcast the Olympic Games, dating to 2000. Neither company would disclose its value or what it will cost to set up and operate the networks for the Athens games.

Jenner said part of the challenge of building the network to Athens was arranging in a short time to use terrestrial networks owned by other carriers, such as British Telecommunications PLC and Athens-based OTEGlobe. AT&T also had to set up cable and satellite stations in both Athens and New York to transmit and receive broadcast feeds (see graphic).

Kiraly said there have been no significant problems in building the Athens network operations center, despite reports of delays in the construction of Olympic venues and facilities. "The people of Athens had a big challenge and are rising to it," he said. "There have been many construction issues, but I have yet to see anything delivered to us late." 48194

NBC Universal/AT&T Olympic Games Broadcast Setup



Quantum Adds Data-Protection Technology to Tape Storage Line

WORM capability will prevent data overwrites, it says

BY LUCAS MEARIAN

Quantum Corp. today plans to announce a firmware upgrade for its super digital linear tape (SDLT) products that will create a write-once, read-many capability designed to help users preserve data as part of regulatory compliance efforts.

The DLTIce firmware will be available tomorrow via a free download from Quantum's Web site. The new offering supports the San Jose-based company's SDLT600 drives and SDLT II cartridges, its latest tape technology. But a spokesman said Quantum is considering the idea of offering DLTIce across its entire line of DLT and SDLT devices.

Quantum isn't the first tape drive vendor to embrace write-once, read-many technology, or WORM. Sony Corp. added WORM support to its Advanced Intelligent Tape and Super AIT products in March, and IBM and Storage Technology Corp. offer the feature in their enterprise-class drives.

But Sony, IBM and StorageTek require users to buy new cartridges that are preconfigured for WORM, said Robert Amatruda, an analyst at IDC. In addition, DLT and SDLT tapes are used much more widely than AIT and SAIT devices are, according to Amatruda. He said Quantum's technologies accounted for about 40% of the $821 million market for midrange tape storage last year, compared with 8% for Sony's product line.

Tape drives that support WORM could be a boon for users who want to better safeguard archived data, Amatruda added. "More and more companies are interested in things like compliance and unalterable data protection products," he said. "You don't have to buy and support a separate device that will enable WORM capability."

Partners in Health is a Boston-based nonprofit organization that does medical research and provides free health care in Latin America, the Caribbean, Eastern Europe and the U.S. Yusuf Karacaoglu, the organization's MIS and networking coordinator, said he's looking forward to downloading DLTIce to help protect patient research documents, which he backs up onto SDLT600 drives.

Karacaoglu currently has to use a separate server loaded with software from Authenti-Date Holding Corp.'s DocStar unit, which makes a scanning device for turning paper documents into electronic records that can be stored on optical disks, hard drives and other storage media.

"The good part is we don't have a lot of money to spend on this technology, so [DLTIce] meets our expectations at the moment," Karacaoglu said. The DocStar system informs him if a document has been changed, but it doesn't provide WORM capabilities that prevent data from being overwritten, he added.

DLTIce lets users designate new or existing tape cartridges as WORM media when they're being initialized. The firmware then creates a unique electronic identification number for each tape and blocks any overwrites of data, Quantum said.

The technology can't prevent data from being erased or scrambled. But if that happens, the identification number is still stored on the cartridge, revealing that it previously held data, the company said. 48194

MORE STORAGE NEWS

Computer Network Technology Corp. is developing a line of multiprotocol switches.

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BRIEFS

Senator Introduces Phishing Bill

Sen. Patrick Leahy (D-Vt.) on July 9 introduced the Anti-Phishing Act of 2004, which would define phishing as a federal crime punishable by up to five years in jail. The bill would outlaw the act of spoofing a Web site in an attempt to "induce, request, ask or solicit any person to transmit, submit or provide any means of identification to another."

NetForensics Wins Deal With DOE

NetForensics Inc. in Edison, N.J., last week said the U.S. Department of Energy will use its nFX security information management software to monitor about 400 network security products at 10 National Nuclear Security Administration sites. The deal comes after a string of high-profile security gaffes within the DOE that may have resulted in leaks of secret information about the U.S.'s nuclear arsenal.

IBM Opens Dev Center in Taiwan

IBM last week said it has set up a development center for its zSeries servers in Taiwan in order to be closer to Taiwanese hardware manufacturers. IBM said the zSeries Taiwan Development Center, which is the first such facility it has established outside the U.S., will play an important role in helping it build closer relationships with Taiwanese hardware makers for the development of servers based on processors from Intel Corp.

Short Takes

SAP AG acquired A2i Inc. to broaden the data management capabilities of its NetWeaver platform. . . . SECURE COMPUTING CORP. rejected an unsolicited bid from rival CyberGuard Corp., saying the offer wasn't in the best interests of shareholders.

Microsoft Patch Release Plugs Two Critical Holes

Vendor issues total of seven patches

BY PAUL ROBERTS

MICROSOFT Corp. last week released seven security patches, two of which fix holes that the vendor deemed "critical" because they could allow remote attackers to take control of vulnerable Windows systems.

The software updates include fixes for previously unknown holes in the Windows operating system, including critical holes in the Windows Task Scheduler and HTML help features.

Microsoft also published a patch for a recently disclosed hole in the Windows Shell application programming interface (API) and fixed a hole in older versions of the Internet Information Services (IIS) Web server.

The seven updates were released in accordance with the company's monthly patching schedule.

One of the two critical patches fixes a hole in Windows Task Scheduler, a Windows component that lets users schedule commands, programs or computer scripts to run at specific times. A buffer-overrun vulnerability in the Task Scheduler could allow a malicious hacker to place and run attack code on vulnerable systems.

The second of the two critical patches fixes two more newly discovered holes in the Windows HTML Help feature. One hole, in a component called showHelp, causes an error in the way Windows processes a type of help file known as a CHM file. The second hole affects the way Windows checks data in help files. It could allow an anonymous user to set up a Web site containing code designed to trigger the vulnerability.

Microsoft also patched four holes rated "important," which indicates that exploitation could result in the compromising of data, but not the creation of an Internet worm. In MS04-021, Microsoft issued a patch for customers using IIS Version 4.0 and Windows NT 4.0. A buffer-overrun flaw fixed by that patch could allow a remote attacker to take control of a system by sending a specially crafted message to the vulnerable IIS server, causing it to run the attacker's code, Microsoft said.

Despite being rated "important" rather than "critical" by Microsoft, the MS04-021 hole is of particular concern to security experts at McAfee Inc., according to Vincent Gullotto, vice president of the Anti-Virus Emergency Response Team at McAfee. Like the vulnerabilities that led to the Blaster and Sasser Internet worms, the IIS 4.0 hole could enable malicious hackers to take total control over servers without requiring them to trick users into clicking on a link or visiting a Web page, he said.

Limited Scope

The fact that the vulnerability affects only organizations that use Windows NT and IIS 4.0 limits its reach somewhat, but many companies still use those products and could fall victim to an attack, said Gullotto.

McAfee experts are also concerned about the showHelp hole plugged by MS04-023 and the Shell API hole fixed by MS04-024. In both cases, proof-of-concept code has been released on the Internet that could make it easier for less-sophisticated hackers to launch attacks targeting the security holes, he said.

"[Proof-of-concept code] simply increases the risk that it will attract attention from a virus writer, who could create something quicker," Gullotto said. "It just ups the ante for a zero-day attack." 48196

Roberts writes for the IDG News Service.

Microsoft Monthly Patch Summary

- MS04-020 (M) Denial-of-service vulnerability in Outlook Express
- MS04-019 (I) PrivIege-elevation vulnerability in Utility Manager
- MS04-022 (I) PrivIege-elevation vulnerability in Posix subsystem
- MS04-021 (I) Buffer-overrun vulnerability in IIS 4.0
- MS04-022 (C) Remote code execution vulnerability in Task Scheduler
- MS04-023 (C) Two remote code execution vulnerabilities in HTML Help
- MS04-024 (I) Remote code execution vulnerability in Windows Shell

M - MODERATE I - IMPORTANT C - CRITICAL

SOURCE: MICROSOFT CORP.

Trojan Horse Spreads Via Mass Spam Mailing

ANTIVIRUS AND E-MAIL security companies last week sent out warnings about a new Trojan horse program that they claim is being mass distributed on the Internet by means of spam.

The program, called Backdoor-CGT, is a new form of a Trojan horse that's installed when users of Microsoft's Outlook e-mail program follow a Web link embedded in an e-mail message. The Trojan horse was believed to have infected thousands of systems even though antivirus software and up-to-date versions of Outlook are immune to attack, said Maksym Schipka, senior antivirus researcher at MessageLabs Ltd. in Gloucester, England.

MessageLabs received more than 3,600 e-mail messages with links to the Trojan horse during a two-hour period, the result of a spam distribution that was more than 10 times the normal amount for such a program, he said. Trojan horse programs give remote attackers access to or control over machines on which they run, and they often run unnoticed by users or pose as legitimate applications.

The Backdoor-CGT program uses a "multistage" attack to place malicious code on victims' computers. After clicking on an e-mail link embedded in the spam message, victims go to a series of Web sites, each of which carries out one stage in the attack.

The attack takes advantage of a now-patched flaw in Outlook called the "IFRAME" exploit to hide the Web site redirections from the user and silently download and install the Backdoor-CGT program, Schipka said.

McAfee also released an advisory about the new Trojan horse, which is also known as "SS," but rated it a "low" threat to users. McAfee has released software update files to detect the Trojan horse, according to the advisory.

–Paul Roberts

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Continued from page 1

Microsoft

ness and technology unit, attributed the delay to the security-focused Service Pack 2 for Windows XP. Microsoft announced last week that SP2 is due for release in August.

"The key issue [with WUS] is that our updating technology is a core part of how Windows XP Service Pack 2 is going to ship," Nash explained. "That team is working on getting SP2 done, and as soon as SP2 is done, we'll be able to go focus on getting Windows Update Services done. . . . You can't do the two in parallel."

Nash cited encouraging signs that the initial version, SUS, is seeing greater usage. At last year's partner conference, when attendees were asked if they used SUS, the vast majority of hands stayed down. This week, the number of raised arms was noticeably higher. Nash said that jibes with statistics showing that some 112,000 unique servers connect to Microsoft each day to check for content using SUS.

WUS is currently available as a private beta. A public beta is due toward the end of the year, said Gytis Barzdukas, a director of product management at Microsoft.

WUS can be used to patch not only Windows but also Office, Exchange and SQL Server. Unlike SUS 1.0, it lets users target specific computers, get basic reports and download only changed patch bits.

Russ Cooper, senior scientist at TruSecure Corp., a Microsoft Gold Certified partner in Herndon, Va., said he's bothered by the delays, but he also recognizes that Microsoft must take as much time as it needs to get the security updates right. "Considering how dramatic this all is, they'd better not screw up," he said.

"When I hear 'delay' when it comes to security, I intuit they need to work on it before they feel comfortable sending it out," said Bob Crownhart, director of infrastructure at Premera Blue Cross in Mountlake Terrace, Wash. "And to me, that's good news. That's less painful than if they put out something that wasn't ready for prime time."

Like WUS, the Microsoft Update service that Ballmer said would be ready by now is being delayed to the first half of next year, Nash said. Microsoft Update is a single place on the company's Web site where patches for all of its products will be available.

Another delayed offering is Microsoft's Network Access Protection technology. IT administrators will be able to use it to set policies to determine whether users have updated patch and antivirus protection. If the machines aren't compliant, administrators can restrict network access and use tools to make sure they are updated.

When Microsoft discussed the technology in the past, it referred only to the ability to quarantine remote users in virtual private networks (VPN), according to Steve Anderson, director of Windows server marketing. Network Access Protection technology will be more broadly applicable to any type of connection, he said.

Network Access Protection is due to ship in the second half of 2005 with the update to Windows Server 2003, code-named R2. But one systems management analyst at a California-based health insurer, who asked not to be named, said his company primarily uses Windows 2000 Server and would find it helpful if Microsoft also made the technology available for that operating system. "A lot of shops, including ours, will not see Windows Server 2003 for probably a couple of years," he said.

Microsoft plans to publish the API and turn it over to a standards body, but it hasn't determined which one, Anderson said. More than 25 of Microsoft's partners, including Computer Associates International Inc., McAfee Inc. and Symantec Corp., announced support for Network Access Protection. A notable no-show was Cisco Systems Inc., but Anderson said Microsoft hopes to reach an agreement with Cisco soon.

Also last week, Microsoft announced the on-time delivery of its Internet Security and Acceleration Server 2004, an application firewall, VPN and Web cache product. But it hasn't seen wide corporate usage to date. "Most large companies are looking for industrial-strength solutions," said one IT manager, who asked not to be named. **46208**

Updated Microsoft Security Road Map

At last October's Worldwide Partner Conference, CEO Steve Ballmer detailed the company's plans for new security products and services. Here's what happened.

DELIVERED ON SCHEDULE Internet Security and Acceleration Server 2004; shift to monthly releases for nonemergency patches; security seminars; monthly webcasts; IT Pro Secure Zone online site

PRODUCT	ORIGINAL PROJECTED SHIP DATE	CURRENT PROJECTION
Windows XP Service Pack 2	First half of 2004	August
Software Update Services 2.0, now known as Windows Update Services	First half of 2004	First half of 2005
Single Microsoft Update site for all patches	First half of 2004	First half of 2005
Patching enhancements (fewer patch installers; smaller patches; rollback capability; reboot minimization)	First half of 2004	Some completed; some in progress
Windows Server 2003 Service Pack 1	Second half of 2004	Second half of 2004
Next-generation inspection technology, now called Network Access Protection	Second half of 2004	Second half of 2005

SOURCE: MICROSOFT CORP., REDMOND, WASH.

REPORTER'S NOTEBOOK

Microsoft addresses Linux threat, Software Assurance with its partners

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Flessner Pledges More Frequent SQL Server Releases

Some users were disappointed earlier this year when Microsoft announced that SQL Server would be delayed for a third time – until the first half of 2005. But Paul Flessner, senior vice president of Microsoft's server platform division, last week told *Computerworld* the important second beta is due within weeks and the product remains on track for next year.



A year ago, you assured certain that SQL Server would ship in 2004. What happened? Was the delay related to the integration of the Visual Studio .Net development tools?

It's been complicated to keep the two products close together, and we have to keep them in sync. It's mostly, I think, the depth of integration. When you see the beta and you get to be writing these stored procedures in Visual Studio and then you get to see the interaction, I think you'll understand why it's taken longer.

Some users were anxious to see the new features. I want it right, and that's my commitment. We've always had good, high-quality releases of SQL Server, and we're going to have another super-high-quality [release]. From the time we release Beta 2 here in a few weeks until the end of the first half of next year, we've got a long time to really clean the things, stabilize and get all the polish on it. And we're going to hit it hard.

Don't you lose processes, when competitors release products more often? I'd commit that you're going to see more regular releases from us.

With SQL Server? Absolutely. I know that we can do a more regular release cycle. This one [SQL Server 2005] was just particularly tricky because of the depth. Even this release, if I had it to do over again, I might have done it slightly differently. Instead of releasing Reporting Services and Notification Services outside [the major product release cycle], I might have bundled them in and just done an R2-type thing. Those are both good value adds. We could have done a release with that, and maybe we should have. So there is some thought going forward about how to do that.

Is it being driven by the need to improve the Software Assurance entitlements also? Yeah. Customers need value on a regular basis, and I think it's a good way to do it.

—Carol Sliwa

THERE'S MORE

Go online for more of this interview

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COMPUTERWORLD

Executive Bulletin

IP Communications

Voice-over-IP is changing the way we think of, and manage, communications.

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All Roads Lead to IP

TO CONSUMERS, IP telephony means making cheap long-distance phone calls over the Internet. But for corporate America, the convergence of voice, video and data on a single IP network is much more. It's a dramatic new way of thinking about, and managing, communications, with voice traffic acting like any other packet on the network and telephones acting as just another network client.

Converged IP networks allow for a wide variety of new applications to ride on the network and interact, including IP telephony, audioconferencing, videoconferencing, unified messaging and presence technologies (like chat).

Getting Started

Corporate America is just starting down the road to voice-over-IP (VoIP) communications, though every analyst says it's just a matter of time before it becomes mainstream. "By 2009, the installed base of IP [communications] equipment will dominate the enterprise landscape, but that's still a few years away," says Robert Rosenberg, president of Insight Research Corp. in Boonton, N.J.

There are several reasons why VoIP hasn't been an overnight success. Companies started testing the waters of VoIP in 2001, but there were serious concerns about voice sound quality that slowed the momentum (those concerns have been largely resolved). Moreover, one of the key reasons for implementing VoIP was to reduce the long-distance charges associated with the traditional phone networks, yet those charges have dropped so low that those cost savings are less dramatic.

The cost of IP phones is another reason for the slow pace. "The cost of going VoIP is certainly a factor here, since the price of newer IP phones will continue to be about 25% higher than the [traditional] alternative," Rosenberg says.

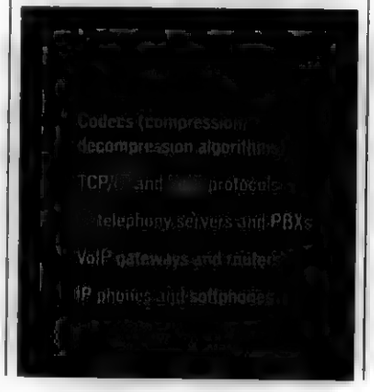
"VoIP never was and never will be the least expensive way to deliver voice to the enterprise, but the allure of VoIP's rich applications like video telephony will slowly convert legacy customers," he adds.

Indeed, there are a variety of reasons for moving to a converged IP network. Users report benefits such as the following:

- **Much lower costs for audioconferencing.**
- **The ease of moving, adding and changing phones.**
- **The fact that the IT staff can manage a single network infrastructure out of the data center, instead of two or more very different networks.**

Thumbs Up

Early users are giving a thumbs up to converged networks, saying their technology choices have saved money and made their voice communications setups more flexible. Some implement pure VoIP systems, while others rely on a hybrid of IP and circuit-switched technologies. Either way, the users say they're realizing greater efficiencies just by starting to merge their voice and data networks.



IBM, for example, is rolling out a global VoIP network over the next five years that's expected to cut voice/data communications costs by 25%, according to Fred Spuleck, director of global voice infrastructure at IBM. One efficiency will come from lowering the number of IBM's private branch exchange (PBX) switches from the current count of about 900 to just 11 IP-based PBXs, Spuleck says.

Pure VoIP supporters say their systems are more resilient and can more easily support video or voice conferencing as well as new data applications. For example, IBM's new VoIP network will allow easy creation of an audioconferencing system that will cut the company's annual costs for that capability in half, Spuleck says. A VoIP project at SouthTrust Bank in Birmingham, Ala., will save $1 million annually on conference calling alone and "several million dollars" overall, says Stanley Adams, the bank's group vice president of network services.

On the other hand, users of hybrid systems say they want to hold on to the value of large investments in time division multiplexing (TDM) switches, and they suggest that a hybrid network would provide a backup if a major virus or other security incident affected their data networks.

GMAC Commercial Holding Corp. in Horsham, Pa., has adopted a hybrid approach that relies on older TDM switches but also provides IP telephony capabilities configured on top of a Multiprotocol Label Switching service to 106 locations globally, says CIO Niraj Patel. The annual costs should be 5% to 10% less than GMAC Commercial Holding's previous system, with last year's savings amounting to $120,000, he says.

But hybrid implementations are just a temporary phase in the evolu-

People Issues

WHILE VoIP BECOMES MORE popular, some IT managers are wrestling with the process of merging their historically very separate voice and data communications staffs. "Every day I feel like firing somebody," says a frustrated IT manager who works at a trucking and transportation conglomerate. She says an ongoing effort to blend voice and data staffs has led to frequent battles among workers over their roles in the combined unit.

But it can be done. "It's working out for us," says David Stever, manager of communication technology services at PPL Services Corp., an energy utility in Allentown, Pa. PPL started planning for voice and data convergence about six years ago, so it had time to sort through problems and plan carefully, he says. Sixty employees who formerly were dedicated to either voice or data networks now work together to handle all types of communications needs in three integrated groups: infrastructure and planning, application design, and operations.

Donald Van Doren, president of Vanguard Communications Corp., a consulting firm in Morris Plains, N.J., says the complexity of combining voice and data staffs is a big concern. "The heritage of data and voice guys is just different," he says. "It's in the DNA."

Van Doren says that an organizational structure similar to PPL's is an effective way to start, with staffers assigned to support the network infrastructure, applications or devices such as phones and PCs.

tion of IP communications. Most new enterprise voice systems purchased over the next several years will be IP-based, according to ABI Research in Oyster Bay, N.Y. The research firm says that by 2006, 90% of all new IP phone systems shipped will be pure IP, not hybrids.

In most cases, corporate IT managers are opting to install VoIP in small pilot programs at branch offices or new locations. (Plus, PBXs generally have a seven- to 15-year life, so companies often wait until their PBX systems die before they move to VoIP.)

"The cost of IP [telephony] is justified only when you start something new, not as a replacement," says Geir Ramleth, CIO at engineering and construction group Bechtel Corp.

Remaining Challenges

VoIP technology is still more difficult to implement than the vendors would have you believe. IT managers' top concerns include the following:

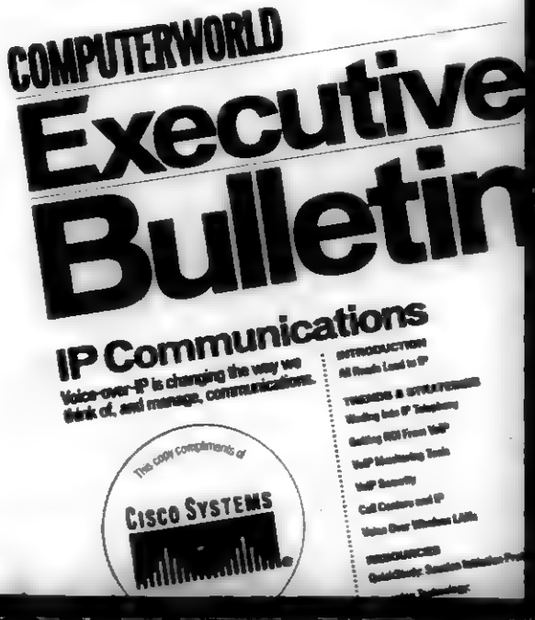
- **Management tools.** VoIP requires special tools and skills because voice traffic is far more sensitive than data to common problems such as dropped or delayed packets.
- **Reliability.** When an employee picks up the phone — whether it's the CEO or a sales rep — he expects a dial tone.
- **Security.** Placing voice traffic on the IP network means that VoIP could be subject to the same sorts of security attacks that plague today's data networks.

This report provides advice — from your peers — about the costs and benefits of IP communications, as well as how to solve those management and security issues.

Voice-over-IP will dominate the enterprise in the next few years – are you ready? It's a dramatic change, but **Computerworld's new Executive Bulletin on IP Communications** will help you get there! Early adopters are already saving millions of dollars. Get this report to learn the new lingo and obtain advice from your peers on hot topics such as monitoring tools, security and ROI.

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7:45am to 8:15am	Registration and Networking Breakfast
8:15am to 8:45am	**Rebuilding the IT Foundation** Maryfran Johnson, Editor in Chief, Computerworld
8:45am to 9:15am	**Consolidation and the Data Center: Boosting Business Performance and Application Availability** Matt Eastwood, Research Director, Global Enterprise Server Solutions, IDC
9:15am to 9:45am	**Perspectives from the Chicago Mercantile Exchange** Steve Goldman, Director, Network Architecture Chicago Mercantile Exchange
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**User Case Study** Alejandro Lopez, System Architect, University of California Davis Medical Center
10:45am to 11:15am	**Customer Challenges and Solutions: Real-Life Scenarios Connecting Data Centers Over Distance** Steve Adolph, CTO, Enterprise Solutions Group, CIENA
11:15am to noon	**Panel: Overcoming Management Barriers — Making the Case for Consolidation** Panel Moderator: Maryfran Johnson, Editor in Chief, Computerworld Panelists: Joe Puglisi, CIO, EMCOR; Stephen Monn, CIO, TAC Worldwide; Frank Enfanto, Vice President, Operations Delivery & Information Security, Blue Cross Blue Shield of Massachusetts; Alejandro Lopez, System Architect, University of California Davis Medical Center
Noon	Program Concludes

Selected speakers include:



Maryfran Johnson
Editor in Chief, Computerworld



Steve Goldman
Director, Network Architecture, Chicago Mercantile Exchange



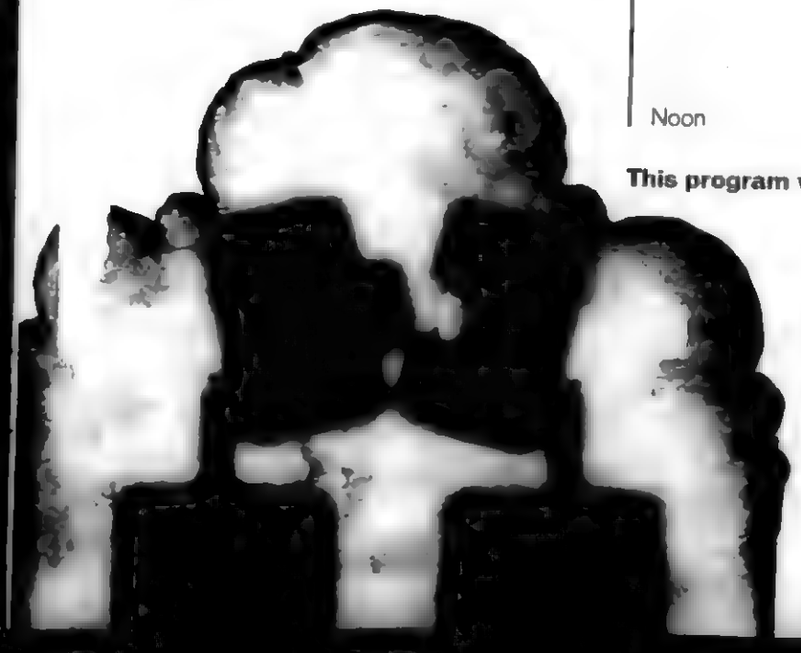
Alejandro Lopez
System Architect, University of California Davis Medical Center



Steve Adolph
CTO, Enterprise Solutions Group, CIENA



Matt Eastwood
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MARYFRAN JOHNSON

Stone Soup Season

THE WORD *summertime* used to have such a relaxing sound to it, conjuring up images of sunshine, seashores and a slower pace to everything. But for IT executives — especially those at companies with fiscal years beginning Oct. 1 — high summer has come to mean high-anxiety budget time.



I think of it as stone soup season.

Remember the old fable about stone soup? It's the story of a wandering peddler who arrives in a starving village with nothing but a stone in his pocket and a hopeful plan. (Picture a CIO at budget time, dressed down for casual Friday.) By investing the stone (IT) with magical powers, he coaxes the suspicious villagers (business execs) into contributing enough meat and vegetables to the soup pot so that a delicious meal (market success and profits) is ultimately created.

Inspiring, isn't it? The moral is that the greater good is served when everyone contributes a little something. But as IT heads into its fourth budget year since the dot-com crash, the soup still looks mighty thin. Nobody believes the stone has much magic left. Even at the world's richest and most powerful software company, Microsoft CEO Steve Ballmer just warned employees about his plan to slice $1 billion in expenses to "avoid severe measures later."

Also last week, a half-dozen software vendors warned about faltering revenues as a result of IT spending slowdowns ("Purchasing Delays Cause Software Sales Shortfalls," QuickLink 48066). Anticipated orders never materialized for companies such as PeopleSoft, Computer Associates, BMC Software, Veritas Software and FileNet. Million-dollar deals shrank to more modest, six-figure sales. All of those upbeat analyst predictions of IT spending growth in 2004 now seem to be talking about some other industry. "I haven't seen any increase in spending on our end," said one network director we quoted. "People are asking more questions about the spending that's going on."

At the federal government level, where the IT spending growth rate has averaged up to 10% annually, the brakes are also being applied. This week in our News section, we report that research firm Datamonitor predicts that growth in federal IT spending will drop to 4% annually over the next five years.

Another area of much-anticipated spending has been in regulatory compliance, as companies fall in line with Sarbanes-Oxley financial reporting rules and other laws governing data security and customer privacy protection. But another News story reports that compliance activities are actually slowing down new systems installations in the fourth quarter rather than adding to the pot.

Stone soup season seems to bring about happier endings in places where more sophisticated IT governance practices have united IT and the business in budget planning and goal-setting. In a special News report last week ("IT Governance Is on the Hot Seat," QuickLink 48025), we examined companies such as Allstate Insurance, State Street and Wyeth, where high-level steering committees are making a difference. Unfortunately, this trend is growing slowly, and surveys indicate that most businesses like the governance idea but find the work required unappetizing.

Despite some rosy analyst predictions and high hopes from industry players, I think stone soup will still be on the menu for 2005. I wonder if we'll ever get used to the taste of it. **48179**



PIMM FOX

Hang Up On Congress

THE GOVERNMENT ought to get out of the telecommunications business.

As far as I can tell, the U.S. government has botched every initiative to regulate, deregulate and legislate how telephone calls ought to be made. Sure, it makes sense that everyone should have a phone. But I don't think it's the government's business to levy universal service fees on voice-over-IP providers as part of its decades-old campaign to ensure that low-income and rural Americans have analog phone service.

But that's exactly what will happen if a bill introduced in Congress earlier this month to regulate Internet phone providers becomes law.



VoIP calls are gaining in popularity as companies such as Skype Technologies SA in Luxembourg offer free downloads of their telephony software.

The move by Congress would make the VoIP sector adhere to a host of rules on privacy, billing and fraud. That just doesn't make sense.

VoIP calls are basically free, so there's no billing.

The Skype service is encrypted and uses public/private-key security features, so making a VoIP call carries the same level of risk as using encrypted e-mail programs.

And as for fraud — well, when Congress can't stop spam from hitting the Internet, it's a little disingenuous for lawmakers to say they can protect us from ourselves while we use the Internet to make calls.

Almost 3 million people are using broadband connections to make phone calls, and businesses are getting aggressive in replacing their traditional voice networks with VoIP.

So why would our representatives in Congress regulate a nascent industry that can finally challenge the domi-

nance of traditional carriers? Because they can, and because they're annoyed that some area that they could regulate might slip through their fingers.

Past efforts at regulating the telecommunications arena were supposed to give us lots of choices, lower prices, better service and a vibrant, competitive market. What we have instead are a few regionally dominant players, complicated billing structures, a pricing mess and mediocre technology, particularly in the mobile phone business.

Members of the Subcommittee on Telecommunications and the Internet of the U.S. House of Representatives are already lining up on the issue of regulating the VoIP industry. After all, this is a big election year.

The senior Democrat on the panel, Rep. Ed Markey of Massachusetts, is in favor of regulating VoIP services, and Rep. John Dingell (D-Mich.) attacked the FCC for its February ruling that VoIP wasn't subject to regulations governing telephone calls.

The FBI, the Justice Department and the Treasury are getting into the act. The G-men want the right to tap your VoIP calls, and the IRS and Treasury are weighing whether a 3% excise tax should be reinterpreted to apply to VoIP services.

You have to hand it to the government. Once it gets a little power, it feels the need to regularly exercise it. But rather than doing all this muscle-flexing, maybe the politicians should install VoIP in government offices that don't need extra-tight security. Imagine the savings!

Oh, but I forgot, it isn't their money anyway. **48040**

MICHAEL GARTENBERG

No Turning Back From Digital Age

I RECENTLY READ a column in which the author lauded the use of paper over digital technology. Paper, he pointed out, was persistent, ubiquitous and never, ever crashed. Digital technology, he argued, was unreliable, so he had replaced his Palm and other digital gadgets with analog versions.

In an age when my cell phone needs to be rebooted on occasion and my car recently needed to go back to the dealer to get a software patch to fix some bugs, I found myself in agreement — for all of about two seconds, that is.

Are there problems with the digital lifestyle? Of course there are.



In the years that I used a typewriter, I never lost as much as a word of text to a system crash. However, rearranging even a small amount of text was a major exercise and often led to retyping entire sections, if I did it at all. It was impossible to outline a draft and then integrate it into the body of the text. There was no spell check or thesaurus integrated directly with the written content.

In the end, the benefits of the digital word processor far outweighed whatever inconveniences it may have caused. Today, the typewriter (whose own introduction caused some to lament the supplanting of the handwritten word) is a rare beast to find in everyday use.

Likewise, the venerable spreadsheet has usurped the ledger book, the desktop publishing program the pasteboard, and the presentation program the 35mm slide show. All offered features and benefits that went well beyond the analog versions, and they were adopted in droves.

The problem today is that few vendors are good at explaining the benefits of new digital technology over analog. Why carry a handheld organizer or a Pocket PC if you're only going to use it for your to-do list, making the digital tool nothing more than a high-tech notepad? There are lots of reasons, but if users don't understand them, they will never adopt the technology.

The same communication issues hold true for those of us deploying new technology to others. We need to carefully explain the benefits of digital over analog and show where the technology not only improves the old experience, but also changes it and adds features that weren't possible before, like the text-rearranging ease offered by the word processor.

The work we do today is no longer accomplished using business-defined technology, where technology assists business functionality. Instead, we're living in an era of technology-defined business, where core functionality is determined by technology innovation.

As recently as 10 years ago, if all the PCs in the world went dark for a day, work would have continued. If all the Internet were unavailable, few would have noticed. All of that has changed. Today, the notion of replacing digital technology with tried-and-true analog systems like paper makes no sense.

Don't get me wrong. I still like paper for lots of things. But for those of you who dislike technology, go back to your quill pens and candles. I'll keep the digital features, even with all of their foibles. **48042**

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READERS' LETTERS

Perplexed by Apple's Secretive Nature

APPLE MADE AN EFFORT to get an Xserve to us for evaluation last year. The problem was that our senior manager for server systems, who personally likes Macs, couldn't get Apple to give him the sort of information about the product's future that HP, IBM or Dell would be willing to give him about their products ["Secrecy Eating at Apple," QuickLink 47741].

Apple had no answers to questions about things like expected product life cycles, expected parts availability and service personnel availability. I remember the manager telling the Apple rep that the vendor needed to go swipe some server bigwig from IBM or HP to go in and teach them how to sell into corporate America.

On the other hand, I have some friends who run a company with 25 employees. They got an evaluation Xserve and just love it.

Bill Pinsak
Senior network engineer, Yellow Book USA, Cedar Rapids, Iowa

I MIGHT BE CONSIDERED a PC/Intel bigot, but after more than 15 years in the industry, I can say that Apple has never been easy to integrate into an existing network.

Some of the problems I've seen include the following:

- Appletalk is too chatty.
- Apple resource forks break when copying/moving files from a Macintosh environment to shared Windows storage.
- Mac users tend to be similar to fly fishermen — egotistical and demanding of the very best hardware. We have Mac users with $2,000 flat-screen monitors because they said they needed them.
- Mac hardware may be cheaper when comparing features to features, but even a 2-GHz Celeron is overkill for the typical office assistant running Microsoft Office.

Because the majority of desktop publishing applications are now available for Windows platforms, I personally no longer see a need to support two types of hardware and operating systems on the corporate desktop.

The financial costs of providing and supporting a LAN/WAN/SAN/NAS infrastructure for Mac and Windows just proves too costly.

James Kunysz
Senior systems engineer, Loveland, Ohio

TRY REPLACING the search string "OS X" with "VMS" and then replacing "Apple" with "HP," and you'll see that what Mark Hall says about Apple and OS X is even more strongly applicable to HP and OpenVMS (except that HP is secretive only about OpenVMS).

A search for "VMS" on *Computerworld*'s Web site yields only 248 hits, even fewer than for "OS X." It would seem that Apple isn't the only one with a problem with secrecy.

Robert Honoré
Port-of-Spain, Trinidad and Tobago

MARK HALL'S "Secrecy Eating at Apple" was an interesting column marred by an egregious mistake. In the print version of the column, Hall referred to Apple's "pretentious address" as "1 Infinity Loop." But the actual address is 1 Infinite Loop. The address is a geeky software engineer's joke. An infinite loop is a type of software bug. The address is more self-deprecating than pretentious.

I don't understand why Apple is described as "pretentious" and "haughty" and Microsoft is described as "irksome." It's not germane to the subject.

Jonathan Dodds
Software engineer, Boston

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICROFORM EDITION



REID HORN

Gets

A materials management application originally developed for a single business unit has taken off like wildfire at the $18 billion defense contractor

Raytheon's MTrak

FIELD REPORT

OBJECTIVE Build a system that provides visibility to all materials, such as resistors, capacitors and customized computer chips, from the time of order through receiving, testing, placement in inventory and final use in a Raytheon product. Make the system accessible to every person in the company using only a Web browser.

CHALLENGES Accommodate complex and unique business processes; find a way to easily integrate data from disparate mainframe sources and make it accessible via the Web.

PAYOFF MTrak has become a single source for supply chain data and has eliminated lost and missing parts and other inventory problems. Cost savings: $8.6 million to date; $26 million projected over four years.

IN THE LATE 1990s, Raytheon Co.'s Network Centric Systems (NCS) business unit in North Texas migrated to a new mainframe system that didn't include a materials tracking program. The result was pure bedlam.

"A lot of stuff got lost, and we had no way to find it other than to go and look for it, and that could be a 15-minute or a 15-day process," says Vince Hrenak, vice president of supply chain at Raytheon. "We used to have multiple people sitting by the phones to take the calls asking where parts were."

NCS formed a cross-functional team to search for a remedy. It evaluated at least a half-dozen software packages as well as proposals solicited from commercial systems integrators before ultimately deciding to develop its own system. McKinney, Texas-based NCS had "a lot of specific business rules wrapped around custom processes," explains Rob Vettor, senior business technologist and chief architect of the new MTrak system.

"What we wanted to gain was the advantage of avoiding software costs plus having a customized solution to our unique business problems," says Gene Feighny, MTrak's lead software engineer.

Now, a little more than two and a half years later, what began as a pilot project at NCS has blossomed into an enterprisewide supply chain application that supports 13 Raytheon sites and serves more than 20,000 users. And with cost savings directly attributed to MTrak totaling $8.6 million, other Raytheon sites are lining up to get MTrak. MTrak will eventually be deployed to 45,000 employees and is expected to cut costs by another $17 million. The $18 billion defense contractor projects total savings of $26 million over four years. "This is a rare victory, in my experience," says Hrenak.

Unlocking the Data

From the start, MTrak's developers had ambitious goals: Build a system that would provide visibility to all materials such as resistors, capacitors and customized computer chips from the time of order through receiving, testing, placement in inventory and final use in a military field radio, handheld motion sensor or some other Raytheon product. The system also had to be accessible

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THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICROFORM EDITION.



Based on Six Sigma principles and methods developed by the Newtown Square, Pa., based Project Management Institute.

A four-member team developed MTrak 1.0 and subsequent versions using a highly iterative process that involved end users at every step.

"We were very careful about always putting out prototypes and working models," Vettor says. "When we had a release, we put it out [to the user community] right away and asked for feedback. I don't think the customer was ever surprised. They were in [illegible] decisions and [illegible]."

MTrak [illegible]

Building the Services

Running MTrak

manufacturing. That process includes recording data about the package, its contents, who handled it, who scanned it and the time and date. That information is uploaded about every 10 to 15 minutes from the scanners and bar code units to two mirrored database servers running SQL Server 2000. Data from wireless scanners is immediately fed into the database.

At high-volume sites, someone does a scan every four seconds and a search every 52 seconds, on average. In addition to package-tracking data, users can access financial and other supply chain data from Raytheon mainframes using the same Web-based desktop, thanks to the WRQ tool and the XML-based Web services that the team built.

"Wherever we created an interface to other systems, such as a warehouse [illegible]

MTrak [illegible]

[illegible]

[illegible] says Tim Wholey, [illegible] student of enterprise supply chain management.

MTrak allows us very precise visibility, which is critical," especially when delivering to the military, says Wholey. "We might have a specific product like a high-end microwave assembly that is being shipped to Afghanistan or Iraq. We need to respond to them so they know when they can expect parts for a system that has failed in the field," he says. "We have people waiting for products and spare parts that their lives depend on."

Next Step: SAP

As usage of MTrak continues to grow, company officials envision it as an ideal, user-friendly bridge to SAP AG's enterprise resource planning software, which Raytheon plans to deploy worldwide beginning in 2006.

"Going forward, we envision MTrak as a way to standardize data across business units and throughout the entire company. We have this common system to grow, and it will ease our transition to SAP," says Lighty.

[illegible]

MTrak [illegible]

"We don't lose track of anymore," says Mark Ward, manager of supply chain logistics. Before MTrak, he says, "a large part of my job used to be having other managers call me and tell me 'You lost this or that.' It's been a year now since anyone has called me to say they can't find material." 47731

to every person in the company via a Web browser. "It was something we were missing and something in which we saw great value," says Feighny.

The team released Version 1.0 after little more than a year. It enabled workers to use bar code scanners to collect data from incoming packages and to create an electronic record of every movement a package made after its arrival at the loading dock. This information was accessible to all employees via the Web.

Next came one of the team's biggest challenges. Much of the additional supply chain data, including quality, testing and financial information that it wanted to present to users at their desktops, was locked away in mainframe applications.

The team first attempted to build a screen-scraping application that would pull out necessary mainframe data when triggered by a Web-based user who entered a purchase order or part number. But the behind-the-scenes process took too long and was too complex.

So the team evaluated three packaged middleware applications to do the same job. "We took our ugliest mainframe screens and asked the vendors to return the mainframe data to a Web page," recalls Vettor.

The first vendor gave up after eight days. The second accomplished the task in four days. The third vendor, Seattle-based WRQ Inc., got the job done in half a day. So Raytheon purchased WRQ's Verastream integration software, which uses database-style queries to access mainframe data and then filter it so that only the requested data elements are returned to the Web page. "It makes calling the mainframe look like a SQL call," Vettor says.

Building the Services

Once mainframe data could be accessed and delivered to the Web-based application, the team began building XML-based Web services using Microsoft Corp.'s .Net tools. These were written after what developers describe as an extremely thorough and painstaking review of the business processes surrounding NCS's supply chain.

"From the very beginning, Rob [Vettor] and I were in the plant, walking from drop zone to drop zone, mapping out the process so we could see how it worked to develop the system," says Michele Ellison, an industrial engineer on the development team.

They used Raytheon's integrated process-development system, a structured systems-development methodology based on Six Sigma principles and methods developed by the Newtown Square, Pa.-based Project Management Institute.



A four-member team developed MTrak 1.0 and subsequent versions using a highly iterative process that involved end users at every step.

"We were very careful about always putting out prototypes and working models," Vettor says. "When we had a screen idea, we put it out [to the user community] right away and asked for feedback. I don't think the customer was ever surprised. They were involved in making the decisions, and they got what they wanted."

MTrak's service-oriented architecture works to keep the system costs low because it guarantees reusability by other applications, says Vettor.

Indeed, one of the main advantages of developing the system in-house was that Raytheon avoided all licensing issues and costs, says Larry Thompson, application software manager. The team opted to develop the software using .Net, he says, "because we had a history with Microsoft development tools. It fit our internal skills base better [than J2EE]."

Running MTrak

Today, NCS employees scan information into MTrak from about 300 incoming packages a day, either using a bar code reader or a workstation in one of the warehouse's drop zones. Raytheon sites in Florida are piloting wireless radio frequency identification tags and scanners, which will provide real-time access to MTrak data. The devices will be deployed companywide by early 2005. A package is scanned each time it makes a stop — for inspection or testing, placement in inventory, or removal from inventory for use by manufacturing. That process includes recording data about the package, its contents, who handled it, who scanned it and the time and date. That information is uploaded about every 10 to 15 minutes from the scanners and bar-code units to two mirrored database servers running SQL Server 2000. Data from wireless scanners is immediately fed into the database.

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"Whenever we created an interface to any other system, such as a warehouse automation system, as a key feed to MTrak, we wanted to build it as a Web service so any other application could use it," explains Feighny. "These are kept on a UDDI server, and any developer within Raytheon will have accessibility to that. In the long run, it will save the company money from a development standpoint because we have one service that can be used by any application — not just MTrak."

In the past month, the system recorded 32,000 scans at NCS alone. "This ability to trace materials means we're better able to control our inventories, and that's a very clear savings," notes Hrenak.

On a broader scale, the visibility MTrak provides to Raytheon users enables the company to offer its customers "a higher level of confidence and commitment," says Tim Wholey, vice president of enterprise supply chain management.

"MTrak allows us very precise visibility, which is critical," especially when delivering to the military, says Wholey. "We might have a specific product like a high-end microwave assembly that is being shipped to Afghanistan or Iraq. We need to respond to them so they know when they can expect parts for a system that has failed in the field," he says. "We have people waiting for products and spare parts that their lives depend on."

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"Going forward, we envision MTrak as a way to standardize data across business units and throughout the entire company. We have this common system to grow, and it will ease our transition to SAP," says Feighny.

"There might also be an opportunity to front-end certain parts of SAP via MTrak," Vettor says. "Sometimes [ERP] software interfaces are rigid, and MTrak could be the way to have a friendly interface going up against SAP."

Raytheon plans to migrate away from DOS- and Windows-based handheld scanning devices in favor of Hewlett-Packard Pocket PCs. In the meantime, there's no question that MTrak has gone above and beyond its initial mission of creating order from chaos.

"We don't lose material anymore," says Mark Ward, manager of supply chain logistics. Before MTrak, he says, "a large part of my job used to be having other managers call me and tell me, 'You lost this or that.' It's been a year now since anyone has called me to say they can't find material." 47731


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BRIEFS

Standpipe Updates Vertabase Pro

Standpipe Studios LLC in Madison Heights, Mich., has upgraded Vertabase Pro, its Web-based project management application. Version 3.6 includes a video-based learning center that provides usage and project management advice, said Standpipe. Pricing starts at $3,000 per year for five power users under an application service provider model. A one-time network-installed server license costs $5,000.

IPass Bolsters Security Platform

Redwood Shores, Calif.-based IPass Inc. introduced IPass Policy Orchestration, a new software layer built into the IPass connectivity platform. The software helps control and enforce use of policy-based security systems. Policy Orchestration services will be available in the fourth quarter.

Etnus Upgrades Linux Debugger

Etnus LLC in Natick, Mass., has launched TotalView 6.5, the latest version of its code debugger application, which includes fully integrated memory debugging. The new version is available now and starts at $750 for one CPU and one user. It includes support for the Intel Fortran Compiler for Linux Version 8 and other compilers, including PGI C and C++ 5.1 and SUSE Linux Professional 9.

V-Span Launches Video Service

V-Span Inc. in Philadelphia this week announced its Videoconferencing Network Management Services for managing video equipment and networks for videoconferencing. The service includes remote equipment monitoring over a virtual private network and monitoring of video bridges. It's available now and is priced at $75 per device per month.

CURT A. MONASH

The Real Risks

WE LIVE IN AN AGE of terror and often indiscriminate fear. Policymakers and the media alike scream about weapons of mass destruction, lumping together nuclear weapons that can level cities, bioweapons that could exterminate the human race and chemical weapons that are little more than glorified World War I technology.



Pronouncements about information security threats can be equally misleading. Some attacks could destroy your company, but others are no more than a nuisance. So let's step back, consider the classes of security threats and see what kinds of safeguards make sense.

System sabotage, such as viruses, spam and denial-of-service attacks.

Likelihood: Very high.

Harm potential: Often overstated, based on the dubious theory that business interrupted is permanently lost.

Appropriate safeguards: Firewalls, intrusion-protection systems, virtual private networks (VPN), antivirus and antispam software and good security procedures.

Physical security of technical processes, such as hacking the electric power grid or shutting down a steel plant.

Likelihood: Very low.

Harm potential: Very high.

Appropriate safeguards: Keep your process-control systems as isolated as possible from your general network. Stay vigilant about rogue access points on the process-control network.

National security espionage, such as stealing weapon designs.

Likelihood: Low

Harm potential: Huge — people could get killed or you could lose your clearance and go out of business.

Appropriate safeguards: If you're in the government or the defense industry, follow security rules without cutting corners. Also monitor your systems for unusual patterns of data access.

Transactional fraud, such as bogus banking transactions.

Likelihood: Low to moderate.

Harm potential: Enormous in banking, moderate in other cases.

Appropriate safeguards: Protect your core transactional databases with defense-in-depth security. Exploit your database management system's (DBMS) security and auditing features. But don't inconvenience your customers too badly.

Intellectual property theft of things such as product designs or customer lists.

Likelihood: Greatly exaggerated — it's simpler just to hire away workers.

Harm potential: Greatly exaggerated — the courts offer good remedies.

Appropriate safeguards: Basic security. And don't alienate employees.

Internet misuse, such as porn, instant messaging with friends, or illegal or offensive outgoing e-mail.

Likelihood: Very high.

Harm potential: Low, except that people can waste a lot of time online.

Appropriate safeguards: Employee Internet management filters set to monitor, not block.

Customer data exposure, such as stolen credit card numbers.

Likelihood: Low to moderate.

Harm potential: High and somewhat underappreciated.

Appropriate safeguards: Protect your customers' data at least as well as you guard your own. If you have significant customer data in documents floating around your network, get them into a DBMS-based content management system and secure it as tightly as you protect transactional data.

This last category is a tricky one. Loss of private information rarely causes much real harm. On the other hand, laws and regulations mandate data privacy, especially outside the U.S. And any leak of customers' data is a public relations disaster. So, notwithstanding the absence of significant danger, you have to keep your customers' data extremely secure.

Some security threats are overhyped, and some security "solutions" don't solve any genuine problems. But it's definitely necessary for every enterprise to have a solid security infrastructure. The minimum prudent security for most organizations should include the following:

- Firewall/intrusion-protection appliances at every access point, with VPN support and strong network segmentation.
- Effective antivirus and antispam systems.
- DBMS-based security for both transactional and document data.
- Extra rings of protection for critical databases.
- Integrated identity management (a relational or LDAP virtual integrated identity database can suffice).
- Archives and audit trails for all important documents and data.
- Physical access control to security appliances and critical databases.
- Sane password policies. (Smart cards are another good option.)
- Systems and policies for maintaining and verifying general client, server and network system health.

No security strategy is going to be perfect, but you've always got to start with a realistic assessment of the threats your company faces. **48147**

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CONFERENCE AT-A-GLANCE (subject to change)

For details, updates, and to register visit **www.biperspectives.com/cw**

MONDAY, SEPTEMBER 27

10:00am - 8:00pm	Registration Open
Noon - 5:00pm	Pre-Conference Golf Outing
1:00pm - 5:00pm	Concurrent Analyst Sessions
7:00pm - 9:00pm	Welcome Reception

TUESDAY, SEPTEMBER 28

7:00am - 8:00pm	Registration Open
7:00am - 8:00am	Buffet Breakfast
8:00am - 11:00am	Opening Presentation and General Sessions



Keynote Speaker
Andreas S. Weigend, Ph.D
former Chief Scientist, Amazon.com, and Professor, Stanford University

11:00am - 12:10pm	Concurrent End User Case Studies
12:15pm - 1:30pm	Networking Luncheon
1:30pm - 5:15pm	General Sessions
5:30pm - 8:30pm	Expo with Dinner

WEDNESDAY, SEPTEMBER 29

7:00am - 6:00pm	Registration Open
7:00am - 8:00am	Breakfast
8:00am - 11:00am	Opening Presentation and General Sessions
11:00am - 12:10pm	Concurrent End User Case Studies
12:15pm - 2:00pm	Expo with Lunch
2:00pm - 5:30pm	General Sessions
6:00pm - 8:00pm	Gala Evening



The Palm Course
The JW Marriott
Desert Springs Resort

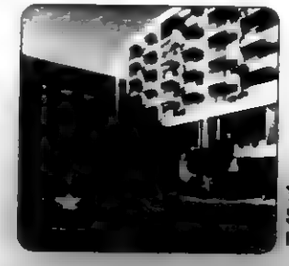
Pre-Conference Golf Outing

Monday, September 27, Noon

Complimentary for Registered IT End-Users

The Pre-Conference Golf Outing at The Palm Course, located at the JW Marriott Desert Springs Resort, is complimentary ($85 value) for registered IT End-Users. (Other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses.)

For details: contact Chris Leger at **1-508-820-8277**



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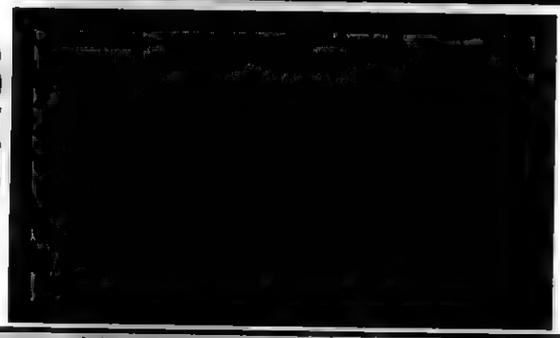
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September 27-29, 2004
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Please check ONE of the following:	Early-bird Registration (through July 26, 2004)	Pre-Conference Registration (after July 26 through August 16, 2004)	Full/Onsite Registration (after August 16, 2004)
❑ I am an IT End-User*	❑ $995 General Conference Package (Includes General Conference Sessions, Expo, Meals & Receptions)	❑ $1295 General Conference Package (Includes General Conference Sessions, Expo, Meals & Receptions)	❑ $1495 General Conference Package (Includes General Conference Sessions, Expo, Meals & Receptions)
❑ My company is Sponsoring Business Intelligence Perspectives	❑ $995 (through July 26, 2004) General Conference Package (Includes General Conference Sessions, Expo, Meals & Receptions)	❑ $1295 (after July 26 through August 16, 2004) General Conference Package (Includes General Conference Sessions, Expo, Meals & Receptions)	❑ $1495 (after August 16, 2004) General Conference Package (Includes General Conference Sessions, Expo, Meals & Receptions)
❑ I am a Financial/Equity Analyst and/or Venture Capital Professional	❑ $995 (through July 26, 2004) General Conference Package (Includes General Conference Sessions, Expo, Meals & Receptions)	❑ $1295 (after July 26 through August 16, 2004) General Conference Package (Includes General Conference Sessions, Expo, Meals & Receptions)	❑ $1495 (after August 16, 2004) General Conference Package (Includes General Conference Sessions, Expo, Meals & Receptions)

* IT End-Users are defined as those who are attending Business Intelligence Perspectives with an intent (and an IT spending budget) to potentially buy/lease hardware/software/services, etc. from our conference sponsors and are not themselves an IT vendor. As such, account representatives, business development personnel, analysts, consultants and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Interpretation and enforcement of this policy are at the sole discretion of Computerworld.

Attendee Profile: This section must be completed by IT End-Users only (optional for all other registrations) in order to process your application.

Your business/industry:
- ❑ Transportation / Utilities
- ❑ Mining / Oil / Gas
- ❑ Non-Profit / Trade Association
- ❑ Media / Publishing
- ❑ Banking
- ❑ Finance
- ❑ Accounting
- ❑ Insurance
- ❑ Real Estate
- ❑ Telecommunications
- ❑ Wholesale / Retail (non-computer)
- ❑ Computer System Provider
- ❑ Advertising / Marketing / Public Relations
- ❑ Entertainment
- ❑ Education
- ❑ Pharmaceutical
- ❑ Government / Military
- ❑ Healthcare / Medical Services
- ❑ Travel / Hospitality / Recreation
- ❑ Manufacturing (non-IT)
- ❑ Automobile
- ❑ Computer, Communications or Peripheral Equipment or Software Manufacturing
- ❑ Agriculture / Forestry / Fisheries
- ❑ Other

Your job title/function:
- ❑ CEO/COO/Chairman/President
- ❑ CIO/CTO
- ❑ VP/Dir/Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Corporate/Business Staff
- ❑ Other Corporate/Business Manager
- ❑ Consultant (internal) or Other

The one item that best describes your involvement in the IT purchase process:
- ❑ Authorize the purchase
- ❑ Approve the budget
- ❑ Initiate the purchase
- ❑ Evaluate / recommend products, brands, vendors
- ❑ Identify / establish the need to purchase
- ❑ All of the above

Number of employees in your entire organization (ALL locations):
- ❑ Over 10,000
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ Less than 500

What is the estimated annual revenue of your entire organization?:
- ❑ Over $10 Billion
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ Less than $100 Million

Your organization's annual IT/IS budget for all IT/IS products:
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

What is your organization's primary vendor for ERM/BI management solutions?:
- ❑ SAS
- ❑ Cognos
- ❑ Business Objects
- ❑ Oracle
- ❑ Hyperion
- ❑ SAP
- ❑ PeopleSoft
- ❑ MicroStrategy
- ❑ Siebel
- ❑ Informatica
- ❑ Microsoft
- ❑ Information Builders
- ❑ Other

What is your organization's most mission-critical project within ERM/BI management this year?:
- ❑ Creating the vision and strategy; Analyzing ROI
- ❑ Planning, designing, building the BI infrastructure
- ❑ Building / managing the operational information stores
- ❑ Packaged and operating BI, ERP, CRM, SCM, eCommerce
- ❑ Data visualization, production and presentation
- ❑ Managing / re-licensing BI applications and infrastructure

* IT End-Users, would you like to receive information about playing in the golf outing on Monday, September 27th? ❑ Yes ❑ No

As a sponsor, you may be eligible to attend using a registration provided with your sponsorship. (If those registrations have already been assigned/used, then you may register at the prevailing rates above.) See the current list of sponsors at www.bipersectives.com. Questions? Call 1-800-883-9090 or email bipreg@computerworld.com.

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Vendors are encouraged to participate in Business Intelligence Perspectives through sponsorship. (Details are available by calling Leo Leger at 508-820-8282.) Alternatively, vendors (as well as other "non-IT end-user" professionals as defined by Computerworld), may apply for registration at the "non-sponsoring vendor" rate of $5,000. Determination of what constitutes a "non-sponsoring vendor" registration is made exclusively by Computerworld. Please call 800-883-9090 with questions.

❑ **I am a qualified member of the press.** I can verify my press credentials.
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In the event of cancellation, the registrant has three options:
1) He or she may substitute another attendee for this conference.
2) He or she may transfer this registration to the Business Intelligence Perspectives 2005 conference.
3) The registration fee will be refunded, less a $250 service charge (if written notice is received by September 3, 2004).

Please send cancellation requests via email to: bipreg@computerworld.com



MARIA RENDON

Protecting THE Data Jewels

There are techniques to keep the list of your best customers from walking out the door. BY BOB VIOLINO

IN THE CASINO INDUSTRY, one of the most valuable assets is the dossier that casinos keep on their affluent customers, the high rollers. But last year, casino operator Harrah's Entertainment Inc. filed a lawsuit in Placer County, Calif., Superior Court charging that a former employee had copied the records of up to 450 wealthy customers before leaving the company to work at competitor Thunder Valley Casino in Lincoln, Calif.

The complaint said the employee was seen printing the list — which included names, contact information and credit and account histories — from a Harrah's database. It also alleged that he tried to lure those players to Thunder Valley. The employee denies the charge of stealing Harrah's trade secrets, and the case is still pending, but many similar cases have been filed in the past 20 years, legal experts say.

While savvy companies are using

business intelligence and CRM systems to identify their most profitable customers, there's a genuine danger of that information falling into the wrong hands. Broader access to those applications and the trend toward employees switching jobs more frequently have made protecting customer lists an even greater priority.

Fortunately, there are managerial, legal and technological steps you can take to help prevent, or at least discourage, departing employees from walking out the door with this vital information.

Legal Steps

For starters, organizations should make sure that certain employees, particularly those with frequent access to customer information, sign nondisclosure, noncompete and nonsolicitation agreements that specifically mention customer lists. Through these documents, employees "acknowledge that they will be introduced to this information and agree not to disclose it on departure from the company," says Suzanne Labrit, a partner at law firm Shutts & Bowen LLP in West Palm Beach, Fla.

Although most states have enacted trade-secrets laws, Labrit says they have different attitudes about enforcing these laws with regard to customer lists. "But as a starting point, at least you have this understanding [with employees] that the customer information is being treated as confidential," Labrit says. Then, if an employee leaves to work for a competitor and uses this protected customer data, the employer will more likely be able to take legal action to stop the activity. "If you don't treat it as confidential information internally," she says, "the court will not treat it as confidential information, either."

It's also important to educate employees about the confidentiality of customer lists because many people wrongly assume they're public information, says Tim Headley, a partner at the Houston law firm of Gardere Wynne Sewell LLP. "Most people think they can take the lists with them," he says. "You have to show that you've kept it a secret and told employees it's a valuable secret. [Customer lists] are at the core of how you bring revenue into the company. These are the decision-makers who are willing to buy your product."

Headley recommends that managers inform employees about court cases involving stolen customer lists and occasionally warn them that the company will prosecute anyone who steals trade secrets. "Companies should have periodic lunchroom meetings just to remind people" about trade-secret policies, Headley says.

ANY WHICH WAY

Customer lists could leak out in a printout or e-mail message, on a diskette or memory stick, or even in an employee's own memory. Washington state's Supreme Court ruled that a customer list that was memorized by departing employees could be considered a trade secret (Nowogroski v. Rucker, 1999).

If a company suspects that an ex-employee who signed a nondisclosure agreement has given its customer data to a competitor, Labrit recommends taking quick action. That includes obtaining a temporary restraining order to prevent the employee from using the information. The main reason is for the employer to get relief, she says, but the move also sends a message to other employees that the activity won't be tolerated. "If you don't do it, the next time someone gets ready to go, they'll think they can get away with it," Labrit says.

Management Moves

From a management and process standpoint, organizations should try to limit access to customer lists to only employees, such as sales representatives, who need the information to do their jobs. "If you make it broadly available to employees, then it's not considered confidential," says Labrit.

Physical security should also be considered, Labrit says. Visitors such as vendors shouldn't be permitted to roam free in the hallways or into conference rooms. And security policies, such as a requirement that all computer systems have strong password protection, should be strictly enforced.

Companies should instantly shut down access to computers and networks when employees leave, whether the reason is a layoff or a move to a new job. At the exit interview, the employee should be reminded of any signed agreements and corporate policies regarding customer lists and other confidential information. Employees should be told to turn over anything, including data, that belongs to the company.

In addition, employers should track the activities of employees who've given notice but will be around for a few weeks. This includes monitoring systems to see if the employee is e-mailing company-owned documents outside the company.

Some organizations rely on technology to help prevent the loss of customer lists and other critical data. Inflow Inc., a Denver-based provider of managed Web hosting services, uses a product from Opsware Inc. in Sunnyvale, Calif., that lets managers control access to specific systems, such as databases, from a central location.

The company also uses an e-mail-scanning service that allows it to analyze messages that it suspects might contain proprietary files, says Lenny Monsour, general manager of application hosting and management. Inflow combines the use of this technology with practices such as monitoring employees who have access to data considered vital to the company.

A major financial services provider is using a firewall from San Francisco-based Vontu Inc. that monitors outbound e-mail, Webmail, Web posts and instant messages to ensure that no confidential data leaves the company. The software includes search algorithms and can be customized to automatically detect specific types of data such as lists on a spreadsheet or even something as granular as a customer's Social Security number. The firm began using the product after it went through layoffs in 2000 and 2001.

"Losing customer information was a primary concern of ours," says the firm's chief information security officer, who asked to not be identified. "We were concerned about people leaving and sending e-mail to their home accounts." In fact, he says, before using the firewall, the company had trouble with departing employees taking intellectual property and using it in their new jobs at rival firms, which sometimes led to lawsuits.

Beyond its desire to protect competitive information, the financial services firm is bound by federal regulations to safeguard the integrity of certain types of information. "We're constantly [looking] for things that could be violating laws," the executive says. Still, he says, the firewall isn't a cure-all. The firm also uses noncompete and nondisclosure agreements as deterrents to stealing information.

Rising Risk

Vijay Sonty, chief technology officer at advertising firm Foote Cone & Belding Worldwide in New York, says losing customer information to competitors is a growing concern, particularly in industries where companies go after many of the same clients.

"We have a lot of account executives who are very close to the clients and have access to client lists," Sonty says. "If an account executive leaves to join a competitor, he can take all this confidential information." The widespread sharing of corporate data, such as customer contact information, has made it easier for people to do their jobs, but it has also increased the risk of losing confidential data, Sonty says.

He says the firm, which mandates that some employees sign noncompete agreements, is looking into policies and guidelines regarding the proper use of customer information, as well as audit trails to see who's accessing customer lists. "I think it makes good business sense to take precautions and steps to prevent this from happening," Sonty says. "We could lose a lot of money if key people leave." 47821

GRAY AREAS

Customer lists are a hotly contested area of trade-secret law, in part because emotions run high when an employee leaves to start a competing business and tries to steal the ex-employer's customers.

But that's not necessarily illegal, legal experts say, because customer lists aren't automatically considered a trade secret. Courts generally look at the following factors in determining whether a customer list is a trade secret:

- **Is it really secret?** It's not a trade secret unless you've taken reasonable steps to keep it secret, such as marking it "confidential" and keeping it in a locked facility or in a password-protected computer system with access controlled on a need-to-know basis.
- **Is it really valuable?** It's not a trade secret if you can easily collect the information from the telephone book or publicly available sources. The more effort or money the owner spends to develop the information – and the more that information provides a competitive advantage – the more likely it will be considered a trade secret.

So, a report identifying the company's most profitable customers – extracted from a well-secured CRM system and marked "confidential" – has a good chance of qualifying as a trade secret, legal experts say.

– *Mitch Betts*

Violino is a freelance writer in Massapequa Park, N.Y. Contact him at bviolino@optonline.net.

SECURING BUSINESS INTELLIGENCE

Today's business intelligence tools are raising the risk of exposing private information

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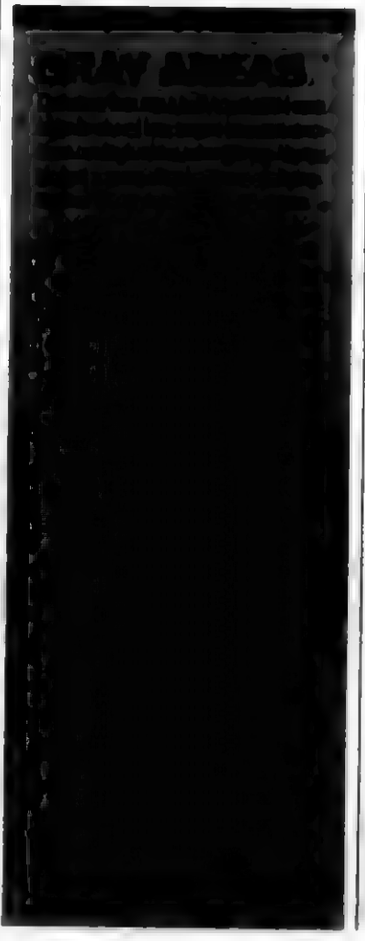
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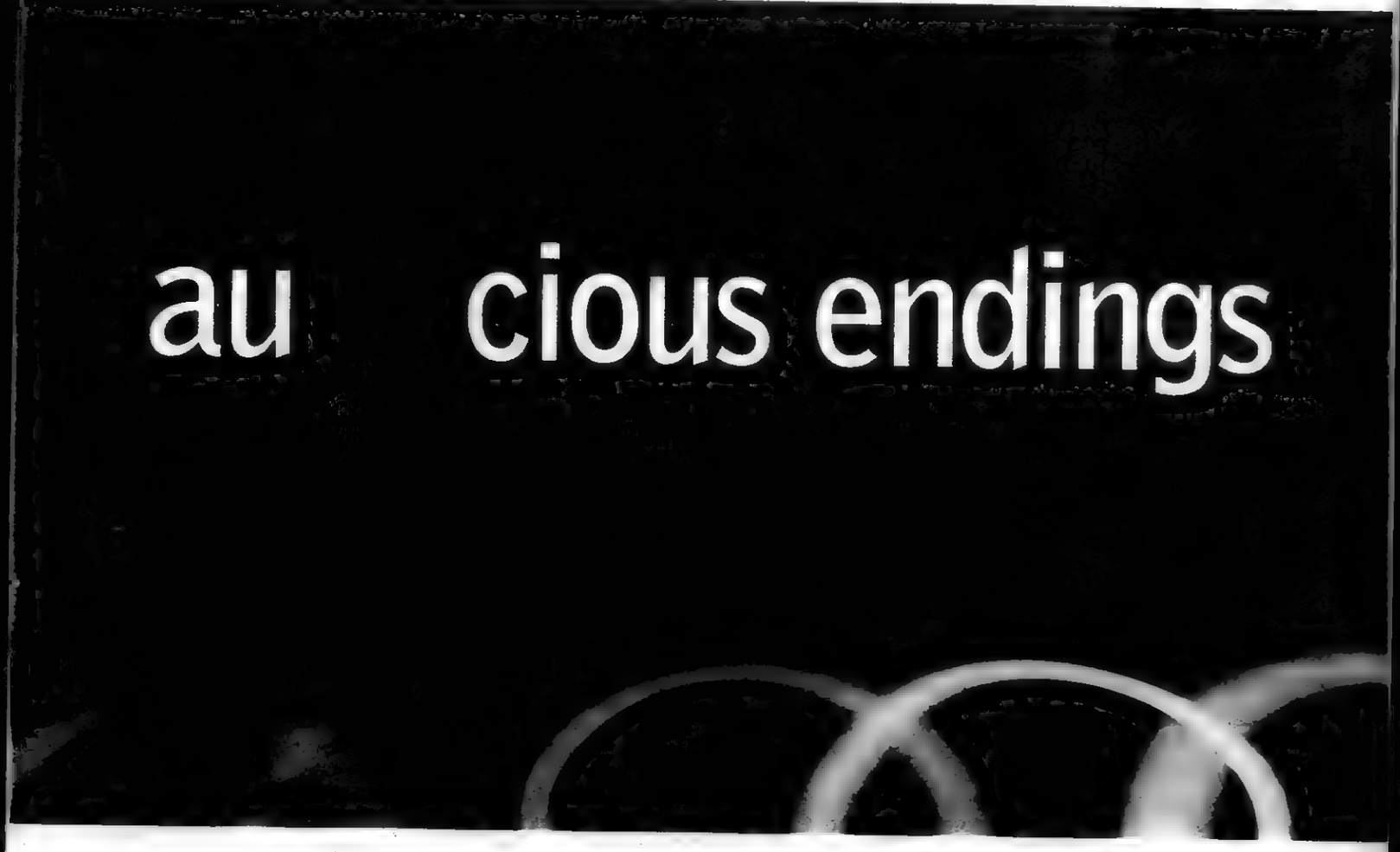
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The Legal and Regulatory Compliance in Information Management Forum includes topics such as information lifecycle management, records management, building compliant IT systems, managing records in highly regulated industries and best practices in electronic record retention and access. **More information:** *www.idc.com/kahnconsulting/compliance04*

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■ **Sept. 28-29, Minneapolis**
Sponsor: Institute for International Research

Conference focuses on trends in innovation. Topics include innovation process, structure and tools; outsourcing for innovation; people issues; capturing value from technology; and case studies. **More information:** *www.iirusa.com/convergence*

IT Value Fall Conference

■ **Sept. 28-29, San Francisco**
Sponsor: CFO Executive Programs

Conference explores the CFO/CIO partnership and factors that drive success. Topics include IT planning for sustainable compliance and sound governance, corporate performance management, assessing complex IT spending initiatives and IT security risk management, trends in business forecasting and outsourcing. **More information:** *www.cfoenterprises.com/theitv2004/*

BARBARA GOMOLSKI

The Sickly IT Recovery

HERE'S AN ALL-TOO-FAMILIAR scenario: The CIO, who cut 10% of the annual IT budget last year, meets with the CFO and the CEO to do early budget planning. The executives look at the current IT budget and announce that further IT cuts may be in order. "Based on what?" the CIO dares to ask. Based on an arbitrary feeling on the part of the other top executives that further reducing IT spending will have no negative impact on the company.



Welcome to the IT recovery. In case you hadn't noticed, this so-called IT recovery looks a lot like the IT recession of the past few years. How can that be? The stock market is improving, corporate earnings are up, and jobs are being created. After two years of technology cutbacks, shouldn't IT be in the money?

Make no mistake; things are better than they were just six months ago in the IT sector. The pickup in the technology industry is evidenced in the improved performance of stalwarts like Intel, Oracle and HP. (It's still a tough road for smaller players, as organizations seem increasingly uninterested in dealing with more than a short list of key suppliers.)

Indeed, many IT executives will actually see incremental (3% to 5%) increases in their budgets in the next year. However, the IT hangover that many firms experienced earlier this decade has left a lasting impression on those who control the IT purse strings. The result: IT executives are not going to get enough money to purchase all the much-needed infrastructure upgrades or to make all the desired application investments. Instead, tight-fisted top executives will continue to watch every dollar, and justifying an IT investment will feel like rolling a large rock uphill.

I'm troubled by what appears to be a growing drumbeat among non-IT executives that keeping IT investments at bay won't hurt the organization. (These are the same execs, by the way, who were dumping heaps of money into e-businesses a few years ago, throwing caution to the wind.)

What can we do about this? A few things would help:

■ We need to face this IT credibility gap head-on. Instead of continuing to plug away and hope that the business sees how IT contributes, we need to talk about the value contribution of IT on a regular basis. This means having a structured set of operational and business metrics that everyone agrees capture the essence of IT value.

■ We need to recognize that, to a large extent, the day-to-day operations of IT have become a utility. Stop looking to these areas as a means to justify further IT investment. Ensure that your IT organization is a high-quality, low-cost utility provider, either through insourcing or outsourcing. Focus the bulk of your energies on the areas where IT can have the most impact on the business: applications and innovation.

■ We need some innovation in the industry. We need the next big thing — the must-have technology that will once again bring great enthusiasm for IT. There's not much that consumers of IT or businesses can do to propel this. As IT leaders, we must keep providing vendors with the feedback they need to make innovative products and services. Also, keep IT innovation alive in your own organization, because many IT innovations are born in unlikely places.

As for the future of IT, those who say it's just a utility may be underestimating the power of IT innovations to disrupt the way we live and work. Maybe I'm optimistic because I'm old enough to remember working in a world where there was no World Wide Web and where most people actually looked things up in big books instead of on the Internet. Maybe that's why I don't believe we'll really get out of the IT slump until the industry delivers the next wave of innovation.

But I have confidence that the innovators of the IT industry aren't going to sit back and say, "Well, we've conquered business with IT; shall we go pursue a career in biotech?" I believe that IT innovations will come along — innovations that we can't even imagine. **47796**

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You Go First
Many CIOs like to stay a version or two behind their vendor's latest e-mail offering, waiting until the ROI for an upgrade is clear. **PAGE 40**



Suite Dilemmas
Big companies like the simplicity and integration of collaboration suites. At Minnesota Life Insurance, CIO Jean Delaney Nelson (left) says standardizing on Notes improved the quality of communications. **PAGE 36**

OPINION
The End of E-mail
Can't live without e-mail? Columnist Mark Hall thinks you can — and will — in the near future, when it becomes more trouble than it's worth. **PAGE 44**

IT managers face choices about collaboration suites and when to upgrade e-mail systems.



Big Decisions

WILLIAM RIEKER

SPECIAL REPORT

EDITOR'S NOTE

IT WAS AN EXCITING TIME when I got my MCI Mail account more than 10 years ago. But today, provocative headlines say that e-mail is dead or dying thanks to the dual curses of viruses and spam [QuickLink 44143]. They've certainly caused big productivity hits and made e-mail a lot less fun. My colleague Mark Hall cleverly makes that case, too (see page 44).

But there's another school of thought that says e-mail is a mission-critical business tool — one so vital that big businesses will hardly even consider outsourcing their e-mail systems because they couldn't bear losing control (see page 38). Looked at this way, e-mail isn't dying at all, despite the annoyances. In disaster recovery situations, some users say e-mail is the first system they want restored! And the 20% of e-mail that isn't spam can be darn important — just ask an IT administrator dealing with false positives caught in the spam filter.

I suspect the future lies somewhere in the middle. E-mail's role is receding into the background; it's becoming just another element of broader collaboration suites, alongside instant messaging and Web conferencing. Eventually e-mail will show up in a desktop "activity center," mixed in with digital voice mail, chat, documents and collaboration screens, all organized by whatever project you're working on. And Google-like search engines will mine e-mail archives, where a lot of institutional memory resides.

In that case, e-mail will be a still-vital yet unexciting ingredient in the electronic soup. **47901**

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STEVE WOJCIECHA

Many big companies like the simplicity and integration of collaboration suites, though they get some less-than-ideal components. By Bob Violino

Suite Dilemmas

MESSAGING SOFTWARE has become so critical that it's hard to imagine businesses functioning without it. Online collaboration products have also become vital. The question is, should you buy a messaging/collaboration suite from one vendor or purchase individual products for e-mail and collaboration from several?

There are pros and cons to both strategies, industry analysts and IT managers say. But more organizations seem to be choosing the suite option. For most software implementations, there's typically a 50-50 split between companies that buy best-of-breed applications and those that purchase all-in-one suites. But for messaging and collaboration applications, it's more like 70% to 80% favoring suites, says Nate Root, an analyst at Forrester Research Inc.

The suite preference can be largely attributed to the market's growth. The biggest players, IBM and Microsoft Corp., now account for about two-thirds of product sales, and customers feel comfortable enough with the vendors and their products to fork over what can amount to hundreds of thousands of dollars.

Another big selling point is that everything is already integrated. Individual products might not work well together and often need custom coding for integration. "Some of the most important features today are identity management, corporate directories and security policies," Root says. "It's becoming increasingly important that you get those services from a central platform, where everything is woven for you." Such a platform can help ensure that only authorized users have access to applications such as e-mail and instant messaging.

Minnesota Life Insurance Co. had been operating a dual environment of Lotus Notes and Microsoft Exchange until about four years ago, when the St. Paul-based company decided to standardize on Notes for e-mail and collaboration, says Jean Delaney Nelson, vice president and CIO.

But the transition from Exchange wasn't without hardships, she says. Many employees had grown accustomed to using one system or the other, and some Exchange users were hesitant to make the switch, says Nelson.

"We couldn't build a consensus [among end users] on which way to go, so we had some resistance," she says.

A Way to Simplify

One of the biggest deciding factors for Minnesota Life was the need to make e-mail records retention easier, a concern related to compliance with regulations such as the Health Insurance Portability and Accountability Act. There are just three major vendors that work well with more than one e-mail system, but a company standardizing on one platform has many more vendor choices. And archiving from two platforms also has the potential to drive up overall costs, says Nelson.

Minnesota Life also needed a standardized messaging system that could improve the quality of communications. Prior to the switch, different divisions used different e-mail systems. "There wasn't always a clean exchange of messages," she says. "Now we're all on the same platform, and we can ensure that messages are going through in an understandable format."

It's now easier to collaborate on business projects by sharing information on databases, Nelson adds. "We use [the software] extensively for projects and collaborative purchases," she says. Before the switch, the insurer couldn't use its e-mail systems to share information in cross-division projects such as product development and product-line acquisitions from other companies.

Minnesota Life has also found the

single-platform approach to be more cost-effective. It now relies on just one group for support, rather than a different support staff for each environment. The company, which has 2,600 Notes users, is saving about $1 million a year by standardizing on one e-mail system, Nelson says. Cost reductions stem from support staff savings, decreased downtime and other factors, she says.

Single Point of Contact

About a year and a half ago, Temple University in Philadelphia consolidated all of its e-mail messaging hardware and software, says Timothy O'Rourke, vice president for computer and information services. The university had been operating 11 e-mail systems, including a Unix-based application, Exchange and Novell Inc.'s GroupWise. E-mail systems varied among the schools within the university system and administrative offices.

When O'Rourke took his current position at Temple in September 2002, the university was looking for yet another e-mail system. He says he wanted to invest in a single system that would provide central management of all e-mail, spam filtering, shared calendaring and collaboration for the entire organization.

Temple opted for a messaging platform from Mirapoint Inc. that included all of those components. Among the major benefits is improved reliability, O'Rourke says. "In the past, the biggest complaint was that e-mail was always down or messages were not going through," he says. The new platform has addressed those problems.

Like Minnesota Life, Temple has realized cost savings from more efficient support, including reallocating three full-time support people. Whenever a problem crops up with e-mail or other components, the university now deals with one vendor rather than several.

But there are drawbacks to the suite approach, O'Rourke acknowledges. Some of the functions, such as collaboration and shared calendaring, aren't as robust as they might be with products devoted to those functions. But the vast majority of Temple's 45,000 users need only messaging and simple calendar capabilities, O'Rourke says. The suite "doesn't meet all the needs of everyone," he adds. "It's an outstanding messaging system but needs [work] on the groupware side."

Suites provide adequate components, but not the best ones available, agrees Root. "As with any all-encompassing suite, you pay a lot of money upfront for a lot of very good but not best-of-breed services," he says.

For example, Root says, some of the instant messaging features built into suites don't match stand-alone IM products in performance, especially for messaging outside the enterprise firewall that involves multiple IM clients. "Big suites tend to be very loyal to their own brand and ignore the fact that other companies have different IM software," he says.

Eric Goldfarb, CIO at financial services firm PRG-Schultz International Inc., has used both approaches and sees the advantages of each. At the Atlanta-based financial services firm, which has 3,200 employees, a suite makes more sense because it's more scalable and cost-effective for large organizations. PRG uses Lotus Notes as its standard for messaging and collaboration.

But the multivendor strategy can make more sense for smaller and midsize companies, Goldfarb says. When he was CIO at Global Knowledge Inc., an IT education and training firm with 1,500 employees, the Cary, N.C.-based company used a combination of Exchange for e-mail and products from multiple vendors for functions such as calendaring and document sharing.

"We cobbled together a set of packages to achieve this overall collaborative workspace, and it worked well," Goldfarb says. Because the components were focused on specific tasks, they provided greater functionality than was available from suite products, he says. For example, a document management product from an independent vendor can provide a finer degree of detail for records management than a suite can.

However, Goldfarb adds, the multivendor approach would be more costly for a larger organization.

Root agrees that buying individual applications might be the best option for small and midsize companies. "Smaller companies don't need most of the whiz-bang features of the big platforms," he says. "Many don't use online group scheduling and calendaring, and they're perfectly happy using public instant messaging services and e-mail that's built into Linux or another open-source platform." 42576

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Product Roundup

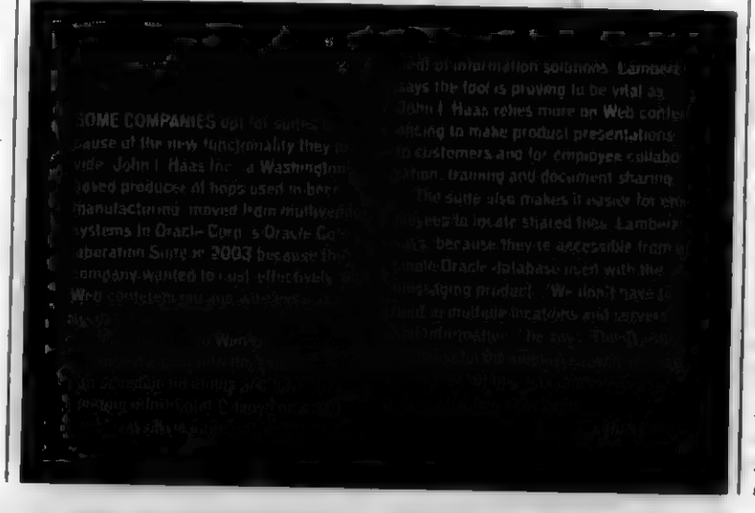
Here's a look at the messaging/collaboration software packages from leading vendors, based on product evaluations by Forrester Research Inc. in March 2004:

■ **IBM Lotus Notes and Domino 6.5.1.** The latest Lotus collaboration platform provides integrated groupware, Web conferencing, instant messaging and document management. The software also includes IBM Lotus Team Workplace, which provides both Web and Notes interfaces to specialized team collaboration databases that support document sharing, threaded discussions and workflow. IBM Lotus Domino Document Management supports more advanced features such as check-in/checkout and version control. The minimum license cost for a single-CPU deployment supporting 10 users is $6,224, including a per-user variable cost of $276. The cost for 1,000 users and 10 CPUs is $300,000.

■ **Microsoft Corp.'s Windows Server System and Office System 2003.** Major components include Exchange Server 2003 for enterprise e-mail, scheduling and task management; Live Communications Server 2003 and Windows Messenger for enterprise instant messaging; Microsoft Office Live Meeting for Web conferencing, application sharing and chat; and Microsoft Office SharePoint Portal Server 2003 for community-based collaboration, document management and sharing, and threaded discussions. Client Outlook provides an online and off-line interface to e-mail, scheduling and tasks. The minimum license cost is $28,350 for a single-server architecture supporting 10 users for one year. Deployment on fault-tolerant servers for 100 users costs more than $100,000.

■ **Novell's GroupWise 6.5.** Provides e-mail and scheduling capabilities, including sophisticated message filtering and online access and an instant messaging component called Novell GroupWise Messenger. Other components include basic document management from within the e-mail and scheduling client; community collaboration capabilities; and Novell Virtual Office, which provides browser-based collaboration tools such as document sharing, threaded discussions and delegated administration. A client notification program called GroupWise Notify monitors incoming e-mail and calendar events. The product costs $121,127, including a single-user license of GroupWise 6.5, one Novell eDirectory 8.7.3 user license, one Novell exteNd Enterprise Suite CPU license and five user licenses of Novell NetWare 6.5.

■ **Oracle Corp.'s Collaboration Suite Release 2.** Provides basic enterprise e-mail features through a built-in Web interface, Web conferencing, voice and fax integration, and basic groupware features, but not instant messaging. The product lacks an e-mail client, so most customers use Microsoft Outlook as a front end. OCS runs on the Oracle 9i Application Server, which includes the Oracle 9iAS Portal. The portal includes features such as document sharing, delegated administration and polling. Oracle Web Conferencing integrates with Collaboration Suite to provide Web conferencing capabilities, including application sharing, whiteboarding, presentation multicasting, polling and integrated chat. The suite costs $69 per user.





WILLIAM RIEBEN

Keeping a Tight Grip

The market for hosted e-mail hasn't taken off like the industry expected. Many IT managers say e-mail is simply too business-critical to turn over to an outsourcer. By Todd R. Weiss

YOU MAY BE WONDERING if your company can benefit by outsourcing its messaging. For most organizations, it all comes down to how vital e-mail is to their daily operations.

"We have [news and information] content we pass around the globe," says Aggie Cutrone, senior director of desktop operations and messaging at New York-based magazine publisher Time Inc. "It's all rapid-fire. There are dozens of magazines, all different deadlines and all different product cycles. There are reporters all over the world literally every day."

Cutrone says Time hasn't considered moving e-mail to an outside vendor because it is so crucial to its operations and 14,000 worldwide e-mail account users. To ensure that e-mail is always available, the company continues to operate those critical systems on its own, says Cutrone.

That's not unusual. In fact, customers haven't embraced e-mail outsourcing over the past few years as vendors hoped they would, says Robert Mahowald, an analyst at IDC. Customers tend to outsource their whole collaboration applications, including e-mail as a component, rather than outsourcing e-mail as a standalone application. For some customers, hosted e-mail alone "didn't make sense from a privacy, management and security standpoint," he says.

One indicator of that trend is the declining number of Microsoft Corp. certified partners offering hosted Exchange e-mail services. In 2000, 30 partners were available, Mahowald says. In 2001, that number dropped to 11, and today it's just seven. The market hasn't taken off because "some large [user] companies have just not trusted the model. It's really a complex process to integrate," Mahowald says.

Controlling What's Critical

Two years ago, when Time moved its e-mail systems from CC:Mail to Exchange 2000 and Outlook, obsolete equipment was replaced and the entire system was revamped. But operations were kept in-house to maintain systems management and control because of e-mail's critical nature, says Cutrone.

She says she's not against outsourcing. In fact, Time does outsource some applications. But those decisions are made system by system, Cutrone says. "For us, we'd never even consider [outsourcing e-mail]. It's not that we don't look at outsourcing at all. We do it where it makes sense," she says.

But Hadley Reynolds, an analyst at Delphi Group, says the desire to maintain tight control over e-mail shouldn't automatically rule out outsourcing. "It's not the issue of where the processing gets done physically, it's the whole issue of setting policies," which can also be tightly maintained by an e-mail hosting provider, he says. "It doesn't matter where it is. That's what service-level agreements and outsourcing management agreements are all about. Technical deployment issues are the least of the problem."

David Ferris, an analyst at Ferris Research Inc., says companies that outsource are usually smaller and welcome the chance to offload their complicated, management-intensive e-mail systems. "Larger companies don't want to outsource their e-mail," Ferris says, particularly because the systems are too important to their operations and they don't want to give up direct oversight. Other reasons are technical. Exchange, for example, requires high data rates for off-site mail servers, which increases costs and complexity, he says.

Hosting Through a Bad Patch

One organization that chose outsourcing is the Cystic Fibrosis Foundation in Bethesda, Md., a nonprofit that supports more than 115 cystic fibrosis care centers nationwide. CFF outsourced its e-mail function several years ago because the organization's internal IT department was "in shambles," says CIO Greg August.

CFF has about 650 e-mail accounts, but those users are spread throughout approximately 80 offices and some 200 hospitals, making its e-mail infrastructure complicated. August says his predecessors chose to outsource to USinternetworking Inc. in Annapolis, Md., "because of a lack of confidence in the IT staff." But while August says he's been happy with the arrangement with USinternetworking, ongoing improvements in his IT staff and rising costs for outsourcing will likely have him reviewing whether he will renew the contract in about 18 months. "It's served us pretty well," says August. "It's just a completely different landscape now. We're right on the brink of bringing some things back in-house."

For many companies, maintaining control of e-mail with in-house staff is more appealing than turning it over to a vendor, says Mahowald. In a multisite organization with more than 5,000 users, "don't even bother to look at [outsourcing]," he says. "You are going to find that it's going to be more of a headache than it's worth." But, he adds, smaller organizations should "absolutely give it a try." **47582**

Top Tier

A sampling of the players in the e-mail outsourcing market.

Apptix
- www.apptix.com

Provides service automation software for the outsourced messaging and desktop services market, including a packaged marketing and sales program.

USA.Net Inc.
- www.usa.net

Provides e-mail and messaging outsourcing for businesses and Web-based messaging services for individuals and businesses.

Equant NV
- www.equant.com

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USinternetworking Inc.
- www.usi.net

Provides hosted applications via the Internet for e-commerce, customer support, human resources and financial management, and messaging and enterprise applications.

SOURCES: HOOVERS.COM, COMPANY WEB SITES

READY FOR DISASTER

Some companies have backup plans specifically designed to ensure access to their e-mail systems in the event of a disaster.

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You Go First

Many CIOs like to stay a version or two behind their vendor's latest e-mail offering, until the ROI for an upgrade is clear. By Sue Hildreth



WILLIAM BIGGS

HOW DO YOU DECIDE that it's time to upgrade your company's e-mail system?

If you're like a very few CIOs, you upgrade every time your vendor releases a new version. Or, conversely, you may hang onto an older version even after the vendor stops supporting it. But more likely, you prefer a balanced approach like that used by Eric Goldfarb, CIO at PRG-Schultz International Inc., a $376 million recovery auditing firm in Atlanta.

Before giving the go-ahead to upgrade his company's e-mail system from Lotus Notes 5.0.3 to 6.5.1, Goldfarb compiled what he calls the "David Letterman Top 10" reasons to upgrade. "I wait until things pile up. Then I look at that pile and ask, 'What's it worth to us?' " he explains. "There's a cost to move [Domino] applications, so I want to make sure I'm going to get a good return on investment. With an incremental upgrade, I'm not going to get a good ROI." That payback, which Goldfarb expects to achieve six months after the upgrade is rolled out, will come in three areas: features that increase productivity among the company's 3,200 users, fixes for software bugs that had burdened his help desk, and administrative improvements in security, storage and archival capabilities.

Goldfarb's view is typical. Many CIOs see an e-mail upgrade as inevitable but not something to rush into. Among Notes users, 75% of organizations were still on some version of IBM's Domino/Notes 5.x as of late 2003, according to estimates from Ferris Research Inc. in San Francisco. And as for users of Microsoft Corp. products, in a Ferris survey of 45 organizations in January, 37% of the respondents said they were using Exchange Server 5.5, while 63% had Exchange 2000 and just 35% had Exchange 2003. (Multiple responses were allowed because large companies often have mixed environments.)

"For the last couple of upgrades of Microsoft and Lotus, there've been many customers who've said there's not enough features to justify an upgrade. So now people are moving from Exchange 5.5 to 2003, and a fair amount of Notes people going from 4 to 6," says Ferris analyst David Via. He estimates that a major upgrade, such as from Exchange 5.5 to 2000 or 2003, typically costs $100 to $175 per user, whereas minor upgrades, such as Exchange 2000 to 2003, cost $40 to $90 per user.

One factor that scared some IT managers from upgrading to Exchange 2000 and 2003, says Via, is the need to move to Active Directory, a significant architectural change. Such was the case for the government of Miami-Dade County, Fla., which will be upgrading from Exchange 5.5 to 2003 over the next 18 to 24 months. The need to convert 50 departments and 15,000 e-mail users to Active Directory added months to the timeline, says Chief Technology Officer Ruben Lopez.

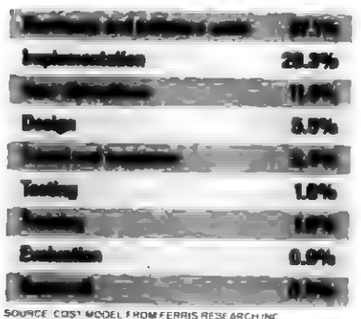
Another factor that has delayed some upgrades is the economy, says Shruti Yadav, an analyst at Nucleus Research Inc. in Wellesley, Mass. "E-mail upgrades have had to compete with other IT projects," she says.

The Well-Traveled Path

But waiting too long to upgrade can increase the cost and complexity of the project. "The longer you wait, the more work you wind up having to do. You may find that the messaging piece is out of date, and the network infrastructure is out of date," says Sara Radicati, CEO of The Radicati Group Inc., a market research firm in Palo Alto, Calif.

The Upgrade Budget

Here's a breakdown of the typical costs of a major e-mail system upgrade:



SOURCE: COST MODEL FROM FERRIS RESEARCH INC., SAN FRANCISCO, DECEMBER 2003
(PERCENTAGES DON'T ADD UP TO 100 BECAUSE OF ROUNDING.)

Lee Lovig, who was chief IT architect at a 5,000-user financial services firm in the Midwest until last month, says his former company's upgrade to Lotus Notes 6.5 — required because of a merger — was difficult because over half of the end users were still on Notes 4.5. "We waited too long," says Lovig, who's now an independent consultant in Grimes, Iowa. "There's a lot more bells and whistles in 6.5. The client is tremendously different, and we [were] spending a lot of time and money on training."

On the other hand, you don't want to rush to implement the latest release and find yourself the unwitting beta tester of the vendor's newest technology. Ideally, you should wait until you can identify obvious benefits from making the switch. The benefits might be new features that increase user productivity, reduce IT administrative hassles or improve business operations such as customer sales and service in the field.

That desire to achieve ROI without taking unnecessary risks is why Goldfarb prefers to stay in the middle of an application's product cycle — not ancient, but not bleeding-edge, either. "I ride the middle of the curve, not in the front of it," he says. Robert Ashby, support manager at Miami-Dade County, has the same sentiment: "It's not that I want to stay back, it's just I'd rather see everyone else upgrade first."

Alan Boehme, CTO at Best Software Inc. in Irvine, Calif., and formerly CTO at GE Power Systems, also advocates a middle-of-the-pack position. Boehme says Best is upgrading from Exchange 5.5 to 2003 but expects to stick with 2003 for at least three years, "until we see what happens with Longhorn [the code name of the next version of Windows]."

In his view, there's rarely a competitive need to maintain a leading edge in e-mail technology. "Companies tend to overspend on e-mail," asserts Boehme. "Instead, think of e-mail on a 1-5 scale, with 5 being the best e-mail system in the world. Then ask yourself if you really need to be a 5. I think most organizations can get by being a 3." QuickLink 47380

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ANATOMY OF AN UPGRADE

It took three years to upgrade the 5,000-user e-mail system at Aventis Pharmaceuticals. Here's an in-depth case study.

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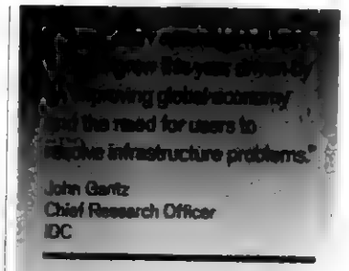
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SUNDAY, SEPTEMBER 12

1:00pm – 5:30pm	Pre-Conference Developer and Analyst Tracks
7:00pm – 9:00pm	Welcome Reception

MONDAY, SEPTEMBER 13

7:00am – 8:00am	Breakfast
8:00am – 12:15pm	General Conference Sessions
12:15pm – 1:30pm	Luncheon Sessions
1:30pm – 5:30pm	General Conference Sessions
1:30pm – 5:30pm	Concurrent Developer Tracks
3:45pm – 5:15pm	End User Case Study and Analyst Tracks
5:30pm – 8:30pm	Expo with Dinner

TUESDAY, SEPTEMBER 14

7:00am – 8:00am	Breakfast
8:00am – Noon	General Conference Sessions
Noon – 1:30pm	Expo with Lunch
1:30pm – 5:00pm	General Conference Sessions
1:30pm – 5:00pm	Concurrent Developer Tracks
4:00pm – 5:00pm	End User Case Study Track
6:00pm – 8:00pm	Gala Evening

WEDNESDAY, SEPTEMBER 15

7:30am – 8:30am	Breakfast
8:30am – 11:45am	Developer Track and Vendor Tracks
11:45am	Conference Concludes



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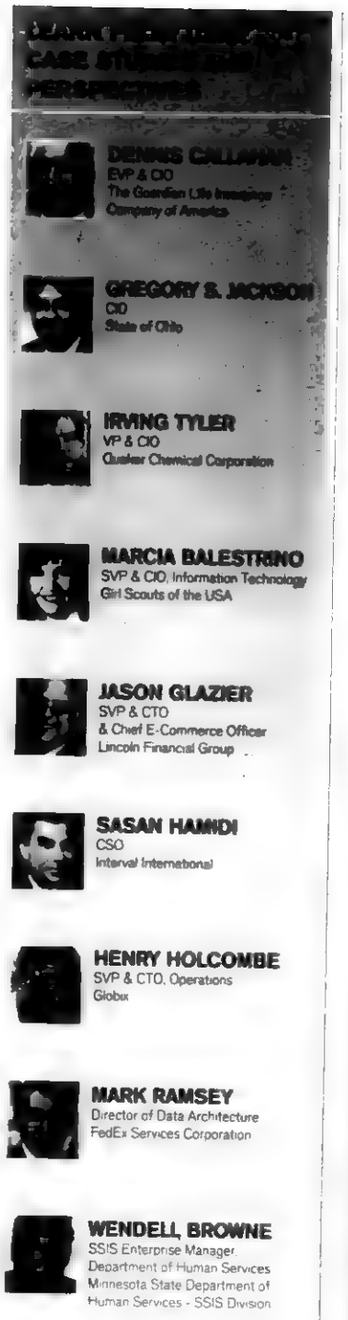
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- ☐ Advertising/Marketing/Public Relations
- ☐ Education
- ☐ Government/Military
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- ☐ Manufacturing (non-IT)
- ☐ Other

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- ☐ Senior IT Management (CIO/CTO/VP of IT)

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- ☐ All of the above
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- ☐ Approve the budget
- ☐ Initiate the purchase
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- ☐ All of the above

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- ☐ 5,000 – 9,999
- ☐ 1,000 – 4,999
- ☐ 500 – 999
- ☐ 100 – 499
- ☐ Less than 100

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- ☐ $1 Billion – $9.9 Billion
- ☐ $500 Million – $999 Million
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Your organization's annual IT/IS budget for all IT/IS products:
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- ☐ $500 Million – $999 Million
- ☐ $100 Million – $499 Million
- ☐ $10 Million – $99 Million
- ☐ $1 Million – $9.9 Million
- ☐ Less than $1 Million

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Please send cancellation requests via email to: emwreg@computerworld.com

Collaboration Software

BY RUSSELL KAY

IN MANY WAYS, computers make collaboration more awkward than we want. Go into any meeting carrying a piece of paper and, barring language problems, you know that other people in the room can read it, mark it up, pass it around and file it away.

Life isn't nearly so simple with electronic documents. It's considerably harder to mark up a Web page or to use the same filing system for e-mail and other documents — and even if you can do those things, your systems may not work well or be readily accessible to other applications, whether located on your PC or on someone else's.

Even though there are many collaboration and document-sharing applications on the market, it's still true that for the most part, the way we share files is to e-mail them back and forth as attachments. While this has been surprisingly productive for many people, it's a long way from collaboration.

In fact, this isn't significantly different from the "sneakernet" days of hand-carrying floppy disks from one desk to another.

DEFINITION

Collaboration software, also called groupware, helps integrate work on a single project performed by several concurrent users at separate computers. Collaboration software typically includes tools for communication, conferencing and administrative functions.

Network Not Enough

Even though networked computers allow high-speed communications and the fast and easy exchange of data and documents, it's still remarkably difficult for a group of users to work together on a project from separate computers. Doing so requires all involved parties to install a variety of programs and utilities on their PCs.

All that started to change back in 1989, when Ray Ozzie at Lotus Development Corp. brought forth Notes, the first program that attempted to integrate a number of communication, scheduling and database-driven activities into a single software package that was designed from the start to live on a network.

In the years since, many other companies have attempted to produce and market collaboration software, using very different models and approaches. But no one has yet reached the goal of seamless, transparent, hassle-free collaboration between groups.

Collaboration can be done formally, from the top down, through established procedures and processes, or it can be done informally, from the bottom up, as communities and project teams collaborate in an ad hoc way.

QUICK STUDY

Some large organizations may be concerned about the proliferation of project-based collaboration software, and they are likely to want a cohesive plan for supporting (i.e., managing and controlling) collaboration across the enterprise.

Collaboration Tool Kit

Collaboration software generally involves several types of tools in three categories:

Electronic communication tools facilitate information sharing by enabling people to send one another messages, files, data or documents. They include the following:

- E-mail
- Instant messaging
- Fax machines
- Voice mail
- Web publishing

Electronic conferencing tools enable a more interactive way of sharing information. The most common forms of electronic conferencing are teleconferences and videoconferences, but new technologies are emerging.

- Data conferencing lets networked PCs share and view a common whiteboard, and each user can add to the board during discussions.
- Electronic meeting systems generally involve conference rooms equipped with large-screen digital projectors linked to multiple PCs.
- Discussion forums and chat rooms facilitate and manage online text messages.

Collaborative management tools simplify the management of group activities.

- Electronic group calendars make it easier to schedule events and meetings with multiple people, and they can automate reminders and alarms for group members.
- Workflow systems help manage tasks and documents.
- Project management systems help schedule, track and chart the steps in a project.
- Knowledge and content management systems make it possible to collect, organize, manage and share information in a variety of formats.

QuickLink 47912

Kay is a Computerworld contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.

PUSHBACK

To read more about user resistance to collaboration, visit our Web site:
QuickLink 48102

Where to Shop: For a list of collaboration software vendors, visit:
QuickLink 41652
www.computerworld.com

Are there technologies or issues you'd like to learn about in QuickStudy? Send your ideas to quickstudy@computerworld.com

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Roots of Digital Collaboration

The real grandfather of electronic collaboration is computer pioneer Doug Engelbart. In the 1960s, his laboratory at the Stanford Research Institute created the building blocks used in virtually all modern collaboration software: data structures (hypertext), user interfaces (windowing systems) and applications (groupware).

In 1968, Engelbart wired Brooks Hall in San Francisco to demonstrate the computer mouse, hypermedia and on-screen video teleconferencing.

Engelbart believed that because society's problems are scaling at unprecedented rates, solutions need to scale at the same rate if we are to survive. Used properly, computers can help us get collectively smarter. (For more background, go to *www.bootstrap.org* and read Engelbart's 1962 paper, "Augmenting Human Intellect: A Conceptual Framework.")

However, nothing much more happened in collaboration until Lotus Notes was launched in 1989. Notes deployments grew slowly, and in the 1990s, Microsoft and others entered the corporate e-mail market.

In the late 1990s and into the new millennium, Internet e-mail, corporate intranets and a growing interest in knowledge management sparked renewed interest in and development of collaboration software. Today's market includes companies such as Open Text Corp., Intraspect Software Inc., eRoom Technology Inc. (acquired by Documentum Inc.), Groove Networks Inc., WebEx Communications Inc. and Centra Software Inc.

– Russell Kay

The Almanac

An eclectic collection of research and resources. By Mitch Betts

Taking the Politics Out of Migrations

Sometimes top executives decide to change e-mail platforms against the wishes of IT administrators. Or companies with different e-mail systems merge — and one has to go. Sometimes one division wants to switch e-mail vendors and another doesn't. Religious wars between the pro-Microsoft and pro-Lotus factions are common.

The way to depoliticize e-mail migrations is to base the decision more on facts than on emotional outbursts, says Andrew Wolff, vice president at Wellesley, Mass.-based DYS Analytics Inc., which makes software for analyzing e-mail traffic and helps companies with e-mail conversions. Objective metrics about total cost of ownership and performance can help settle disagreements about whether the current system needs to be replaced, he says.

Voice Memos Sent as E-Mail

Nextel Communications Inc. in Reston, Va., recently announced NextMail, an application that allows Nextel subscribers to record voice messages on their mobile phones and send them to any e-mail address.

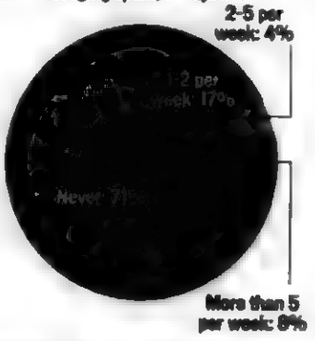
Nextel, known for the Direct Connect walkie-talkie feature on its mobile phones, is charging $7.50 per month for the service. The subscriber selects a recipient's e-mail address, presses the talk button, speaks into the phone to record the MP3 voice message and then releases the button, which sends an e-mail with the MP3 link or attachment. The service can also send confirmation that the message was received.



The market? Nextel says it's ideal for construction, real estate, insurance, property management and other industries where field workers normally call into headquarters throughout the day with status reports or work orders.

'Spim' Attacks

How many times per week do you receive instant messaging spam, or "spim"?



Base: 132 end users at North American companies
SOURCE: OSTERMAN RESEARCH INC., BLACK DIAMOND, WASH., APRIL 2004

CRM and E-mail: Headed for Merger?

The combination of CRM, knowledge management, social networking and e-mail technologies is a powerful one at Chicago law firm Much Shelist Freed Denenberg Ament & Rubenstein PC.

The 85-lawyer firm is starting to use InterAction CRM software from Interface Software Inc. in Oak Brook, Ill., which is tightly integrated with Microsoft Corp.'s Outlook. For example, when Outlook users get an e-mail, they can click a "Who's this contact?" button and get a profile of the sender, if he's a contact in the CRM database. Important e-mails and documents are accessible and organized in an activity log, so teams of lawyers working on complex cases can see "who's doing what with whom," says attorney Daniel L. Liutikas.

The knowledge base, which has profiles of clients, referral sources and outside contractors, has become a central hub for managing cases and marketing, he says. The software's social networking technology helps with developing new business, or "rainmaking," because it shows which lawyers have contacts inside potential client companies, Liutikas adds [QuickLink 45456].

Patent Watch

■ **E-mail priority alert service.** This system's autodialer calls a designated telephone number when the e-mail server receives a message from a high-priority sender, such as an important client. This would be useful for people who infrequently turn on their computers but need to know about important e-mail messages. Inventors: Qinghong Cao, Liang Jin, Wenzhe Luo and Jian Wu, for Murray Hill, N.J.-based Lucent Technologies Inc. — *U.S Patent No. 6,745,230, issued June 1*

■ **Detecting unwanted e-mail properties.** We usually want e-mail delivered rapidly, but this scheme delays suspicious e-mails for a certain period of time so they can be properly tested for viruses and spam before delivery. Inventors: Lee Codel Lawson Tarbotton, Daniel Joseph Wolff and Nicholas Paul Kelly, for Network Associates Technology Inc. in Santa Clara, Calif. — *U.S. Patent No. 6,757,830, issued June 29*

MORE RESOURCES ONLINE

Get the latest news and advice about e-mail topics at our E-Mail/Groupware Knowledge Center:

QuickLink e4750
www.computerworld.com

Q&A Three Questions for Ambuj Goyal, General Manager, IBM Lotus Software

Many users are several versions behind the vendor's latest offering. Is that frustrating to you? A huge fraction — I'd estimate 60% to 70% — have migrated from their old mail systems to the new release. So it's not frustrating to me at all. Every customer has a cycle of upgrades . . . and we want to make sure their hardware upgrade cycle is consistent with our software upgrade cycle. So our message to them is to do it at the right time, but do it when you're doing [the hardware upgrade]. For example, if you're doing a server consolidation project, go ahead and do the e-mail project as well. When people move from Notes 5 to Notes 6, we've seen server consolidation requiring as much as 50% less hardware, so there's a significant cost advantage. That's the right time to do it.

The press has run headlines about the death of e-mail because of viruses and spam. What's your view? The news about the demise of e-mail is exaggerated. I don't think the [business] world can survive without e-mail these days. Yes, viruses and spam are hurting the productivity of users. But customers are choosing IBM because we are far more secure and virus-immune than competitors.


IBM Lotus' Ambuj Goyal

Do you foresee any dramatic innovations in e-mail, or is it totally mature? Absolutely, huge innovation is about to come. E-mail is becoming a place where people are starting to manage their activities. So why wouldn't we think in terms of activities first, and e-mail as just one part? We showed at the last Lotusphere something called Activity Explorer, where e-mail, instant messaging and document exchanges are all captured in a single activity, so you can see the complete chain of what has gone on, not just e-mail. It will change the way we think about e-mail.

QuickLink e4947



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E-Mail Encryption

Does your organization currently have secure messaging capability, in which users can send encrypted messages?



Base: 111 IT professionals at North American companies

SOURCE OSTERMAN RESEARCH INC BLACK DIAMOND WASH MAY 2004

Spam Breakdown

Offers of cheap software are up, but health-related pitches are still the biggest category of spam.



SOURCE CLEARSWIFT LTD SAN RAMON CALIF MAY 2004

IM vs. Telephone Calls

What has been the overall impact of instant messaging on your use of the telephone?



Base: 132 end users at North American companies

SOURCE OSTERMAN RESEARCH APRIL 2004

MARK HALL

The End of E-mail

HAS IT HAPPENED TO YOU? Your phone rings, and a business contact asks whether you received his e-mail. You say no. You check your spam filter, and there it is. Or, you send an important document electronically to a colleague who calls you later and asks you to fax it because his network no longer accepts attachments. For many of us, these time-wasting events are now happening daily.

I won't bother to ask if you've been a victim of a virus, a worm, spyware or some other bit of unsavory code that hitchhiked its way into your PC via your e-mail queue. You have. And why waste my breath asking whether you get more real mail than spam? You don't (see "Dual Curses: Viruses and Spam," QuickLink 44143).

PC-based e-mail is rapidly becoming one of the most unreliable, unsafe and unpleasant modes of communication at our disposal. It won't be long before we abandon it.

Not only is e-mail becoming increasingly irritating to many of us, but it's also becoming more expensive for companies to manage. Much more.

IT departments in large organizations spend millions of dollars annually to manage incoming and outgoing e-mail. Antispam and antivirus appliances and filters aren't cheap, and they generally need ongoing support from subscription services to keep current in the fight against the creeps who persist in attacking our networks [QuickLink 41896].



Companies concerned about the implications of sexual harassment lawsuits and intellectual property losses are investing in pricey message-management technology that inspects the contents of every e-mail. Compliance issues are forcing companies to add sophisticated information life-cycle management tools to their mass storage systems to properly archive e-mail.

In addition to buying the products, you need to train IT staff to deploy and manage them. Of course, you could outsource everything, but that's not cheap, and you never really know how secure it is.

All these headaches, for what? So workers can chew up your corporate bandwidth e-mailing *SpongeBob* movie trailers to their friends?

So-called realists out there will dismiss these lamentations by saying that despite all of its problems, PC e-mail is too popular to be abandoned. Perhaps. But those old enough to remember Usenet know that even a good, useful communications tool can be abandoned once it becomes overrun by hucksters, pornographers and other pond scum floating around the Internet. Usenet is still out there, but its popularity is near zero.

Well, the so-called realists will counter, e-mail is still far too useful for companies to abandon. That's what these same folks said about IBM's Selectric and the floppy disk drive. Technology is abandoned whenever cost-benefit evaluations determine it's no longer worth keeping around. And we're getting mighty close to the day when PC-based e-mail is determined to have a bigger downside than upside.

OK then, the realists will say, what's going to replace e-mail? After all, technology needs to be replaced with another technology. Agreed.

In the case of the Selectric, it took a combination of keyboards, monitors, printers, storage media and, of course, the PC motherboard to supplant those elegant machines. And that's what I predict will happen with PC-based e-mail.

I believe a mix of new tools will emerge around handheld devices like the Palm, the BlackBerry and your smart cell phone. These products are becoming more powerful, making it possible to do more than just send and receive messages. They're adding crisper displays and better input capabilities, whether with bigger onboard keyboards or external ones.

Also, with these devices, there's no underlying monopoly like Windows that sociopathic programmers can write viruses for. Spam isn't a big problem for today's handheld users. And by the time PC e-mail is jettisoned in the next few years, vendor-embraced antispam standards and legal action against spammers will make it a nonissue.

Instant messaging is another technology that could help move PC e-mail into the dustbin of history. It's hard to spoof an IM user because incoming messages by definition come from someone on your whitelist. And tracking and management tools exist to protect your company and employees from intellectual property theft, harassment and dangerous attachments.

Sure, there's no perfect replacement for PC e-mail. But there wasn't one for IBM's Selectric, either. It had the greatest keyboard ever, one the PC industry hasn't come close to replicating in a quarter century. But somehow, we've managed to get by, just as we will when PC e-mail disappears. **47526**

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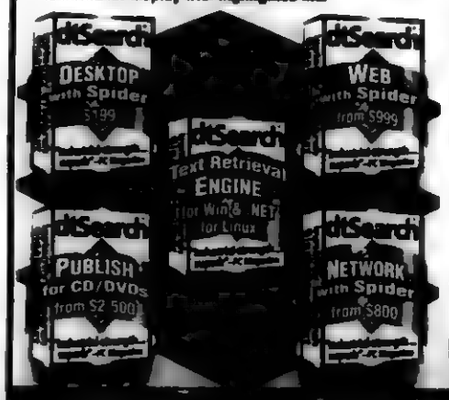
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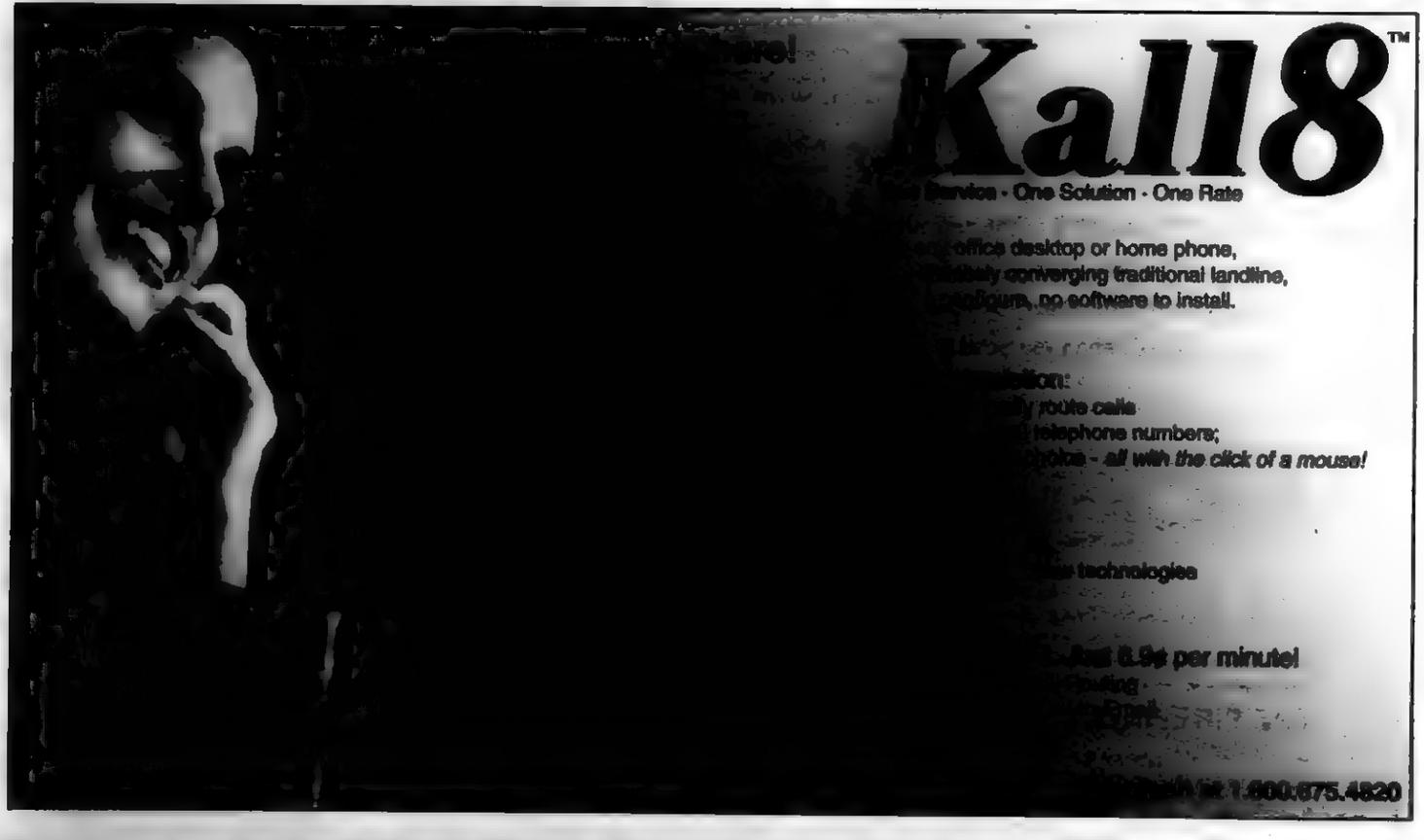
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Advertising Supplement

IT Careers: The Feds Want You!

The good news over the past quarter has been a drop in job cuts in the information technology world, and an increase in hiring. Gaining fewer headlines is where a good portion of information technology careers can be found – with the U.S. government.



Postings on the Office of Personnel Management website and usajobs.opm.gov – include more than 5,000 listings for jobs that range from the most senior levels to entry level positions. In addition, there's information on how to get scholarships for studies that will qualify you for the positions.

Three dynamics are driving the hiring by federal agencies. First is the transfer to E-Gov – a management initiative to streamline and automate everything from Social Security and Veterans Affairs to the business enterprise systems that drive the literally hundreds of departments operated by the government.

The second is the transformation of the U.S. intelligence/security/defense operations. Increasingly the security and defense of the country, from natural disasters as well as outside threats, is driven by data gathered by federal agencies.

A third issue is the aging of the government workforce. According to an internal survey conducted by the Federal CIO Council, 76% of the federal IT workforce is over age 40 and less than 5% is younger than 30; most have worked for the government for more than 20 years and plan to retire in the next decade.

"Much of the emphasis on federal IT jobs is hiring new entrants from college," says Bob Cohen, senior vice president of the Information Technology Association of America, which recently completed its 14th annual Federal CIO Survey. The federal government has increased its recruitment efforts at colleges and universities.

Cohen says that in the down cycle of hiring among technology companies, the federal government has become more attractive as an employer. "It's easier to change positions from one federal agency to another," he says. "The job security and predictability of federal employment has become much more appealing to IT professionals."

The ITAA study found that the federal agencies are in need of some fairly specific expertise and experience:

- Certified program managers;
- Information security and authentication;
- Large-scale data management and repository development;
- Enterprise software implementation; and
- Enterprise architecture development.

Cohen says the opportunities aren't second-class offerings. In fact, several federal agencies made the Washingtonian magazine's Annual Great Places to Work list for the metro area: Fannie Mae and Freddie Mac among them. Others making the list that work with or for the government include Booz Allen Hamilton, Number Six Software, FGM (software/systems engineering), SRA International, Terrapin Systems, Acumen Solutions, New Media Strategies, Johns Hopkins University Applied Physics Laboratory, and Mitretek Systems.

For more information about IT Careers advertising, please contact:
Nancy Percival, Vice President, Recruitment Advertising
800.762.2977
500 Old Connecticut Path, Framingham, MA 01701
Produced by Carole R. Hedden

Computer Systems Analyst. Wachovia Corp., Los Angeles, CA. Resp. for architectural design and programming of web based reporting solution. Pos. reqs. BA in Eng. or Comp. Science and 2 yrs. exp. in pos. or as Programmer Analyst. The 2 yrs of reqd. exp must incl. developing financial performance and accounting metrics for securities lending programs, developing reports and application user interface using .Net/Crystal, Interop, and Report Builder (or similar), using rational unified process development methodology utilizing unified modeling language and database design tools, programming fiber applications using .NET architecture and integrating financial data into custom financial applications. 40hrs/wk, M-F. Send resume & cvr letter to Armeet Sandhu, 11440 San Vicente Blvd., 3rd Floor, Los Angeles, CA 90049.

Oracle Applications Developer: Utilizes knowledge of Oracle 11 and 11i, Sun/Solaris, and Oracle RDBMS 8 to design, and develop appropriate technical platforms in support of specific business requirements; Comprehends complex configurations, structure and relationships, performance and scalability; Formulates policies and standards to ensure integration and flexibility (change, emerging technology, etc.) and provides product recommendations. Requires a U.S. or foreign Bachelor's degree in Comp Sci., Engineering, Comp. Engg., Systems Mgmt., the Hard Sciences or a closely related field and at least 3 yrs. of work exp. in this or a related position, including Consultant, System Developer, Software Engineer, etc. Position is in Webster, NY, but may require travel and/or relocation within the U.S. 40 hrs/wk, 8:00 am - 5:00 pm, $79,040/yr. Interested parties should submit resumes to: PA Dept. Of Labor & Industry, 235 W Chelten Ave., Philadelphia, PA 19144. JOB WEB 431477.

Sr. Software Engineer, Wachovia Corp., Charlotte, NC. Design and develop financial and banking applications using client server and Web technologies using Java, J2EE, JDBC, HTML, javascript, VBScript, ASP, LDAP, C++ COM objects to interface with CICS listener. Reqs. BA and 3 yrs. exp. in pos. or as a Software Eng or Developer. The 3 yrs. must incl designing and developing web applications using Java, J2EE (EJBs, Servlets, JSPs), JDBC, SQL, HTML on UNIX, Solaris and AIX platforms and must have incl installing and tuning application servers, web-servers and directory servers (LDAP) and work with stored procedures, functions using ORACLE, SYBASE, shell scripts and PERL scripts on SOLARIS, Unix and AIX platforms. M-F, 8-5. Send resume to Babette Robbins c/o Amy Kee, Wachovia Corp., 1525 West W.T. Harris Blvd., 3A1, Charlotte, NC 28262. No phone calls.

Universal Business Consulting, Inc has openings in NewJersey and nationwide for computer professionals in the following skills:

Java, JSP, JavaScript, JDBC, Servlets, Corba, EJB, WebLogic, WebSphere, iPlanet, ASP, Visual Basic,COM/DCOM, C, ATG Dynamo, Cold Fusion, Oracle, Developer 2000, PL/SQL, SQL Server, Sybase, Data warehousing, Hyperion Essebase, Hyperion Analyzer, PeopleSoft, SQR,Cognos, Informatica, ABAP/4, Legato Networker, Veritas Cluster Server, Orbix Web Server, Apache, Crystal Reports, TCP/IP, SMTP, LDAP, WinRunner, Load Runner, Sun Solaris, Linux, Win NT, and Unix

Req: Some positions require a Bach Deg wist least 2 yrs exp, others Mast Deg or equivalent w/ 2 yrs exp. For Some positions 4 yrs exp is accepted. Only those eligible for permanent positions need apply. Must be willing to relocate if necessary. Salary will depend upon experience Reply to: jhrd@ubconcorp.com.

Code SA3 Dev s/w applns w/ Java, VC++, MFC, HTML, ASP, JavaScript, VBScript, PL/SQL, JSP & Servlet in Win NT/95 use RDBM Oracle, Hypersonic, MySQL, MSSQL Server & Sybase11 applin dev applnsweb servers Tomcat, Websphere, Weblogic, JBoss for web-based projs. Case tools Rational rose, Clear Case, Clear Quest for proco & config mgmt. Dev PHIN data models, dev test plans QA procs for sys efficncy Anlyz info mgmt & data reqs from users. Sys dev, dizn config mgmt QA/QC. Prest cncpts Use EDI, HL7 in health care maging integrn. BS in Elec Eng or CS + 2 yrs exp.

Code SA. Dev s/w sys w VB 6.0, MS Access, VBA, & MS SQL Server Utilize MS ActiveX, COM, &/or COM+ in the dev of s/w sys for outbreak mgmt & public health. Dev plans per specs & dizn logic to impl comp. prgrms, IT sys & procs for tech, admin & Bil functions. Dev test plans, QA procs for sys efficncy. Analyze info mgmt & data reqs from users. Sys dev, dizn config mgmt. QA/QC. Present concepts. BS in Comp Applns + 2 yrs of exp.

Comp salary. Apply w/code to BCA, 2002 Perimeter Summit Blvd., #680 Atlanta, GA 30318 w/prf of wk auth.

Bioinformatics Specialist to develop, modify, and implement unique web-based oligo analysis, management systems to allow end users to modify target sequence identification, oligo sequence design, and multiplex functions design; such as multiplex PCR, multiplex probe, and multiplex oligo arrays for adaptation to current/existing data management solutions for microarray data. Develops appropriate assay specific design sequence algorithms to insure proper software development and modification of end users molecular diagnostics purposes. Uses various bioinformatics and database software such as Biopert, Perl, Java, Shell Script, MySQL, ArrayWoRX, MS2000 Eclipse, Emacs, Vi and writing of Perl scripts to import XML version of NCBI SNP resp information in performance of duties. Requires Bachelor's Degree in Computer Science and one year direct experience. Send resumes only, no calls, to Ramesh Rameshrahman, 4080 Commercial Ave, Northbrook, IL 60062.

Sr Sys Analyst to dizn s/w sys w/ UML/Rational Rose & Object Oriented Method. Dizn /develmpt s/w appl using mumps, Java, C++, VC++, & J2EE Tech like STRUTS 1.1 Framework, Servlets, JSTL, EJB with Weblogic Appl Server, JBoss Appl Server 3.2.3, Iplant Appl Server 6.0, Netscape Appl Server 4.0, Weblogic RMI, JNDI, Java Swing, JMS-MQ Series, JNI, RMI, XML, XSLT, HTML, JavaScript, SQL, PL/SQL, Ant 1.6.1, Log4J, Rational Rose, & JBuilder. Gather user req; dev emulation interfaces for legacy sys w/ C++ & stored procs for SQL Server, D/zn D/B tables; Sch timeline for modules & assign tasks. Be certified as Appl Developer. BS Electronics or CS + 2 yr exp. Comp salary. Apply to Netserv - Code AS, 6580 Jimmy Carter Blvd., Norcross, GA 30071 with proof of perm w/s authzn.

Seeking qualified applicants for the following positions in Collierville, TN. Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent* in computer science, engineering, MIS, computer information systems or related field plus 5 years of experience in systems/applications development. Experience with J2EE, Weblogic, and Oracle database technology also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Cynthia Thompson, FedEx Corporate Services, 90 FedEx Parkway, 2nd Floor Horizontal, Collierville, TN 38017. EOE M/F/D/V.

Silver Eng to dizn s/w applns, Dev RDBMS & GUI appl w/ Oracle, DB2 & M/F sys as D/B & Lotus Notes for dev Intranet appl. Data Model w/ Erwin & Rational Rose. Wk as tm/ld & tech cnslt for OLTP/ ERP. Data warehouse arch to dizn DSS, OLAP, ODS, Data Marts and Data w/h. Wk w/ Oracle PL/SQL, Informatica, PwrCtr, PwrMrt, Cognos Perplay and Impromptu, Brio, Hyperion, Essbase and Business Obj. Wk with data sources from OLTP applns MVS, SAP, & Oracle. Dizn & dev ETL method for data w/h, tune ETL load process & dev rpts. Data model & tuning. Shell scripts for data load & shell prgms in Unix. BS in Eng + 2 yrs exp. Comp salary. Apply: Netserv, 6580 Jimmy Carter Blvd., Norcross, GA 30071 w/ proof of wk auth.

Sr. Sys. Analyst for full life cycle s/w solns, PM & team mgmt. Duties: Req analysis, proj specs, O/B dsgn, resource alloc & mntg client req, Internet sys solns dev using MS Tech VB, .NET, ASP, .NET, ASP, JavaScript, SQL Srvr, COM/DCOM, MTS, XML, Rational Rose, ER-Win, Win 2000 & Intel based machines, customize deploy, upgrade & maint ebiz-One, ebizASP, ebizMail, ebiz-Exchange s/w pkgs, resource allocn & tch CMM levels, update ebiz's methods & std & sys analyses & r/w BS in CS + 2 yrs exp as a Prog Analyst with exp in Ebiz software & Internet soln dev w/ MS tech Comp salary. Apply: EBIX, 5 Concourse Pkwy, #3200, Atlanta, GA 30328 w/ proof of perm w/h authzn

Knowledge Engineers needed. Seeking candidates possessing BS or equiv and rel work exp. Part of rel. work exp must include 2 years working with ART*Enterprise Artificial Intelligence and J2EE. Duties include: Analyze, evaluate and devise comp programs and systems; integrate and implement Artificial Intelligence expert system. Travel/relocation may be required. Mail resume, refs and salary reqs to: Mindbox, LLC, 300 Drake's Landing, Suite #155, Greenbrae, CA 94914.

Regional Manager (Denver, CO) - Lead customer engagements & business development of television broadcast solutions throughout Latin America. Manage life cycle of TV automation projects from proposal design to hand-off to customer support. BS Comp Sci, Eng or related + at least 4 yrs management exp. Apply by mail only by sending cover ltr & resume to: Jonathan Kohn, Avesta Americas, Inc. 468 Beacon Street, Suite A, Boston MA 02115. No calls.

Consultant

(Glen Mills, PA and other locations throughout the United States) Responsible for the implementation of Oracle ERP (Enterprise Resource Planning), focusing on CRM (Customer Relationship Management) for business clients. Design business processes and systems utilizing Oracle applications including Oracle Financial Applications, Oracle Supply Chain Applications, and Oracle CRM Applications. Responsible for the implementation of Oracle 11i involving the design, development, and implementation of Service and Sale modules, as well as the integration of Accounts Receivable and Order Management modules. Conduct requirements gather, gap analysis, configuration of applications, and technical and functional analysis for customizations. Engage in the development and execution of unit and integration testing scripts for the applications being implemented. Provide go-live production support by resolving application issues. Utilize PL/SQL and Oracle Report Developer 6i to design and develop custom reports. Migrate setups and execute testing of software applications using Kintana.

Salary $74,752/year. Mon.-Fri. 9:00am-5:00pm. The position requires a Bachelor's degree in Computer Science, Mathematics, Management Information Systems, Engineering or Business Administration + 2 years experience in the job offered or 2 years of experience as a Consultant, Systems Analyst or Technical Associate. Related experience must include at least 1 year of experience in Oracle ERP (Enterprise Resource Planning) Oracle Financials Applications including Accounts Receivable, Oracle Supply Chain Applications including Order Management, Oracle CRM (Customer Relationship Management) Applications including Service and Sales, PL/SQL, Oracle Report Developer 6i and Kintana.

Please send your resume, referencing Job Order Number WEB 433838 to: PA CareerLink, FLC Unit, 235 W. Chelten Ave., Philadelphia, PA 19144. EOE

IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.). Assist in providing consulting services for implementation testing, development, maintenance and enhancement of software packages and applications by utilizing industry standard methodologies leveraging competences in databases and database design, systems architectures, operating systems, data structures, algorithms and networking along with development tools such as ER Win to develop applications and systems utilizing Java Technologies, Microsoft Visual Basic technologies, COBOL, PowerBuilder, n-tiered architectures on environments including Windows and legacy mainframe (TSO) leveraging database platforms such as Microsoft SQL Server, Oracle & Sybase. Perform technology assessments and development analyses to support reviews utilizing Load Runner and XML. Utilize data modeling tools such as ER Win, and competences in data structures, algorithms, and networking to contribute to the design and development of technical architectures. Assist in analyzing and revising existing system logic difficulties and documentation.

Salary is $57,150 per year. Mon-Fri, 9:00 am to 5:00 pm. The position requires: Bachelor's degree or equivalent in Computer Science, Math, Engineering (any), Information Systems or Business Administration + 2 years of experience in the job offered or 2 years of experience as a Track Lead, Data Conversion Architect, Application Development Core, Application Development Track Lead. Related experience must include a minimum of 1 year experience in Visual Basic, COBOL, PowerBuilder, Microsoft SQL Server, Sybase, and Load Runner.

Please send your resume, referencing Job Order Number WEB434308 to the PA CareerLink, FLC Unit, 235 W. Chelten Avenue., Philadelphia, PA 19144. EOE

IT PROFESSIONALS

Senior Consultant

(Glen Mills, PA and other locations throughout the United States). Design and develop fast-track applications to reduce costs and provide a component-based approach to the enterprise applications utilizing J2EE solutions including EJB's, XML and XSLT. Implement Java (J2SE) solutions to allow our clients to run the same application on various operating systems, hardware platforms and consumer technological devices. Utilize Enterprise Application Integration (EAI) to provide a common framework for integrating incompatible and distributed systems allowing our client to integrate their business processes. Implement J2EE and EJB design patterns and develop strategies for mapping application requirements, developing best practices for J2EE and to collect EJB strategies. Use XML (Extensible Markup Language) as a standard data format for Enterprise Application Integration (EAI) solutions and utilize Enterprise Tools and Databases to provide support for the full development cycle.

The wage offered is $85,500/year. The work schedule is Monday-Friday 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Engineering (any), Business Administration, Computer Science, Mathematics, or Information Systems plus 4 years experience in the job offered or 4 years experience as a Senior Consultant, Lead Developer, Programmer Analyst, or Software Programmer. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials evaluation service. Related experience must also include at least 2 years of J2EE (including EJB's, XML and XSLT) J2SE (Java 2 Platform Standard Edition), Enterprise Application Integration (EAI), J2EE and EJB design patterns, and Enterprise Tools and Databases.

Please send your resume, referencing Job Order Number WEB 434352 to the PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE

Business Development Manager - Applications sought by company that provides computing network storage and that manufactures computer storage devices to work in Louisville, CO and other unanticipated job sites in the US, to be the liaison between the business area and IS for identifying and executing initiatives to improve client satisfaction. Understand business area strategies/processes and performance objectives and be involved in the full life-cycle software/process development. Analyze and determine technology requirements to enable the achievement of these objectives. Test and troubleshoot the finished applications (developed using Java, JSP, ASP/VB, FRED, SQL/DB, HTML, XML, JavaScript, SAP R/3 and ABAP/4) to make sure that the requirements have been met. Manage allocation of resources, including processes to meet objectives, monitor problems, escalation process and issue resolution. Requires a Bachelor's in computer science or related field; 3 years as a software engineer using SAP R/3 and ABAP/4. Working knowledge of Java, HTML, XML, and JavaScript. JSP, ASP/VB, FRED and SQL/DB. 8am-5pm, M-F. $112,642.70/year. Respond via resume to Employment Programs, PO Box 46547, Denver, CO 80202 and refer to CO5083486.

Oracle Application Consultant w/exp in Oracle Application ERP, Oracle Developer 2000, Oracle Form, Quest s/w (Toad), Oracle SQL Plus, Oracle Report, Oracle Discoverer, Oracle Designer 2000 & Reports. Perform conversion of data into Oracle Application using SQL Loader & Data Loader on Win 2000, HP UX & Sun Solaris. Send res to: Optima Technology Partners, Inc., 264 South River Rd. Ste 454, Bedford, NH 03110.

S/W Engineers to analyze, design business appls for SAP R/3, ABAP, Workflow, C, C++, Java, VB, Oracle, SQL, etc. under Windows, UNIX OS, analyze business processes to determine reqs & generate reports, prepare documents, flow charts and programming specs, create appl prototypes for client approval and rapid appl development, train users in business appl usage. Require MS or foreign equiv. in CS/Engg (any branch)/Math & 1 yr exp in IT. High salary. F/T position. Travel Required. Resume to HR, Smartsoft International, Inc., 3965 Johns Creek Court, Suwanee, GA 30024

Software Engineer to dsgn, dvlp & write systm & device drivers for LAN/WAN network devices & to debug & perform integration tests on networks based on Cisco Routers & Switches. Provide tech support. Will utilize IP security, Novell Netware & Java. Req. Masters in Engg or Comp Sci + 2 yrs exp in job offer or job duties. Resp. to Artelligence Inc., 1500 Market St., E. Tower 12 Fl, Philadelphia, PA 19102. Fax: 803-372-2771, E-Mail: asi.hernandez@artelligence.com

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Senior Analyst Developer sought by home satellite design/mfg company in Littleton, CO to work in Englewood, CO and other unanticipated job sites in the US. At a senior level engage in full life-cycle software development and customization of Oracle General Ledger, Payables, Receivables and Fixed Assets modules of Oracle financial and business applications. The applications are designed and developed in a three-tier client/server environment and utilize Windows NT or UNIX operating systems. Analyze requirements, create designs, design documentation, and code, test, debug, modify, and implement the applications. Serve as technical lead as needed. Utilize PL/SQL, SQL*Plus, Pro*C, HTML, Developer 2000 and other Oracle tools in the design and development process. Requires a master's or foreign equivalent or bachelor's or foreign equivalent in eng.including chemical eng.or computer science, plus three years developing and customizing Oracle financial and business applications; 3 yrs experience performing the core duties and using the technologies described above. (The 3 years in the job offered may be concurrent with the three years required under education). 8am-5pm, M-F, $80,000/yr. Respond via resume to Employment Programs, PO Box 46547, Denver, CO 80202 and refer to CO5081268.

Software Developer sought by software development and database management company in Longmont, CO to work in Lisle, IL and other unanticipated job sites in the US. Design and develop computer software applications for company's emergency response call handling applications which access relational database management systems on Windows platforms. Develop system and software requirements, create architectures, code, test and debug the applications. Utilize Microsoft Foundation Classes, C++, Computer Telephony Integration, Telephony Applications Programming Interface and hardware device controls in the development process. Requires Bachelor's in computer science or related field, 3 years in the design and development of computer software applications that access relational database management systems on Windows platforms utilizing Microsoft Foundation Classes, C++, Computer Telephony Integration, Telephony Applications Programming Interface and hardware device controls in the development process. 8am-5pm, M-F. $75,000/year. Respond via resume to Employment Programs, PO Box 46547, Denver, CO 80202 and refer to CO5083510.

Programmer Analyst required by Kendall Park, NJ based Info Tech Solutions Provider. Duties: Product development, implementation and support. Responsibilities include requirements gathering, architecture, Product development, Acceptance planning, planning test cases, UAT, Implementation, and post implementation support. Coordination with Spanlink's offshore partner, Mascon's IT team. Additional responsibilities include Process definition, Project initiation, Project Planning and Tracking, Metrics calculation. Build and release management, documenting product learning's for further enhancements. Conducting Market survey and researching on multiple products / competitors to meet the ever growing demands of customers, development and implementation of the product to be in compliance with HL7 and HIPAA standards. Analyzing architecting, designing and developing the product to interface with the legacy systems. Req.: Bachelors degree in Math, or Sci., or Engg., or comp. Sci., or Information Technology. (will accept an equivalency based on a combination of education and/or experience), and two years experience in the job offered or related occupation. Hours: 40hrs/wk Mon.-Fri; 9:00 AM to 5:00PM. Apply to President, Spanlink LLC., 3084 Route 27, Ste 6, Kendall Park, NJ 08824.

Snr Software Engineer to analyze, design, develop & architect web applications in component model (EJB) focusing on financial modeling & planning and utilizing high-level technologies such as EJB, JAVA, J2EE, JHTML, JSP, XML, XSL, FOP, Servlets, RMI and JavaBeans. Will develop planning tools & personalized web sites for in-house business units; design & develop graphs and charts using 3rd party technologies, and will monitor, maintain & upgrade components and database for business requirements. Requirements: Bach or equiv in C Sc., Eng, Math or Physics, plus 2 yrs exper in job offered OR 2 yrs. in on-line transaction processing. Candidate must also possess demonstrated expertise in the following: developing web applications in J2EE, JHTML, and EJB, in the administration of UNIX, Clearcase, and Webserver & in Oracle Database & financial modeling algorithms. Sal. $80,405/yr. M-F, 9a-5p. Submit 2 resumes to Case # 200300130, Division of Career Services, Labor Certification Unit, 19 Staniford St, 1st fl, Boston, MA 02114. EOE. Applicants must be eligible to accept full-time employment in U.S.

Shaktee Technologies Inc (DBA Excel) has multiple openings for RF Electrical Engineers (Cellular) at its office in San Jose, CA and unanticipated client sites throughout the US. Must be able to travel temporarily to client sites within the U.S. with expenses paid by employer. Min. reqmts include BS in Electrical Eng. or related field. Please send resume to Attn-HR Manager, 1975 Hamilton Ave # 33 San Jose, CA 95125.



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Responsible for programming, development, analysis, implementation of enterprise software applications to meet client's needs and specifications on operating system platforms. Need at least 1year of experience in MQ Series, and Messaging Sybase, DB2-UDB and Java/ J2EE technologies. Checkable references required. 1 Yr experience with Master's Degree or equivalent in Computer Science, Engineering (any field), Math. Must be available 24/7 to provide emergency technical support. Will be paid if services are used as per call basis. Salary $78,300/-year. Send this ad and2 copies your resume /letter of qualification to Job order 2004-576, P.O. Box 989, Concord, NH 03307-0989



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Software Engineers. Systems, to research, design, develop, implement software solutions for clients using LabVIEW, C, C++, VB, SQL Server, Database connectivity, PXI modules, etc. under Windows environment with clients, to write system specs and perform study analyses and design of systems, for automated test reqs, provide on-site implementation/technical support. Require MS or foreign equiv. in CS/Engg. (any branch) & 1yr exp in IT. Competitive salary. F/T. Resume, HR, V I Engineering, Inc. 37800 Hills Tech Drive Farmington Hills, MI USA 48331

Engineer - EMC Corporation (Documentum Division) has an opening for Senior Consultant in our Chicago, IL office. Requirements: BS in CS or Engineering plus 4 years experience in Software Design/Development. Please e-mail resume to: Kristy Zimmerman (kristy.zimmerman@documentum.com). Please reference: RO/TE

Prog Analysts to analyze, design/develop s/w applns using Java, JavaScript, VBScript, ASP, HTML, Weblogic, Oracle, SQL, COBOL, DB2, CICS under Windows, UNIX & MVS OS; perform unit, functional integration, regression and systems level testing; analyze user reqs; prepare design documents; develop & enhance online & batch programs; implement, install, test, debug and modify new/existing applns. Require: BS or foreign equiv in CS/Engg. (any branch) & 2yrs exp in IT. Travel involved. High Salary. F/T. Resumes to HR, Global IT Solutions, USI, Inc. 600 Stevens Port Drive, Ste 125, Dakota Dunes, SD 57049

Software Quality Assurance Engineers
Exp in test planning, test suite devlpt, test exec & defect reporting & testing s/w applns in Windows, Unix or Mainframe environ; ERP/CRM/e-applics in banking, finl/enterprise svces. Working knowl. of industry stndrd tools in test automation & defect tracking tools. Req's Mst BS + 1 yr exp. Level 1); BS +3 yrs or MS + 1 yr Level 2) Send resume & cover letter to RelQ Software Inc.;3080 Olcott St. Suite 100-B Santa Clara, CA-94054 worksite in Santa Clara, CA and various unanticipated locations throughout the US

Principal Information Systems Analyst. Colorado Springs, CO. Develop & support PeopleSoft applications for Payroll, Benefits, Administrations and Human Resources Management Systems (HRMS). Lead PeopleSoft systems analysis programming & user support team. Act as team lead of 6 employees including Programmers, Database Administrators, and Systems Analysts. Min Req: BA or foreign equiv + 2yrs exp w/PeopleSoft HR apps upgrades & programming in SQR language. $72,000/yr, 40 hrs/wk, M-F 8:00am-5:00pm. Must have proof of legal authority to work in U.S. Apply by resume only to: Workforce Development Programs, PO Box 46547, Denver, CO 80202. Job Order #CO5084220

Senior Programmer Analysts to lead teams to analyze, design, develop and implement applns using SAP, C, J2EE, JSP, RMI, Websphere, Weblogic, and EAI tools like Mercator, Sybase, Vitria, Webmethods, etc. under Windows/Unix OS; responsible for data modeling, gap analyses, etc.; involve in system/business analysis, develop functional specs based on business reqs, design, develop interfaces and perform integration of various modules; test team members/ train end users. Require BS or foreign equiv in CS/Engg. (any branch) & 3 yrs exp in the IT field. Travel involved. F/T position, competitive salary. Resume to HR, Konaru Software Services, 333 Swanson Dr, Ste 124, Lawrenceville, GA 30043

Developers/Prog Anlysts for various unspecified locations. Analyze design & develop computer applications & programs using Business Objects, Business Objects Designer, Webintelligence, Weblogic, Webl SDK, Java, JSP, HTML, Informatica, Oracle 8OL Server, SQL, PL/SQL and T-SQL in a Windows & Unix environment. Bach degree or its equiv in Comp Sci, Engg, Sci or its equiv & two years exp in the job duties. Respond to Nirtek Systems, Inc. 346 Georges Road, Suite 1, Dayton, NJ 08819 Fax: 732-438-8973, e-mail: info@nirtek.com.

IT Product Business Mgr AVP, Baltimore, MD Wachovia Serve as IT tech coordinator for trading floor applic. Reqs Reqs. MA in MIS and 3 yrs exp in post. dlf. or as a Help Desk Analyst or IT Tech. The 3 yrs reqd exp. must have incl providing support to trading floor users w/ avg. volume of trades of 50 million shares per day & must incl work on trading floor appl such as Bross, NASDAQ, Reuters-Triad and work with STP and evaluating user needs and making recs on solutions. 40 hrs/week send resume & cvr. ltr to Geri Ann Henderson, Wachovia Corp. 401 S. Tryon St., 27th Floor, Charlotte, NC 28288. No Phone Calls Please

Quality Eng. wanted by company engaged in graphics and multimedia technology design, manufacturing and marketing. Requires Bach. in CS or EE plus 3 yrs exp. including min. 2 yrs. audio/video software. Reply to ATI Research, Inc. H.R. Dept., Attn: K.B., 62 Forest Street, Marlborough, MA 01752.

Deployment Engineer to use telecom network call handling arrays & billing exp to anlyz comp sys & prvde instal of company's wireless comm S/W apps & sys on client sites; install, upgrd & trblshoot S/W apps & setup comm cnnctvty b/w various 3rd party H/W sys; provide tech & bus comp sys input for clnt & encluser; train users onsite rgrdng comp S/W apps. Must have a Bach or equiv in CS or any eng degree, 2 yrs telecom & ntwrk exp using Unix & Oracle or sim RDB sys, hands-on exp in call handling arrays & billing, demonstrb knwldg of SS7 ANSI TCAP, SS7 ITU TCAP, SCCP & MTP; &, exp w/ at lst 2 wireless protocol inc: ISUP, IS826 and IS41EE. Contact Lightbridge, Inc. 320 Interlocken Pkwy, Broomfield, CO 80021 (Job #1465.0061)

Sr Web Developer, Wachovia Corp, Charlotte, NC. Evaluates web reqs. or tech issues. Reqs BA in Eng. or Comp Science and 4 yrs exp. in pos. or as Senior Prog. Analyst or Computer Progr. The 4 yrs must incl analysis and design of software appls. and databases using server-side prog. languages such as ASP and JSP, STRUTS, PL/SQL and work w/ a content mgmt system software such as Vignette's (TCL) and work integrating Vignette (or similar software pkg.) with a web-based XML editor such as eWebEdit-Pro+XML. 2 yrs. of the req. exp. must incl. work with XML and stored procedures, database devlp. using Oracle or a sim database mgmt software. M-F, 8-5. Send resume to Jane Higgins, Wachovia Corp. 401 S. Tryon Street, 27th Floor, Charlotte, NC 28288-0475. No phone calls.

COMPUTER SYSTEMS ANALYST sought by Valet parking services to program administrative and payroll systems and update computer hardware, software and network. Bach Rqrd or equiv/combi of educ + exp. Exp rqrd. Comp Salary. Send resume to Valet Plus-Parking Systems, Inc., 161 Aragon Ave., Coral Gables, FL 33134 or Fax 305-461-3303

Intelligrum LLC seeks Syst. eme Mgmt Consultants to design, devlp, implmt and enhance scalable solns using Tivoli suite to automate & manage Systems & Networks consisting of AIX, Solaris, Linux & Win NT resources/entities also include establishing Tivoli infrastructure, upgrading Tivoli Framework and related func. tions. BS or equiv in CS, Info Sys or rel field & 2 yr relv exp. Multiple positions in Alpharetta & other locations. Apply HR, Intelligrum LLC, 5930 Barrington Ln, Alpharetta GA30005. Fax 678-330-1048

Programmer Analysts (2 positions)
Programmer Analyst w/exp in ASP, XML, XSL, SQL Server, Robot/HTML ActiveX, COM+ & VB. REF: AD#1
Programmer Analyst, Sr w/exp in Java, J2SE, J2EE, HTML, Javascript, Weblogic Server, Apache Web Server, Oracle, TogetherSoft, Jakarta's Ant & CVS/WinCVS. Customize BEA's Personalization/Portal Server & Interwoven's Teamsite. REF: AD#2
Mail Resumes to: EBusinessCorp, Inc. 209 West Central St. Ste 108, Natick, MA 01760. PLS. MENTION REF# WHEN APPLYING.

Jr. Programmers, Programmers, Software Engineers & DBAs. Design, develop, test and implement specialized software apps in: (a) Oracle Financials & Manufacturing 11i & rel. tools, Erwin, Cognos Suite, Business Objects, MF Cobol & rel. tech. (b) SQL DBA Unix Admin, VB, Sybase, Cobol, C, Cold Fusion & rel. tech. (c) J2EE & rel. tech, Rational ClearCase, CORBA, MQSeries & rel. tools. (d) PeopleSoft HRMS (HR, Payroll and Benefits Administration), Application Engine, SQR, Cobol, DB2, CICS, nVision, Crystal Reports & rel. tools. (e) Java & rel. tools, CORBA, Sybase Swing, Rational Tools & rel. tech. (f) Oracle Database Admin in Oracle 11i, Oracle Enterprise Manager, Solaris, AIX, VB, C++, SQL*Plus & rel. tools. (g) Cold Fusion & rel. tools, ASP, XML, DHTML, Crystal Reports, Java, VB, DCOM, MS SQL, Oracle 8 & rel. tools. (h) Oracle Financials & PeopleSoft, Tuxedo, Developer / Designer 2000 & rel. tools. (i) Hyperion Essbase Apps & rel. tools. (j) Oracle Peoplesoft, ASP, Java & rel. tools, SQA Robot, Mercury Test Director, Silk & rel. tools. (k) JDK, ASP, CORBA, Oracle, SQL Server, Linux, VB, HTML & rel. tools. (l) SAP-SEM, SAP R/3, SAP BW, ABAP/4, SAP (SD, MM, PP, FICO) & rel. tech. (m) Peoplesoft Financials (AP, AR, GL, FA) & rel. tools. US Workers only. Consulting positions requiring travel. Prevailing wage benefits. Send resume to: HR, SSG, 3300 Buckeye Road, Suite 555, Atlanta, GA 30341. Identifying interested positions. No Phone calls please.

Sr Web Developer, Wachovia Corp, Charlotte, NC. Evaluates web reqs. or tech issues. Reqs BA in Eng. or Comp Science and 4 yrs exp. in pos. or as Senior Prog. Analyst or Computer Progr. The 4 yrs must incl analysis and design of software appls. and databases using server-side prog. languages such as ASP and JSP, STRUTS, PL/SQL and work w/ a content mgmt system software such as Vignette's (TCL) and work integrating Vignette (or similar software pkg.) with a web-based XML editor such as eWebEdit-Pro+XML. 2 yrs. of the req. exp. must incl. work with XML and stored procedures, database devlp. using Oracle or a sim database mgmt software. M-F, 8-5. Send resume to Jane Higgins, Wachovia Corp. 401 S. Tryon Street, 27th Floor, Charlotte, NC 28288-0475. No phone calls.

Prog/Analysts to analyze, design software apps using C, C++, Compile Tools, Oracle, Informix-4GL, Informix Online, SQL Server etc. under Windows, UNIX OSs, design APIs for backup/recovery framework, provide on site maintenance support such as debugging, modifications, fine tuning & code optimization. Require BS or foreign equiv. in CS/Engg (any branch) & 2 yrs of exp in IT. F/T, competitive salary. Travel involved. Resumes to HR, Samskar Technologies, Inc., 3300, Holcomb Bridge Road, Ste 212, Norcross, GA 30092

Sr Prog Analysts to manage teams to analyze design develop apps in client server/3-tier architecture using C, C++, Tuxedo, Btrieve, MQ Series, Oracle, Sybase, Socket API, COBOL etc. under Windows, Unix OS, analyze business processes to determine reqs, implement apps and perform strategic planning/preparations support, provide end user training. Require BS or foreign equiv in CS/Engg. (any branch) & 3 yrs exp. in IT. Competitive salary. F/T, travel involved. Resume to HR, Ordulion Technologies, Inc. 3883 Rogers Bridge Road, Suite 504, Duluth, GA.

iKuni, Inc. currently has an opportunity in Palo Alto, CA for a Software Engineer (Artificial Intelligence Engineer) position. Req's Ph.D.+ 3 yrs. of exp. applying AI techniques to real-time games.
You may send a resume to iKuni, Inc. 3400 Hillview Ave, Bldg. 5, Palo Alto, CA 94304.

Jr. Programmers, Programmers, Software Engineers & DBAs. Design, develop, test and implement specialized software apps in (a) Oracle Financials & Manufacturing 11i & rel. tools, Erwin, Cognos Suite, Business Objects, MF Cobol & rel. tech. (b) SQL DBA Unix Admin, VB, Sybase, Cobol, C, Cold Fusion & rel. tech. (c) J2EE & rel. tech, Rational ClearCase, CORBA, MQSeries & rel. tools. (d) PeopleSoft HRMS (HR, Payroll and Benefits Administration), Application Engine, SQR, Cobol, DB2, CICS, nVision, Crystal Reports & rel. tools. (e) Java & rel. tools, CORBA, Sybase Swing, Rational Tools & rel. tech. (f) Oracle Database Admin in Oracle 11i, Oracle Enterprise Manager, Solaris, AIX, VB, C++, SQL*Plus & rel. tools. (g) Cold Fusion & rel. tools, ASP, XML, DHTML, Crystal Reports, Java, VB, DCOM, MS SQL, Oracle 8 & rel. tools. (h) Oracle Financials & PeopleSoft, Tuxedo, Developer / Designer 2000 & rel. tools. (i) Hyperion Essbase Apps & rel. tools. (j) Oracle Peoplesoft, ASP, Java & rel. tools, SQA Robot, Mercury Test Director, Silk & rel. tools. (k) JDK, ASP, CORBA, Oracle, SQL Server, Linux, VB, HTML & rel. tools. (l) SAP-SEM, SAP R/3, SAP BW, ABAP/4, SAP (SD, MM, PP, FICO) & rel. tech. (m) Peoplesoft Financials (AP, AR, GL, FA) & rel. tools. US Workers only. Consulting positions requiring travel. Prevailing wage benefits. Send resume to: HR, SSG, 3300 Buckeye Road, Suite 555, Atlanta, GA 30341. Identifying interested positions. No Phone calls please.

Prog Analysts to analyze, design, develop, implement CRM apps using Java, Java Script, VB, VB Script, ASP, SQL Server, Oracle, Clarify Suite of Products, XML, Visual Source Safe on Windows & UNIX OS, work with business analysts to map reqs for Clarify Data Model, involve in customization/implementation of Clear Support apps, create, execute batch programs, test, debug, modify existing software. Require BS or foreign equiv in CS/Engg (any branch) & 2 yrs of exp in IT. F/T. Travel involved. Competitive salary. Resume to HR, ABZ Consulting, Inc. 2600 Century Parkway, Ste 100, Atlanta, GA 30345

Software Engineer (with Bachelors degree and 3 years experience) - Job Entails and requires experience in design and development of applications using C, C++, Informix, Network programming, Sockets, X-Windows/Motif, AWK, PERL, Lotus Notes, Rational Rose and Unix. Relocation within USA. Possible Attractive compensation package. Send resume to Bridger Pharos Asset Control Systems, Inc. One Rockefeller Plaza, Suite 1420, 14th Floor, New York, NY 10020

System Administrators to install, maintain, administer Windows, Linux, Solaris OS, install, maintain Web/Mailing Servers, plan, maintain troubleshoot LAN/WAN, maintain backups & provide hardware/software support for users, create, update user accounts, evaluate networking systems, recommend future IT strategies. Require BS or foreign equiv in CS/Engineering (any branch) and two yrs exp in job offered. MS of foreign equiv in one of the above fields will be accepted in lieu of BS & 2 yrs exp. F/T. Travel involved. High Salary. Resumes to HR, Global IT Solutions, USI, Inc. 600 Stevens Port Drive, Ste 125, Dakota Dunes, SD 57049

Programmer Convert project specifications and statements of problems and procedures to detailed logical flow charts for coding into computer language. Develop and write computer programs to store locate, and retrieve specific documents, data and information. May program web sites. Analyze review and rewrite programs. Develop programs from workflow charts or diagrams considering computer storage capacity speed and intended use of output data. Prepares or receives detailed workflow chart and diagram to illustrate sequence of steps to describe input, output and logical operation. Compiles and writes documentation of program development and subsequent revisions. Assigns, coordinates, and reviews work and activities of Jr. Programming personnel. Trains subordinates in programming and program coding. Use a variety of software tools including but not limited to: Cobol,CORBA, Fortran Visual Basic, Oracle, PeopleSoft, Crystal Reports, J2EE, C++, Servlets, XML,SQL & Weblogic. BS degree or foreign edu equiv and 1 yr exp req. Will accept any suitable combination of edu, training or exp in lieu of the stated edu. Travel and/or relocation required.

Jr. Programmer to assists a Programmer by performing elementary programming tasks which concern limited and simple data items and steps which closely follow patterns of previous work done in the organization. May perform routine programming assignments under close supervision. May perform elementary fact-finding concerning a specified work process. Work is closely monitored in progress and reviewed in detail upon completion. Will use software tools including but not limited to COBOL, USAS, J2EE, C++, VC++, MQ Series, Servlets, XML,ASQL Server BS degree or foreign edu equiv. Will accept any suitable combination of edu, training or exp in lieu of the stated edu. Travel and/or relocation required.

Send confidential resume, to Hexaware Technologies, Inc. Attn: HR 4343 Commerce Court, Suite 618, Lisle, IL 60532

VP IT & Chief Info Officer (CIO) (Denver, CO) Respons for IT budget exceeding $25 million; plan, direct and control activities such as systems design and analysis, application and systems prog, dbs mgmt, network sys, telecomm and data processing operations; provide guidance to senior management to ensure tech capabilities are fully leveraged. Create and dvlp control policies and procedures for computer operations; designate priorities for computer operations and applications dvlpmt work; will support business improvement initiatives by providing tech guidance. Maintain knowl relating to tech directions and trends in the energy business field. Oversee and direct as necessary a full-range of energy related info tech solutions and sys and energy planning systems such as GIS, CAD and energy simulation systems, energy control systems such as SCADA and DCS metering technologies, maint mgmt systems related scheduling capabilities, large scale contract/customer mgmt sys, web delivery of energy-based solutions and internal support sys such as employee portal or intranet. Design sys capable of supporting mergers, acquisitions and divestitures and provide info tech leadership when this activity occurs. Must have exp in Mergers and Acquisitions and divestitures technology reqd. Bachelor's degree or equiv in Bus. Admin, Commerce, Comp Sci, IT or related field. 7 yrs exp in the position offered or 7 yrs exp in the related occupation of VP, Info Tech & Chief Info Officer (CIO). Please forward credentials to: HR (EC020), Duke Energy Corporation 422 South Church Street, Charlotte NC 28202. EOE. MFDV. Attn: JLC

Infinite Computing Systems a Cedar Rapids, Iowa Company is seeking qualified computer professionals. Current positions available must meet the following requirements. All positions require at least a Bachelors degree (3 year fgn Bachelor degrees are acceptable). We may have additional positions available in addition to the ones listed. Multiple positions are likely available in some positions. Candidate's salary offered relative to experience and skills. Candidates must be willing to relocate and travel as needed.

A variety of positions are available, which require between 1-5 years of experience in the below-listed skills. Certain positions may require a Masters degree.

- Java, HTML, XML, Weblogic or Websphere
- Expeditor, Cobol, DB2, JCL, IDMS, or IMS
- ERP (e.g. SAP Peoplesoft or Oracle Apps)
- Visual Basic, SQL, ASP.net, SQL Server
- Easytrieve, QMF, Cobol CICS, SAS, TSO/ISPF
- C, C++, GUI, Oracle or Informix or Sybase

Please send resume and cover letter to Raj Inani, President, Infinite Computing Systems Inc., 230 2nd Street - Ste 214 Cedar Rapids, IA 52401

COMPUTER GRAPHIC DESIGNER to design and develop web-related applications and visual components of computer animation productions using Adobe Photoshop, Image Ready, JavaScript, Macromedia Flash, Dreamweaver, Corel Draw, Illustrator Quark, Visual Source Safe, Cascading Style Sheet (CSS), 2D Animation and Homsite. Require Bachelor's degree (or equivalent) in Computer Graphics, Graphic Design, or a closely related field with 2 yr of exp in the job offered. Each 3 yrs of progressively responsible work exp in the field will be considered equivalent to 1 yr of college education. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to Ravi Kandimalla, Everest Computers Inc. 875 Old Roswell Road, Ste E-400, Roswell GA 30076. Attn: Job: LM

S/W Applications Engineer. Assist in developing s/w using C, C++, VB, Html, Xml/Xsl, Javascript on Windows, MacOS, Sun Solaris, Unix/Linux operating systems, MS Access, SQL Network/Photoshop. Develop content for all internet-based doc. Req: Bachelors in Comp Sci/Electrical Eng. 40hrs/wk. Job/Intrvw Site: Torrance, CA. Send resume to: Classic Components. Attn: Michelle Bartolo. 23605 Telo Avenue, Torrance, CA 90505

Software Engineer to analyse, design, develop, test, implement and support PeopleSoft's web architecture global ERP Solutions. as a technical lead develop solutions throughout the project's life-cycle with hands on experience in SQRs, security, LDAP, Informix, Oracle, and PL/SQL. Bachelor Degree and 5 years in life-cycle experience for HR, PY, AP, GL, T&L, PO, BI and SS. Send Resume to Datum Software Inc. Attn: HR, 6825 The Corners Parkway, Suite 312, Norcross, GA 30092.

SiC Power Device Scientist: Work on the design (2D device simulations and CAD layouts), processing and testing of SiC bipolar power devices such as PiNs, BJTs and GTOs; develop detailed process travelers and inspect wafers through the fabrication process. (This may involve stopping by in the evenings or weekends for 1-2 hours as needed.); prepare scientific and technical proposals for securing funding from various Government funding agencies; make technical presentations; and coordinate with team of scientists, engineers and technicians to develop fabrication processes for SiC based Power Devices. Requires a PhD in Electrical Engineering, Materials Science, or related field and 3-5 years experience in design and fabrication of power devices. Must be willing to perform tasks outside of normal job duties and past experience. Must have a "whatever it takes" attitude to get the job done; which means working 50 hours per week and/or weekends when needed. Permanent resident status (Green Card) or citizenship required. Send resumes to: CREE INC., 4600 Silicon Drive, Durham, NC 27703. (No phone calls please). CREE is an Equal Opportunity Employer, M/F/D/V and a Drug Free Workplace.

SENIOR SOFTWARE ENGINEER - WESTFORD, MA. Design and develop new routing protocols for company new products, or enhancements of existing products, using the Open Shortest Path First (OSPF) protocol. Perform traffic engineering of routing protocols used to identify the shortest and/or most efficient path for voice and data to travel over massive telecommunications networks. Create new technology strategies and oversee their implementation in telecommunication switches. Develop new software features and manage their implementation and testing. Oversee the work of five more junior software engineers. Requires an Bachelor's or related, and 1 year of exp in job offered or 1 year of exp as SW Engr, SW Designer, or related. The 1 year of exp in related occupation or job offered must include traffic engineering of routing protocols using OSPF and their implementation in telecommunication switches. 40 hrs/wk, 8:00 am - 5:00 pm. Salary: $89,632 /year. Please send two (2) resumes to: Case# 290204376, Division of Career Services, Labor Certification Unit, 19 Staniford Street, 1st Floor, Boston, MA 02114

Software Engineer, Miami, Florida. Design, test, implement and support software products and systems. Develop new and modify, improve and support existing software products and solutions. Liaise with other technical professionals. Utilize C programming language, Java and Visual Basic object-oriented programming language. SQL and on UNIX(AIX) and Windows NT network operating systems. Requires Bachelor's Degree or foreign equivalent in Computer Science or Engineering plus one (1) year exp. in the job offered or one (1) year experience in the related occupations of Technical Support Engineer or Computer Engineer. $73,912.80 per year. 40 hours per week 8:30am-5:30pm. Send resume to Job Order number FL-2529282, Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869

Blackbaud, Inc. the leader in bringing technology to non-profit organizations and educational institutions, seeks qualified individuals for the following positions at our Charleston South Carolina, headquarters:

Software Engineer: Develop customize, integrate and support Blackbaud's software systems using Visual Basic, ASP, ASP.NET, HTML, Javascript, SQL and other internally used technologies.

Quality Assurance Engineer: Write test plans for automation. Develop, maintain and execute automation code. Develop software using Visual Basic.

Positions require a Bachelor's degree in Computer Science, Engineering or a related field as well as previous experience. Interested applicants should mail resumes to Blackbaud, Attn: Recruiting - A.K., 2000 Daniel Island Drive, Charleston, SC 29492. EOE.

Software Engineer IV - Systems Analysis & Programming

(Temple Terrace, FL) Provide conceptual & high-tech solutions to complex business & technical problems. Develop & implement standards & verify results. Provide technical expertise in operating systems & applications systems in the telecommunications industry. Design & develop business process automation systems for the telecommunications industry on client server architecture using object oriented techniques & software development using C/C++, Unix Java SQL & Windows NT. Position requires a Bachelor's Degree in Computer Engineering or Computer Science & 3 years of experience in the job offered or 3 years of experience in the related occupation of Engineer, Software Specialist, or Analyst. 3 years of experience must include experience with C/C++, Unix Java SQL & Windows NT. $71,600/year, 9 AM -5 PM, M-F, 40 hrs/wk. Submit resume & copy of advertisement to Workforce Program Support, PO Box 10869, Tallahassee, FL 32302-0869. Job order number FL-2531908. Must have proof of legal authorization to work in the United States.

Internet company seeks Ph.D. Research Engineers responsible for innovative research. Interested applicants should send resumes to: K. Wolfe; 1600 Ampitheatre Parkway; Mt. View, CA 94043. Visit www.google.com for additional information.

Software Engineers & Programmer Analysts sought for openings nationwide. Exp in technologies such as: Case tools, DB2, CICS, Cobol, Business Objects, JCL, REXX, SAP R/3, ABAP/4, WebSphere, VisualAge, EJB, JSP, ATL, MTS, Sybase, Informix, SQL Server, FoxPro & Oracle. Some positions req: Masters or equiv in Tech, Mech, Engg, Sci or Comp Sci. Some positions req at least 4 yrs exp in IT field. Equiv degree & exp also accepted. Exc pay & benefits. Must be willing to relocate if necessary. Pls mention position applying for. Resumes to Ram Jagannathan, Rashi Information Systems, 1132 Hamilton St, Ste 300, Allentown, PA 18101.

IT CAREER OPPORTUNITIES

CALIFORNIA
(Corporate HQ. Employment is throughout US)
Sr. UNIX Administrator

VIRGINIA
Application Engineer

Positions require a BS and relevant experience; a combination of experience and college level education may be accepted. The flexibility to travel and be on-call may be necessary. Proof of legal authorization to work in the U.S. is required.

Please forward your resume to CSC, Attn: J. Le, 2100 E. Grand Ave., Mail Code: A209, El Segundo, CA 90245. Please indicate the specific job title and location for which you are applying.

Software Engineer Network Senior (Atlanta, GA position) Requires a Master's degree or equivalent in Comp. Science or Info. Security & 3 yrs' experience in the job offered or 3 yrs' experience programming in C++ on Windows and Linux platforms. In lieu of a Master's degree, will accept two additional years of experience as stated. Stated experience must include writing cross-platform code for Windows, Linux and Solaris; performing protocol analysis, including packet-based protocols; designing, developing and unit testing multi-threaded applications, utilizing multi-process sy nchronization techniques using semaphores, IPC and sockets; and analyzing network security vulnerabilities and exploits. 40 hrs./wk. Send resume by mail to: Internet Security Systems, Inc., 6303 Barfield Road, Atlanta, GA 30328 ATTN: T. Zetley.

Computer Professionals (Multiple Openings) Software Engineer/ Sys. Analyst/ Programmer Analyst/DBA. Must have bachelor degree or equivalent and experience in some of the following: Java, Cobol, JCL, C/C++, VB, ASP, Databases (Sybase / SQL / Oracle / MS Access / DB2), ERP/CRM (Oracle, Peoplesoft, SAP, JD Edwards, BAAN, Siebel, Vantive), Datawarehousing Tools (Cognos, Informatica, Business Objects/ Datastage), Micro-strategy), Tools (CMSynergy, Vtiria) on Windows (95/98/2000/NT/XP) and/or UNIX and/or Linux operating systems. Must be able to travel or relocate nationwide. Send Resume to HR Manager Adsequare, inc. 10817 Waterbury Ridge Ln, Centerville, OH 45458. Or resumes@adsequare.com. Only unsolicited resumes accepted. (No Walk Ins)

JVD InfoTech, Inc. seeks Programmer Analyst based out of our Pittsburgh, PA loc. Analyze data proc problems, user req., procedures, automation & improvement problems. Work with z/OS/ S390 Systems, RACF, sysplex, IPL, VICOM, WebSphere App-Server Security, LDAP, SSL, LTPA, OO Modeling & Design + dev using Java-Server Side, J2EE, EJB, Servlets, JSP, JMS-MQ Series, JavaMail, JNDI, JDBC, C/C++, MVC Design Patterns, Struts Framework, UML (Rational Rose) & XML using various App Servers (WebSphere, WebLogic) + relational databases (Oracle, DB2). Involves travel + possible relocation. Must have Bachelor degree in Engineering or related field + 2 yrs experience. Resume to Mr. Bhoop, JVD Infotech, Inc., 7 Dorchester Drive # 211, Pittsburgh, PA 15241A

Programmer Analyst - Must have Bachelor degree or foreign equivalent Computer Science, Computer Technology or related. Must have 2 years of experience in the job offered or in Computer Consulting or Project Management. Duties are to design and development of computer programs, develop and maintain specifications, modifications and additions to programs, locate and correct user problems; analyze programs to increase operating efficiency and develop programs to meet user requests. Requires 2 yrs. exp. in AS/400-iSeries, RPG/400-ILE, CL/400, DB2 UDB, SQL and SDLC and TIM tersite ERP software. Qualified candidates must send resumes to Datatex Textile Information Systems, Inc. Attn: Carol Lesher, 11810 Northfall Lane, Bldg. 1203, Alpharetta, Georgia 30004

CompuSystems, Inc. a technical consulting company has multiple openings for IT Professionals and Consultants in various positions. Duties will include but not be limited to developing and designing s/w systems using various h/w, o/s tools, s/w packages and languages. A relevant degree or its equivalent is required. Competitive salaries offered. Apply to resume@compusystemsmail.com or CompuSystems, Inc., 1955 W. Hamlin Rd., Ste 200, Rochester Hills, MI48309

SOFTWARE DEVELOPER I to design, develop and debug application software using Java, JDBC, EJB, RMI, XML, UML, design patterns, SQL and Oracle Databases. Perform duties under close supervision of project manager to ensure accuracy and that project progresses according to prescribed instructions and expected results are met. Require BS degree in Computer Science/ Info. Systems, an Engineering discipline, or a closely related field with 1 yr of exp. in the job offered. Competitive salary offered. Apply by resume to Vishaal Penning, EPL, Inc., 22 Inverness Center Pkwy, Ste 400, Birmingham, AL 35242, Attn: Job MB

System/Programmer analysts, IT engineers needed by E IT professionals, Inc. to design system applications to meet client's requirements using Java, Oracle, VB, Web Tech, Unix, SQL, SAP, JSP, J2EE, MS Tech, etc. BS/MS with IT exp required. Contact: jobs@iprofs.net. EOE. No calls.

Symova has multiple openings for Project/Software Engineers, System/Programmer Analysts. Our clients include Fortune 500. Candidates must have MS or BS with experience. We offer attractive wages with full benefits. Travel maybe required. E-mail resume to jobs@symovainc.com. EOE

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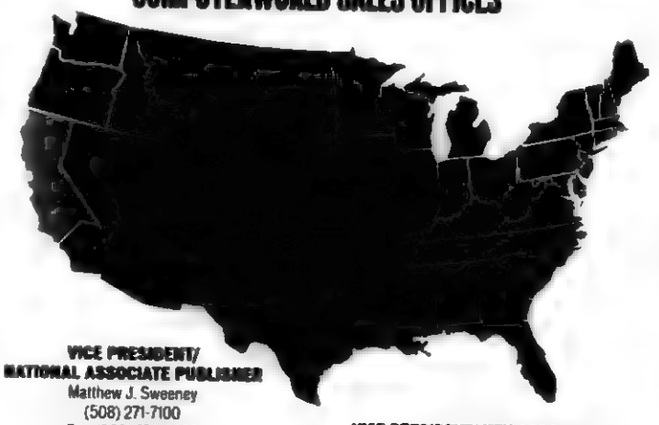
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Sarb-Ox

Great Plains software until the spring of 2005 in order to help it meet Sarbanes-Oxley requirements that kick in when its fiscal year ends Dec. 31, Thompson said.

Crown Media, which is using software from Movaris Inc. to test its IT and financial controls, plans to complete all remediation and testing of its systems by Dec. 1. Thompson said external auditor KPMG LLP will then test the systems to determine if further revisions are needed.

If Crown Media didn't have to meet the Sarbanes-Oxley compliance deadline, it would have installed the Great Plains applications this year in order to have a clean cutover to the new accounting system on Jan. 1, Thompson noted. "Because Sarbanes-Oxley is so important to everybody, we didn't want to take the chance," he said.

> **"We went through a whole reprioritization of IT projects for '04."**
>
> **MARK THOMPSON,** SENIOR VICE PRESIDENT OF FINANCE AND IT, CROWN MEDIA HOLDINGS INC.

Analysts said Crown Media isn't alone in making such decisions. "I've seen many companies postpone projects," said Tim Welu, CEO of Paisley Consulting Inc., a Cokato, Minn., firm that does consulting work and develops software for managing audits of both IT and financial controls.

"Most companies I'm dealing with are trying to put everything in by the end of September. And if they can't do it by then, they're postponing until Q1 2005," said Marios Damianides, a consultant at Ernst & Young LLP in New York and international president of the Information Systems Audit and Control Association in Rolling Meadows, Ill.

Joseph Puglisi, CIO at Emcor Group Inc. in Norwalk, Conn., said the looming Sarbanes-Oxley deadline prompted the construction services firm to limit the initial rollout of an upgraded ERP system to some of the units in its facilities services division. The new system, which is based on PeopleSoft Inc.'s applications for midsize companies, was installed in March.

In order to facilitate its compliance initiative, Emcor decided to wait until next year to add functionality such as the human resources management software that's in the PeopleSoft EnterpriseOne product line. It's also holding off on converting other parts of the facilities services division that continue to run on older versions of the PeopleSoft software or other types of ERP applications, Puglisi said.

Sarbanes-Oxley "has created enough of an extra burden on our accounting staff to effectively eliminate the possibility of moving forward with some accounting systems initiatives," he added.



> **"[Sarbanes-Oxley] has created enough of an extra burden on our accounting staff to effectively eliminate the possibility of moving forward with some accounting systems initiatives.**
>
> **JOSEPH PUGLISI,** CIO, EMCOR GROUP INC.

In some cases, companies have fast-forwarded systems installations in order to add needed functionality and still meet the compliance deadline.

Hilton Hotels Corp. in late March finished installing a homegrown sales reporting system that was written in Visual Basic .Net and runs on Windows 2000 and SQL Server, said Damien Bean, vice president of corporate systems at the Beverly Hills, Calif.-based company. "We made plans last November not to have any Sarbanes-related systems installed during the second half of 2004," Bean said.

Even though companies will halt new systems installations this fall, they still plan to proceed apace on IT development work, said Damianides. Furthermore, the impact on IT spending is expected to be negligible because most companies plan to spend funds that were allocated for project rollouts in different areas within IT, he added.

"I'm seeing a fairly consistent spend," he said. "It's more a redistribution of funds." **48200**

Continued from page 1

Boeing

tion, Cisco will provide Boeing with its Call Manager software, gateways and network-traffic trunking devices.

Boeing and Cisco wouldn't disclose the expected value of the deal, but several analysts said it could easily surpass $150 million based on an average cost of $1,000 per worker for VoIP phones and related software. The price tag could be much higher depending on how much of Boeing's underlying network infrastructure is replaced, said Elizabeth Ussher, an analyst at Meta Group Inc. It's possible to spend $1,500 to $1,700 per worker on such projects, she added.

The size of the planned deployment impressed Ussher and other analysts who view Boeing's project as another indicator of a recent uptick in the adoption of VoIP technology by corporate users.

"We're finally starting to see the floodgates open," said Kathryn Korostoff, president of Sage Research Inc. in Natick, Mass. "Every company knows VoIP is the wave of the future, but it's been a matter of when it will take off."

Increased interest

Korostoff said the increased interest is partly the result of two developments: The cost of VoIP phones has started to drop, and many traditional voice switches are aging and need to be replaced.

Other large installations that are under way include a project at IBM, which in March outlined plans to provide VoIP phones to about 400,000 employees and contractors over the next five years. IBM is using a combination of gear from Avaya Inc., Cisco and Siemens AG [QuickLink 45248].

Boeing officials said the Cisco phones and switches will replace devices made by Avaya, Lucent Technologies Inc. and Nortel Networks Ltd. The contract with Cisco covers a five-year period and could be extended if needed, according to Terrill. He said Cisco already is the primary supplier of the more than 1,000 WAN routers and 5,000 LAN switches that Boeing has on its global data network.

Cliff Naughton, director of network services at Boeing, said the company expects to get cost efficiencies by running a converged network for voice, video and data traffic, but he wouldn't elaborate. "There is a payback in operating expenses," Naughton said. "It met our own internal rate of return."



Both Terrill and Naughton repeatedly used the word "journey" in describing the planned rollout, pointing out several concerns they have had about VoIP technology — some of which have yet to be fully resolved.

For example, Boeing has run a VoIP pilot program for the past three years with 4,500 Cisco phones at operations in four states. Terrill said the tests have shown that voice quality is lessened for home-based workers who use cable modems or Digital Subscriber Line connections, as well as for employees with PC-based IP phones, which are known as soft phones.

All of those devices lack quality-of-service capabilities that can give voice traffic priority on networks to prevent disruptions in calls or videoconferences. For now, Terrill said, "we're being very conservative with soft phone implementations." Naughton added that Boeing is starting to implement quality-of-service technology on broadband connections used by employees who work at home.

One big corporate culture challenge that Boeing faces is bringing together its voice and data networking staffs to make the VoIP project work. The company has partly dealt with that by hiring for the project a group of about 10 traditional voice network engineers, who have also been trained to understand IP so they can deal with Cisco and subcontractors in making technical decisions about the rollout, Naughton said. **48181**

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Scary Message

SCARY STUFF, these numbers from a new survey by the American Management Association and the ePolicy Institute: 20.1% of companies surveyed say they've had e-mail and instant messages subpoenaed. A bit more than 13% have been sued over employee e-mail. Only 6% archive IM, and 35.1% have an e-mail retention policy. Nearly 37% of employees aren't sure which messages should be saved, and 6% have sent or received a sexual, romantic or pornographic instant message.

Yeah, these numbers are scary — but not scary enough to get your top management to budget more for proper e-mail and IM policy training and enforcement, are they?

And no wonder. The numbers don't add up. It's hard to quantify the risk of slack messaging management, even with the possibility of lawsuits or regulatory action. And it's often cheaper to pay a fine than it is to obey the law. Too often, that's what drives management's spending decisions.

Is that a good thing? No. But it's reality.

Remember back in December 2002, when five Wall Street firms got slapped with fines of $1.65 million each because their systems for archiving e-mail were inadequate? I chalked that up to management's failure to recognize the price of not investing in its systems.

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Now *there's* a scary thought, eh?

48173



FRANK HAYES. *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Enlightenment

This soon-to-graduate pilot fish is interviewing for a technical sales job, and she's sure the hiring manager is impressed with her communication skills. "But the company owner wasn't too sure about how techie a female could be," fish says. "Then the power went out – a road crew had sliced a cable. Being the true girl geek that I am, I pulled my Mini Maglite from my purse and turned it on and calmly continued the interview. They looked at me with astonishment, so I said, 'Hey, I may be a girl, but I *am* an engineer. Of *course* I have a flashlight.' They told me I had the job."

All Wet

SHARK TANK

It's long ago, and this pilot fish discovers that the electricians who built custom power cables for his company's monitors soldered them instead of crimping them. So the electricians return to make things right, and fish tests the results. "I turned on a monitor," says fish, "and got a light show of frying electronics." He checks the connector, and it feels not just warm, but damp – as though the cable's plastic covering has melted. "Would water do that?" asks the electrician's apprentice. "After we soldered them, they were so hot that we dipped them in water to cool them off."

See, Why Not?

Now corporate policy says *everyone* must use the help desk, so to stay in compliance, IT pilot fish calls when he has a PC problem. He watches as, by remote control, they do all the troubleshooting he has already tried. "Then I noticed they went to a command prompt and typed 'ipconfig /release,' breaking the connection," fish says. "Over the phone, I could hear them trying to type commands. After about five minutes I heard a big sigh, and I decided to tell them I would type 'ipconfig /renew' to let them back on my system, since remote admin worked through TCP/IP. I've since decided not to call them anymore."

But Other Than That, It's Fine

Back when a mainframe disk drive unit was a huge box sitting on the floor, pilot fish's data center installs one, and everything seems to be working properly. But every now and then, operators hear a beep from the area of the drive unit. "No one could figure out what it was," says fish. Computer room staffers check the manuals, look for error indicators and even call in the vendor's customer engineer, who takes the disk drive unit apart but can't find the problem. Finally, someone manages to track down the cause. "It was a smoke detector above the disk drive," fish sighs. "It was beeping to notify the owner to change the battery."

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FRANK HAYES ■ FRANKLY SPEAKING

Scary Message

SCARY STUFF, these numbers from a new survey by the American Management Association and the ePolicy Institute: 20.1% of companies surveyed say they've had e-mail and instant messages subpoenaed. A bit more than 13% have been sued over employee e-mail. Only 6% archive IM, and 35.1% have an e-mail retention policy. Nearly 37% of employees aren't sure which messages should be saved, and 6% have sent or received a sexual, romantic or pornographic instant message.

Yeah, these numbers are scary — but not scary enough to get your top management to budget more for proper e-mail and IM policy training and enforcement, are they?

And no wonder. The numbers don't add up. It's hard to quantify the risk of slack messaging management, even with the possibility of lawsuits or regulatory action. And it's often cheaper to pay a fine than it is to obey the law. Too often, that's what drives management's spending decisions.

Is that a good thing? No. But it's reality.

Remember back in December 2002, when five Wall Street firms got slapped with fines of $1.65 million each because their systems for archiving e-mail were inadequate? I chalked that up to management's failure to recognize the price of not investing in its systems.

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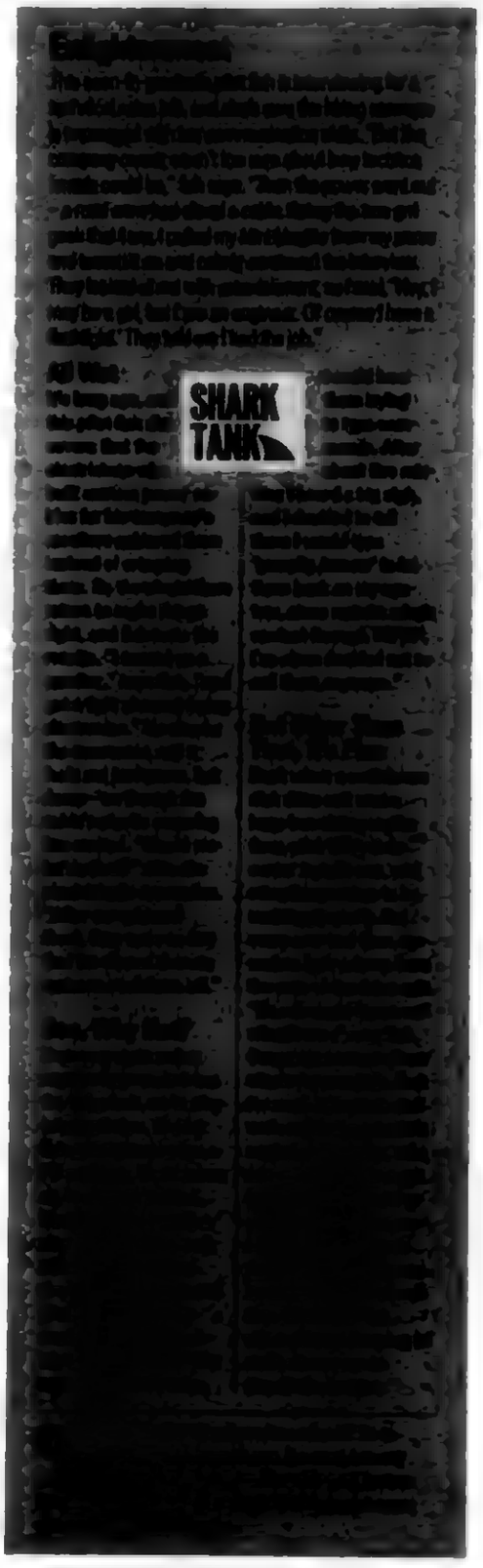
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2004

Life-cycle leap: EMC to announce what its acquisition of Documentum has yielded.
Rational idea: IBM will provide deeper integration in the next version of its tools suite.

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JAMES O'BRIEN

EDUCATING YOUR CXOs

Business execs have learned just enough about IT to be dangerous, so smart CIOs are furthering their education to turn them from adversaries to allies. Here's how.

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NEWSPAPER

PROQUEST
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Future of HP User Events Uncertain

Independent user groups say vendor's proposal to consolidate conferences threatens revenue, voice

BY MATT HAMBLEN AND PATRICK THIBODEAU

In a development that threatens the continued existence of independent HP user groups, Hewlett-Packard Co. intends to "coalesce" three user conferences into one "technical solutions conference" beginning next year.

Some user group officials said the plan, which may mark the end of HP World, threatens the groups' major sources of revenue and their reasons to exist. And they're worried that the plan would replace user-focused conferences with a vendor-sponsored, marketing-driven event.

The 10,000-member Encompass user group has endorsed the plan. But ITUG (formerly the Tandem user group), OpenView Forum International and the 100,000-member Interex group are voicing concerns.

"If you surrender your premier event, what is your purpose in life beyond that?" asked Denys Beauchemin, president of Sunnyvale, Calif.-based Interex, which co-produces HP World annually with Encompass. Interex leaders and members are assessing the impact of HP's proposal on Interex's "very existence . . . if we did not have HP World," Beauchemin said.

"There is something of value lost when a conference is run by a vendor," added Chris Koppe, an Interex board member and marketing director at Speedware Corp. in St. Laurent, Quebec. "It is the vendor's interest that is put foremost, and there is a negative impact."

HP Events, page 14

INSIDE PAGE 14

Supply Chain System Failures Hampered Army Units in Iraq

BY MARC L. SONGINI

Because of the failure of automated supply chain management and tracking systems in Iraq, U.S. Army combat units fighting there last year had to resort to capturing key supplies such as lubricants and explosives from enemy stockpiles, according to a review of the war that was written by military analysts.

In addition, food supplies barely met demand, and stocks of ammunition and spare parts were nearly depleted during combat, wrote analysts at the Center for Army Lessons Learned, a mil-

Army in Iraq, page 15

MORE ONLINE



The Democrats' stage is set for e-voting debate.

Effort Afoot to Address E-voting At Convention

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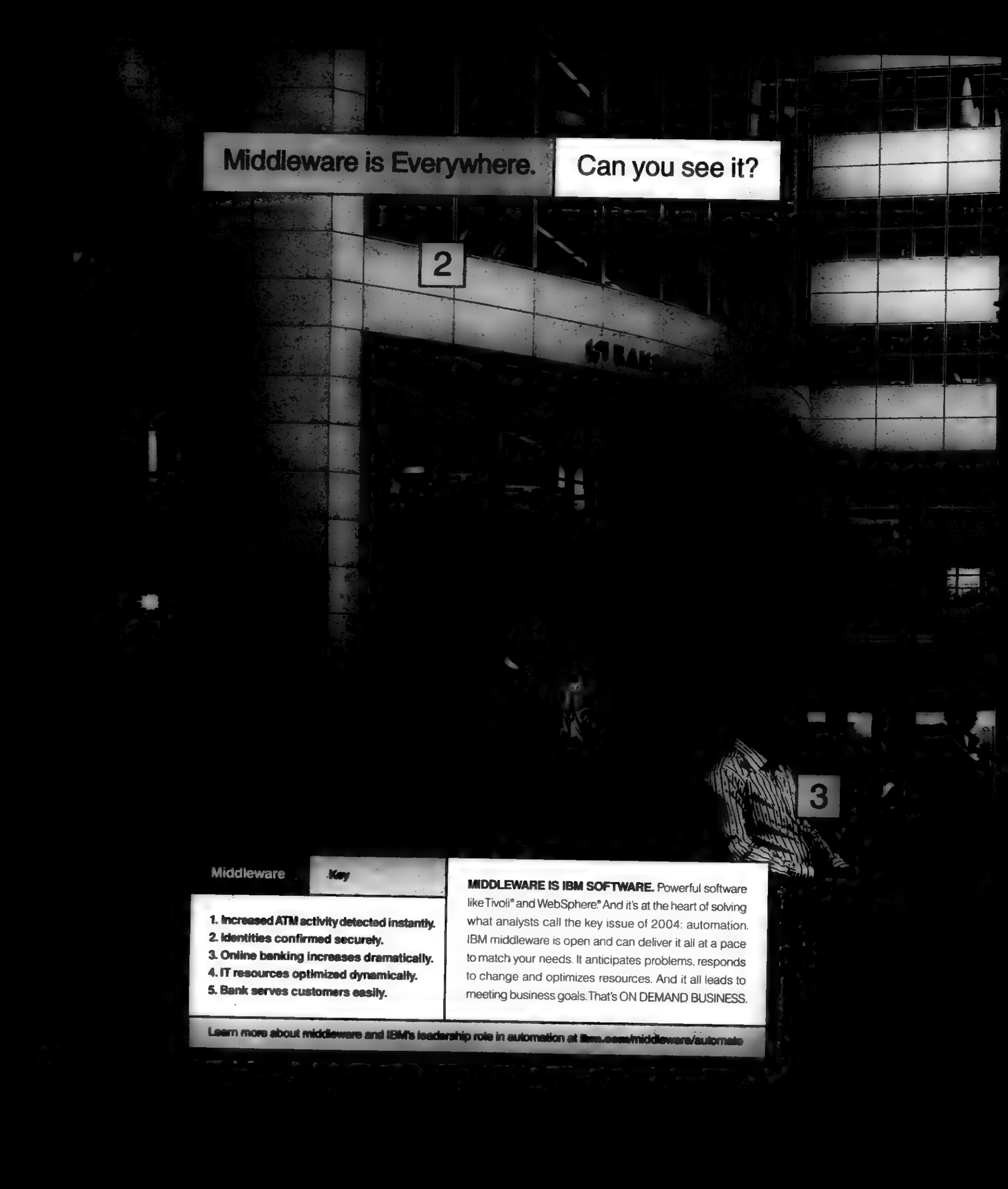
BY DAN VERTON

A Democratic congresswoman from President George W. Bush's home state plans to put the issue of electronic voting security and integrity in the spotlight at this week's Democratic National Convention.

Although she isn't scheduled to speak at the convention in Boston, Texas Rep. Eddie Bernice Johnson will call on prominent Democrats to help raise voter awareness about the challenges facing the security, reliability and integrity of electronic voting systems, a spokesman for her office said.

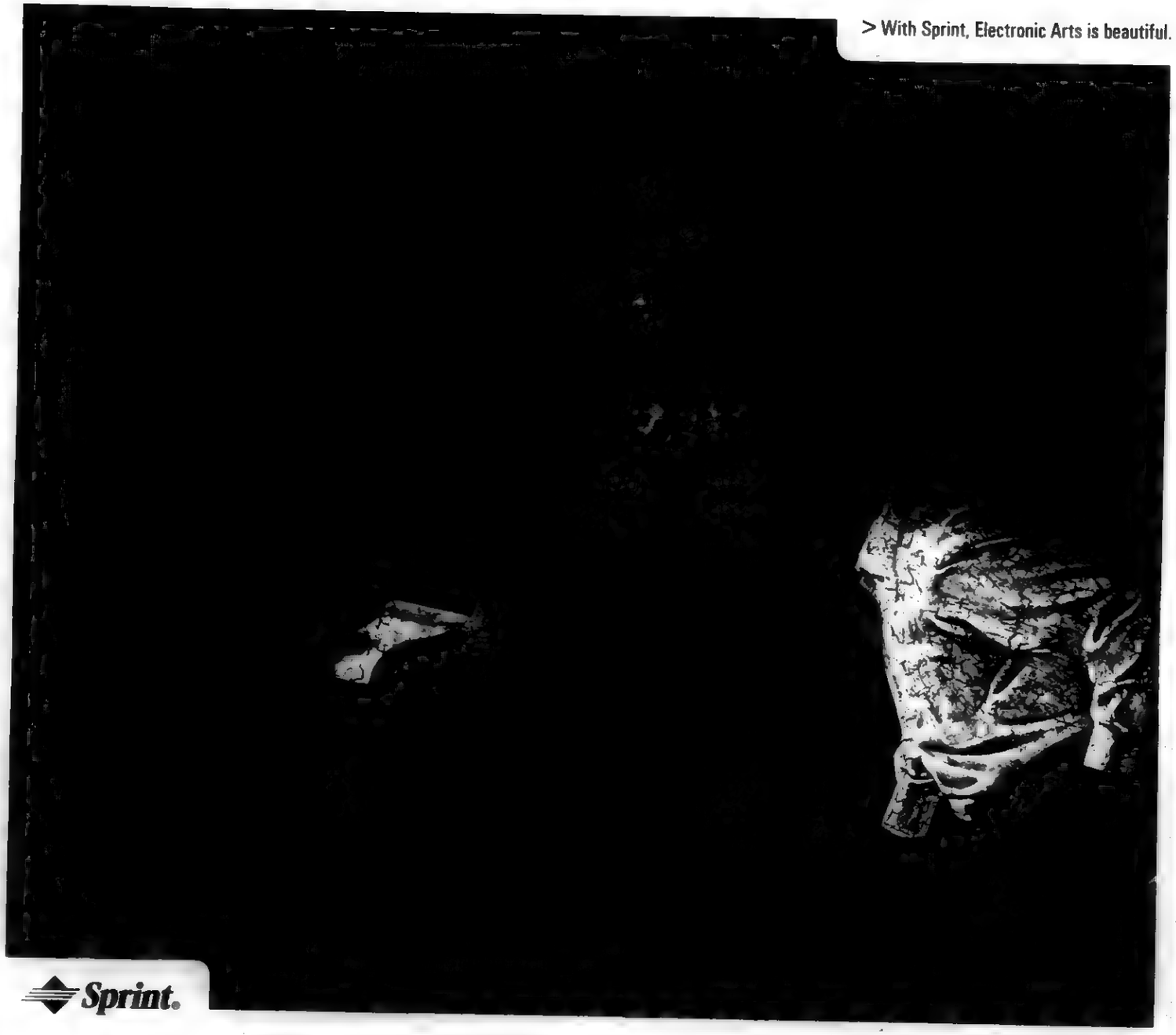
"I can't imagine it not be-

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07.26.04



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Stretch Your Talent

In the Management section: Stretch assignments can boost employees' IT skills, career prospects and morale. But be careful: Stretch your workers, don't break them. **Page 33**

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7 **SAP broadens** a software maintenance program that was announced in March to cover all new releases of its business applications.

10 **IBM promises** deeper integration in the next version of its Rational tools suite.

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16 **Virginia Robbins** has witnessed the anxiety that outsourcing is causing for one IT manager on the front lines.

17 **David Moschella** sees signs of important changes in the industry in the implosion of Comdex.

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46 **Frankly Speaking: Frank Hayes** thinks Daimler-Chrysler's legal victory over SCO could have implications for software use beyond the Linux battle.

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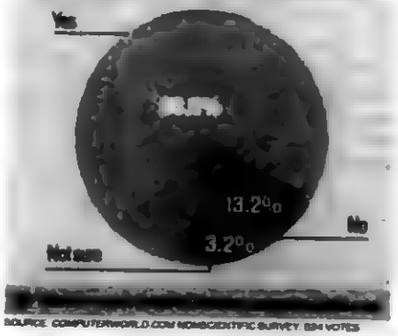
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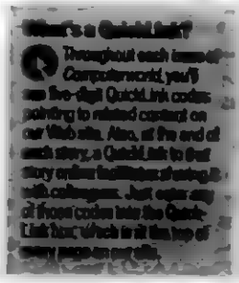
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Load Testing Done Right

WEB SITE MANAGEMENT: Poor testing procedures may be to blame for some highly publicized Web site crashes. Keynote Systems' John Klinke explains how to test the right way. **QuickLink 48196**

Don't Be Left in the Dark

DISASTER RECOVERY: As the first anniversary of the "Great Blackout of 2003" approaches, Randy MacCleary, general manager of UPS Business at Liebert North America, offers steps your company can take to keep business running during a power outage. **QuickLink 47544**



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AT DEADLINE

i2, Manugistics Changing CEOs

Supply chain software vendors i2 Technologies Inc. and Manugistics Group Inc. are both changing their top executives. Dallas-based i2 said founder Sanjiv Sidhu will step down as CEO once a replacement is hired, although he will stay on as chairman. Manugistics named Joe Cowan to take over as CEO from Gregory Owens, who also will continue as chairman. Cowan previously was CEO at EXE Technologies Inc. in Dallas.

Sun Puts Opteron In Four-CPU Server

Sun Microsystems Inc. today plans to announce an Opteron-based server that runs Solaris and supports up to four CPUs, according to information posted on a Web site for its business partners. Sun declined to comment about the announcement, which follows Hewlett-Packard Co.'s rollout of a four-processor Opteron system in April.

Microsoft Sales, Profits Up Again

Microsoft Corp. said revenue increased 15% year over year in its fourth quarter, which ended June 30. Profits rose 81%, and Chief Financial Officer John Connors said all of Microsoft's product groups met or beat expectations.

Q4 FY04	$9.29B	$2.69B
Q4 FY03	$8.07B	$1.48B

CA Cuts Forecast For Its Fiscal Year

Computer Associates International Inc. reported first-quarter financial results that were better than the company had warned they would be earlier this month. But CA lowered the sales forecast for the rest of its fiscal year, saying it expects total revenue of $3.4 billion to $3.5 billion. It had once projected up to $3.7 billion in revenue for the full year.

EMC Links Document Management, Storage

Adds software for moving data to different devices

BY LUCAS MEARIAN

EMC CORP.'s Documentum division today will announce its first product offering that ties together document and storage management through the use of software designed to automatically migrate unstructured content to different tiers of storage devices.

EMC officials last week said the new Document Content Storage Services software runs in conjunction with Documentum's content management applications and includes a policy engine that IT managers can use to direct corporate documents to primary, secondary or archival storage. The policy engine can take into account factors such as the age of documents and the value they have to a company.

The software can also move data throughout multivendor storage installations, according to EMC. The company said Document Content Storage Services works with its own storage subsystems and with hardware sold by rivals IBM, Hewlett-Packard Co., Hitachi Data Systems Corp. and Network Appliance Inc.

Changing Classifications

Document Content Storage Services provides a framework for classifying documents from a storage standpoint at the time they're created and then modifying the classifications throughout the life cycles of the documents.

For example, an insurance contract or product invoice would be stored on a high-speed disk array while being processed, said Neville Letzerich, a product marketing director at EMC. But after being finalized, the document could be migrated to lower-cost disk storage and eventually to a tape archive, he added.

Wayne Aiello, vice president of e-business services at EMC user Corporate Express Inc. in Broomfield, Colo., said the office products distributor will likely roll out Document Content Storage Services next year. Aiello said he hopes the software will help Corporate Express save money by allowing him to migrate some of the company's 25 million product order invoice documents to lower-end storage, freeing up more primary storage for transactional data.

"Depending on the age of the document, it's very important for us to understand how to store it," Aiello said. "Obviously, we don't want to store all 25 million invoices on high-end storage. It's not cost-effective for us."

Last year, Corporate Express took in about $1.5 billion of its $4.4 billion in North American sales through its Web site. The company is just beginning to use Documentum's content management tools to archive Web content, according to Aiello.

He also expects Documentum's software to help Corporate Express as well as its corporate customers comply with the financial reporting mandates of the Sarbanes-Oxley Act. "Customers are asking us because of [Sarbanes-Oxley] to maintain their order history — who ordered it, who approved it, when it was approved — and to keep the notes put on it," he said. "It's a financial record for them."

Defining the storage policies that are needed to automate document life-cycle management will be an arduous task, Aiello acknowledged. But he said he's looking forward to setting up those policies in Documentum's software instead of having to build "a lot of scripts on the hardware side."

IDC analyst Bill North said developing automated storage migration policies for existing documents will be a nearly impossible task for users, unless they already run Documentum's content management tools. "This is great for companies using Documentum, but it doesn't do anything for the larger population out there," North said.

EMC said Document Content Storage Services is available now, but it couldn't provide pricing information on the new product last week. Documentum's flagship Document Content Server software starts at about $50,000.

48338

TECHNOLOGY DETAILS

Document Content Storage Services

INCLUDES a policy engine that triggers ad hoc or batch execution of storage allocation policies as files are added to systems

OFFERS tools for creating and altering storage policies, plus audit capabilities and event logs for reporting and chargeback uses

PROVIDES APIs for linking the policy engine to storage devices from EMC, HP, IBM, Hitachi Data Systems and Network Appliance

EMC Has Strong Q2 – but Not Symmetrix and Documentum

EMC last week reported double-digit revenue growth for the second quarter year over year, meeting Wall Street's expectations. But sales of the company's high-end Symmetrix storage arrays declined from their first-quarter levels, as did sales of Documentum's software.

EMC brought in $1.97 billion in revenue during the quarter that ended June 30, up 33% from the same period a year ago. However, the results reported for last year's quarter weren't restated to reflect EMC's acquisitions of Documentum, Legato Systems Inc. and VMware Inc. The company said revenue from its core business, excluding those three units, was up 19%. Net income totaled $193 million.

Sales of EMC's midrange Clariion disk arrays jumped 43% from the year-earlier level, and the company said its Celerra network-attached storage business increased 40%. But Symmetrix sales were up just 5% year over year and declined 3% on a sequential basis.

Tom Lahive, an analyst at Enterprise Storage Group Inc. in Milford, Mass., said Clariion, Celerra and EMC's Centera fixed-data disk array all had "huge growth" during the second quarter. "The question for the company is, what are they going to do to keep their meat-and-potatoes Symmetrix line growing?" Lahive said.

EMC spokesman Michael Gallant said the company underordered some of disk drives used in the Symmetrix line. "So, essentially, there were some Symmetrix orders we put into backlog," Gallant said. He also noted that for the first half of 2004, Symmetrix sales were up 19% year over year.

Documentum sales declined 9% sequentially during the second quarter, while EMC reported increases for Legato, VMware and its own software products. Documentum "did poorly; all else did very well," said Nitsan Hargil, an analyst at Friedman, Billings, Ramsey Group Inc. in Arlington, Va.

—Lucas Mearian

HHS Sets Plan for Adoption Of Electronic Medical Records

Claims technology will save money, but upfront IT costs likely will be steep

BY BOB BREWIN

The U.S. Department of Health and Human Services last week unveiled a 10-year plan to create a new health information infrastructure that will include electronic health records for all Americans and a nationwide network that doctors could use to access those patient EHRs.

At a health care IT summit held by the agency in Washington, HHS Secretary Tommy Thompson estimated that the adoption of EHR systems nationwide could lower the country's annual $1.7 trillion health care bill by 10%. He also said the use of EHRs would better protect health care records and help reduce medical errors.

Dr. Brent James, vice president of research at Intermountain Health Care Inc. in Salt Lake City, said he thinks the savings from streamlining the U.S. health care system with EHR technology could eventually amount to $400 billion per year. Intermountain maintains EHRs for about 1 million patients at its facilities.

But generating those savings won't happen without a hefty upfront price tag, according to Mike Kappel, senior vice president of strategic planning at McKesson Corp., a San Francisco-based pharmaceuticals distributor and health care IT vendor. Kappel said that he "would not find it impossible to believe" that the cost of developing a national EHR system could hit $10 billion.

Kappel added that the federal government has budgeted only $50 million this fiscal year and $100 million for the next one for health care IT, meaning much of the cost burden for the envisioned new systems may be pushed out to doctors and hospitals.

David Barnhart, CIO at Wuesthoff Health System in Rockledge, Fla., said HHS needs to find a way to "incentivize" health care providers to embrace EHR technology. For example, it might speed adoption if insurers paid a premium to doctors and hospitals that agreed to take part in the new network, Barnhart suggested.

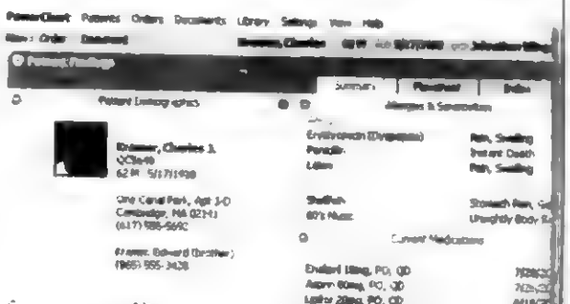
In its "Framework for Strategic Action" plan, HHS recognized the need for such incentives. According to the plan, the Centers for Medicare & Medicaid Services is considering authorizing extra payments to health care providers that use EHRs, as well as other steps designed to stimulate adoption.

The HHS plan also calls for development of standards-based EHR systems, and three industry groups representing health care providers, insurers and IT vendors announced a joint initiative to certify EHRs. Taking part are the American Health Information Management Association, the Healthcare Information and Management Systems Society and the National Alliance for Health Information Technology.

James said vendors need to pay strict attention to standards for the use of EHRs to become widespread. He added that they also need to improve existing interfaces between EHR systems and other applications. Currently, users can spend as much money developing their own system-to-system links as it costs to buy EHR software, James said.

Terry Hsu, CIO at Evergreen Healthcare in Vancouver, Wash., also called for better user interfaces on EHR systems, saying the ones now being offered by vendors "are not quite there yet."

Elizabeth Prewitt, a lobbyist for the American College of Physicians, said a bill introduced last Wednesday by Rep. Patrick Kennedy (D-R.I.) would go a long way toward helping to pay for EHR installations. The bill calls for $5 billion in funding for health care IT from fiscal 2005 through 2008, with roughly half of that allocated to development of information exchanges based on EHR systems. **48367**



Electronic health records, such as this sample one based on Cerner Corp.'s PowerChart software, contain basic medical information and can be linked to medical imaging and e-prescription systems.

SAP Unifies Its Software Maintenance Programs

BY MARC L. SONGINI

SAP AG last week said it's extending an eight-year software maintenance program introduced for its ERP suite in March to all of its business applications. The move is aimed at replacing a mix of support offerings for different products.

SAP announced that its so-called 5-1-2 maintenance plan will now be offered across the board on new releases of applications built on top of the company's NetWeaver middleware technology. The new maintenance scheme initially was available only for its flagship mySAP ERP software.

The plan provides for five years of mainstream maintenance after applications are released. That will be followed by an initial year of extended maintenance at a higher price and two more years at an additional markup (see box). Thereafter, users will have to negotiate maintenance contracts, SAP said.

Uwe Hommel, senior vice president of SAP's Active Global Support division, said the company is trying to enable its customers to "plan in a very safe way how to deploy the software," he said.

Driven by User Demand

Hommel added that the expansion of the maintenance plan was driven by demand from users who wanted more definitive information about support so they could do migration planning.

The 5-1-2 offering could potentially be of use for planning future upgrades, said Gerrard Rutter, vice president of information services at software vendor Adobe Systems Inc. in San Jose. However, it won't be relevant for Adobe anytime soon because the company always installs new versions of SAP's software, he added.

"Our approach is to stay current at all times," Rutter said. Adobe runs the R/3 Enterprise release of SAP's ERP applications plus its CRM and data warehousing software.



The decision to offer a consistent software maintenance plan follows SAP's announcement earlier this year that it would synchronize upgrades of the NetWeaver products, which include an integration broker as well as SAP Business Intelligence and its portal software [QuickLink 45409].

Gartner Inc. analyst Brian Zrimsek said SAP is reflecting a trend among ERP vendors to treat users more as owners of software, not just as product buyers. For example, PeopleSoft Inc. last year launched an initiative dubbed Total Ownership Experience that's aimed at simplifying the installation and maintenance of its applications, he noted.

SAP's plan lets users decide whether they want to pay for the extended maintenance or migrate to newer releases, Zrimsek said. "I think it's a must — clarification, communication and formalization for the longer term," he added. **48328**

THE CASE FOR EHRs

Improved data privacy will be one benefit of electronic health records, backers say

QuickLink 48366
www.computerworld.com

BRIEFS

EDS to Integrate Banks' Networks

Electronic Data Systems Corp. said it has signed a new IT services contract with Bank of America Corp. calling for EDS to integrate the bank's voice and data network with the communications infrastructure of FleetBoston Financial Corp., which Bank of America bought in April. The new deal extends a 10-year, $4.5 billion agreement signed early last year. It's now valued at $5.1 billion over eight and a half years.

Hyperion Shuffles Its Top Two Execs

Hyperion Solutions Corp. gave Chairman and CEO Jeffrey Rodek the title of executive chairman and named Godfrey Sullivan, who previously served as chief operating officer, to replace Rodek as CEO. Sunnyvale, Calif.-based Hyperion also said it has agreed to buy OID Solutions Pty., a developer of end-user dashboard software in Sydney, Australia. [To read an interview with Rodek, go to our Web site: QuickLink 48311].

Nortel Sues User Over Switch Deal

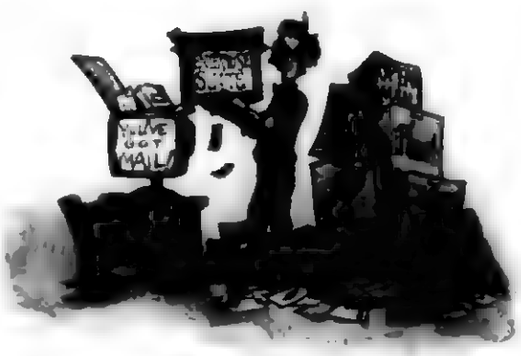
Nortel Networks Ltd. said it has filed a copyright infringement lawsuit against online marketplace Arbinet-theexchange Inc., an exchange in New Brunswick, N.J., that uses Nortel's switches. The suit, filed in U.S. District Court in Virginia, claims that Arbinet is using Nortel software without authorization and that it failed to buy all the switches it contracted for. Arbinet declined to comment.

Short Takes

IBM won a seven-year deal to manage and develop systems for the U.K. government's Department for Environment, Food and Rural Affairs. . . . Boston-based KEANE INC. said it has acquired Fast Track Holdings Ltd., a British firm that manages large SAP projects.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FAULKNER

Save Big Bucks By Switching . . .

. . . e-mail systems, even if you end up running two messaging applications. That's the conclusion of an analyst who has compared the costs of using IBM's Notes and Microsoft Corp.'s Exchange with that of using the system from upstart Mirapoint Inc. in Sunnyvale, Calif. Tomorrow, Mirapoint will start shipping its Enterprise Suite to compete against the big boys.

Sara Radicati, CEO of The Radicati Group Inc. in Palo Alto, Calif., claims that companies can save more than $300 per user per year by adopting Mirapoint's messaging technology. "It's simpler for administrators to use because it's an appliance," she explains. "It's tuned to work on the hardware, and it comes preconfigured." And end users don't even have to learn to use a new mail client. They can still use Outlook and synchronize it as well as their handheld devices with Mirapoint's calendaring program. Radicati adds that even if you have custom applications for a subset of your users, you can leave them on Notes and move everyone else to Mirapoint's appliance and still realize cost benefits. Part of the savings comes from the company's inclusion of integrated security tools, such as spam filtering and virus protection. But most of it comes from Mirapoint's aggressive pricing model. According to Jeff Brainard, senior product marketing manager at Mirapoint, companies with 5,000 users or more pay just $100 per user per year, which includes the cost of the hardware. Can you say, "price war"?



Avoid EMC Storage Expenses . . .

. . . with Profiler for Celerra, which ships this week from Tek-Tools Inc. in Dallas. The $3,000 storage management application gives you detailed trending data on file types for EMC Corp.'s Celerra Data Movers and who's using them how and when. Those babies start at $15,000 a pop and are the heart of EMC's network-attached storage system. Getting a better handle on how to forecast the purchase of your next Data Mover is a big step toward "cost avoidance," claims Tek-Tools CEO Ken Barth. You guessed it. It's buy now and, maybe, save now, too.

Enemy Awaits in Wireless World . . .



. . . worries Richard Wong. He's the general manager of Openwave Systems Inc.'s messaging and anti-abuse division, and he's seriously concerned about Cabir, a virus that spread last month via Bluetooth. It's proof of concept that other wireless protocols, such as 802.11g, can propagate vicious software. "Four or five months ago, I would not have thought it possible," Wong says. He would have argued that operating system fragmentation on wireless devices "was a natural defense," unlike Microsoft's Windows virus magnet. Cabir changed his thinking. He's concerned that a single virus might carry a payload that could infect one or more of the major wireless operating systems, such as Symbian or Palm OS, and create havoc. However, better defenses may emerge, Wong suggests, when the Message Anti-Abuse Working Group wraps up a code-of-conduct and path-of-escalation document that will be submitted for adoption by Internet service providers and vendors that handle the messaging needs of more than 100 million wireless and wired users. For example, with that agreement, Internet service providers will have processes for things such as shutting up spammers and shutting down zombie machines during denial-of-service attacks. They'll also have better ways to react to new viruses such as Cabir. Wong predicts that will happen on Aug. 30. He ought to know. He chairs the group.

'Ethical' E-commerce Is Key . . .

. . . to attracting search-engine hits. That's the advice of Garry Grant, CEO of Search Engine Optimization Inc. in Carlsbad, Calif. He boasts that his company tunes your Web pages "with every ethical [means to] do what a search engine wants, which is to deliver highly relevant results." He says search engines from Google, Yahoo, MSN and others are constantly refining their algorithms to locate respectable pages and ignore sites created by spammers, pornographers and other lowlifes, who are constantly trying to trick the engines into ranking them high. But those algorithm changes also affect honest commercial sites. More than one e-commerce site has found itself out in the cold after an update of Google's engine. One way to stay on the good side of a search engine, he advises, is to carefully and constantly review its usage guidelines. Grant says he regularly searches patent applications for his clients because that's where search companies file their new techniques to either avoid spam or improve Web searches, which he can then use to improve his clients' success rate. "An ethically architected site can succeed," he says. Let's hope so. **48345**





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IBM Pledges Better Tools Integration

Upcoming offerings will let users drag and drop information between tools

BY CAROL SLIWA
GRAPEVINE, TEXAS

BLUE CROSS and Blue Shield of Florida uses IBM's Rational Rose tool for building visual models and RequisitePro for managing application requirements. But the company must manually build links when it wants to share information between the two.

That's due to change by the end of the year, when IBM pledges to provide deeper integration between all of its tools through the 3.0 version of the open-source Eclipse framework that it turned over to an independent management body. With the new edition, users won't have to launch each tool separately. They will be able to park themselves in a single user interface while they work with IBM Rational's tools, and they can customize the setup to see only what they need.

Not only will the workspace look better, but users will also be able to drag information from one tool and drop it into another without having to write scripts and export and import files.

"Right now, they're not as tightly integrated, so you have to jump between tools," said Brian Harrington, an IT project manager at Blue Cross and Blue Shield in Jacksonville, Fla.

Many Bridges to Cross

Carl Zetie, an analyst at Forrester Research Inc., said Rational has done a better job of integration than other tools vendors. But he likened the scenario to the city of Venice. "It looks like one city, but boy do you have to cross a lot of bridges to get around," he said.

IBM boosted its integration efforts after acquiring Rational Software Corp. last year. But the sort of integration it's promising with the next version of the Rational tools, code-named Atlantic, is much richer. That's largely because the tools share a common "metamodel" that will allow them to exchange information, said Eric Naiburg, marketing manager of IBM Rational's desktop products.

"The metamodel doesn't have to understand the code," Naiburg said. "It just has to understand what happens."

For example, a RequisitePro user might store text-based requirements for an application in the tool's repository. The metamodel for the requirement can be dragged onto the Atlantic modeling surface, because the modeling and requirements management tools run in the same framework, which is shared on a common metamodel. A traceability link connects from the visual model back to the RequisitePro database for the requirement information.

A Different Approach

Naiburg said IBM is no longer integrating tools but rather is building on top of the Eclipse framework. That's a subtle but important distinction, he said, because it allows for the use of the more abstract metamodels, eliminating the need for each tool to have to parse the code or information imported from another tool. It also brings a common shell and look and feel to the tools, he said.

"A lot of the same ideas are going into [Microsoft's] Visual Studio 2005 for the same reasons," said Zetie.

Carmen Powers, a Des Moines-based business analyst at Nationwide Insurance Co., said the potential created by the new Atlantic offering is exciting because it links software development to the analysis work the company had already been doing.

Powers said he recognizes that the approach will require some degree of cultural change. But, he added, "we are lost without that personal communication, so this is going to help with that."

Edward Karim, a manager in quality assurance at Starwood Hotels and Resorts Worldwide Inc. in White Plains, N.Y., said he had to call the help desk to be able to produce reports drawing information from Rational's TestManager and Requisite Pro. So the improved integration will be welcome.

But Felicia Hong, a software manager at Novellus Systems Inc., said the San Jose-based semiconductor company already has put a lot of work into customizing the Rational suite of tools it has been using since 2000. "The capabilities are great for new users," she said. "But it's late for us."

Companies that don't use the whole Rational suite may not have as great a need for the new capabilities. David Pennington, a development manager at The Home Depot Inc., said his company likely won't use the full suite because it prefers to select best-of-breed tools and get them to work together. The Atlanta-based retailer has a team development product from Documentum Inc. **48385**

NEW FEATURES

Go online for a list of improvements due by year's end for the IBM Rational tools:
QuickLink 48392
www.computerworld.com

Devlin: Modeling Is Best Practice for SOA

GRAPEVINE, TEXAS

Mike Devlin, general manager of IBM's Rational software division, says modeling is a crucial step for any company building out a service-oriented architecture. Devlin spoke with *Computerworld* about developer trends at last week's IBM Rational Software Development User Conference here.



What new customer trends have you seen in the past year? One correlates with the economy. A year ago, the focus was almost exclusively on cost reduction. This year, I'm seeing more customers who are doing this stuff not just to drive out cost. . . . In the technology arena, I think a year ago, service-oriented architecture was sort of a nice, "maybe we'll do a pilot next year" type of thing. This year, we're seeing in the leading companies that it's much more, "We've done it once or twice on some projects; we now know enough to use that to put in place a next-generation enterprise architecture and move the business forward."

How much modeling are your seeing? It varies widely. We see some organizations that do extensive modeling, and they're very committed to it, and they have model-driven development as the core part of their strategy. But we see a lot of people that are not doing that. They haven't recognized the value of that. I wish there was a simple answer, but customers are all over the map.

How critical is modeling to implementing a service-oriented architecture? It is a best practice, both in terms of modeling and business processes and finding common business process components, as well as modeling the actual architecture itself. I worry a little bit that we're where we were with some of the first component technologies. People can go for a little while without it. But then they sort of lose control of the architecture pretty quickly.

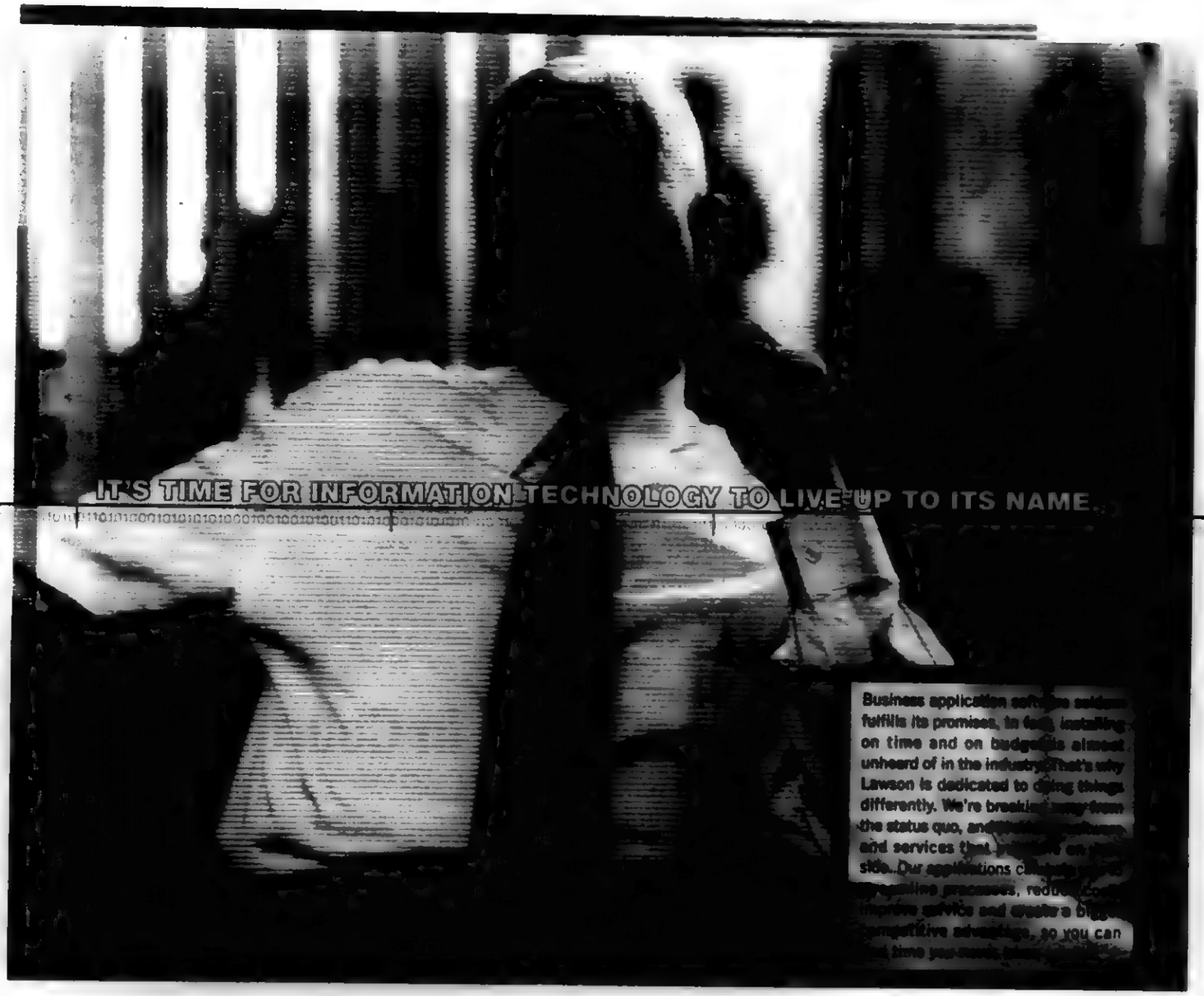
I'm afraid we're going to see that lesson lived over again, unfortunately. They'll find they're duplicating the same thing in two different divisions, because there's just no way to communicate what they're doing.

IBM promotes development on Linux. How much of that are you seeing? On the embedded side, there's a lot of Linux, [and] for the middle components in the telecom space. A lot of the network controllers are leaning toward Linux as the operating system. Most of those applications are still written in C++. I would still say that's three-quarters C++ and one quarter Java. In the IT space, we are seeing a lot of server work being done for Linux. I personally don't know of much on the client side. It's not like we did a formal poll to figure this out, but my impression is we're still seeing it primarily on the server side.

Do you remain committed to having tools for Microsoft's .Net development environment? Yes.

Do you think other vendors, such as Microsoft, are reacting to IBM's Rational acquisitions when they're pledging modeling and tools capabilities for their products? It was reactive to us, yeah. The consolidation of the tools industry requires the leading companies in each space to form a suite, which caused Borland and everybody else to try to do the same thing. But the way I think about it is less what those competitors are doing and more what customers need.

– *Carol Sliwa*



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Fed Auditors Slam IRS For IT Security Risks

Reports hit lax oversight of contractors, unauthorized use of handheld devices

BY LINDA ROSENCRANCE

AUDITORS from the U.S. Department of the Treasury have issued two reports about IT security risks at the Internal Revenue Service, one saying that contractors working on IRS systems "committed numerous security violations" and the other taking the agency to task over unauthorized use of handheld devices.

The security violations by IT contractors "significantly increased" the potential for the spread of viruses and unauthorized disclosures of taxpayer information, according to auditors in the office of the Treasury Inspector General for Tax Administration. The auditors said contracting officers and IT managers at the IRS didn't do enough to ensure that the contractors adhered to the agency's security procedures.

For example, the auditors found that contractors from one firm were given obsolete PCs that couldn't support the IRS's security settings. The contractors were also able to add unauthorized software to the computers, according to the report, which was issued internally on March 22 but has yet to be publicly released.

Computerworld obtained a copy of the report last week from the Washington-based National Treasury Employees' Union, which was given an edited version after filing a Freedom of Information Act request. Before releasing the report to the group, which opposes the shift of federal jobs to private contractors, Treasury officials removed the names of contractors and other sensitive data.

The auditors, who conducted their review from March to September of last year, recommended that the IRS limit the computer access privileges of contractors to only what they need to do their jobs. In addition, they said IRS officials should monitor the activities of contractors via system audits and ensure that contracting officers and security administrators carry out their oversight responsibilities.

IRS officials didn't return phone calls seeking comment by *Computerworld*'s publication deadline. In a written response that was included in the report, the IRS disagreed with the findings and said it hadn't received enough evidence to support the auditors' conclusion that contractors put its systems at risk.

But IRS officials said they agreed with the report's recommendations and promised that they would take "corrective actions" to limit contractors' system access privileges and track their activities.

> "A contractor's employees committed numerous security violations that placed IRS equipment and taxpayer data at risk. In some cases, contractors blatantly circumvented IRS policies and procedures even when security personnel identified inappropriate practices."

The report about the use of handheld devices was posted on the Treasury Department's Web site July 16. In that report, the auditors said the IRS has bought about 425 handhelds that support data encryption and are certified as secure. But they added that more than 2,000 uncertified handhelds purchased by business units without the IT department's approval pose "significant" security risks, including unencrypted data and the creation of network back doors that could be used to bypass security controls.

In response, IRS officials said they will take action to ensure that handhelds connected to the agency's network comply with security controls. They added that they also will install security software with password and encryption capabilities and establish a process for removing or replacing all uncertified devices. **48391**

Correction

A story about network-attached storage that ran in the July 12 issue's Technology section ("Simplifying NAS Management") transposed the file system protocols used by Windows-based file servers and by machines running Unix or Linux. Windows uses the Common Internet File System, while Unix and Linux use the Network File System. A corrected version of the story is on our Web site (QuickLink 47784).

SCO Loses a Round in Court

Judge dismisses most of vendor's claims against DaimlerChrysler in Linux case

BY LINDA ROSENCRANCE AND TODD R. WEISS

A Michigan judge last week threw out most of the claims made by The SCO Group Inc. in a Linux-related lawsuit that it filed against DaimlerChrysler AG in March.

A spokesman for the Circuit Court for the County of Oakland, Mich., said Judge Rae Lee Chabot granted DaimlerChrysler's motion for a summary judgment dismissing the suit, except for a charge that the automaker didn't respond quickly enough to a request from SCO for certification that it was complying with a Unix license agreement.

DaimlerChrysler argued in court that it filed the necessary certification in April even though company officials didn't think it was required to do so, since it hadn't used the software covered by the Unix license with SCO for more than seven years. "We're pleased with the judge's ruling, and we look forward to finally resolving the one open issue," said DaimlerChrysler spokeswoman Mary Gauthier.

SCO spokesman Blake Stowell said the Lindon, Utah-based vendor is reviewing its legal options based on the judge's decision. He added that the lawsuit could have been avoided if DaimlerChrysler had responded to SCO's request for a compliance certification within the allotted 30 days. "It's a little unfortunate that it took a lawsuit for them to respond to what was a real simple letter asking them to certify," he said.

> **"SCO hasn't provided any evidence out there to convince IT managers that Linux violates its intellectual property rights."**
>
> DION CORNETT, ANALYST, DECATUR JONES EQUITY PARTNERS LLC

DaimlerChrysler is one of two Linux users that SCO has sued as part of its legal campaign against backers of the open-source operating system. The other user is automotive parts retailer AutoZone Inc., which is accused of running versions of Linux that contain Unix code copyrighted by SCO [QuickLink 45249].

Jeffrey Norman, a software lawyer at Kirkland & Ellis LLP in Chicago, said the ruling in the DaimlerChrysler case has essentially squashed SCO's efforts to convince Linux users that they could face legal consequences if they ignore its requests for compliance certifications. "I think that strategy has failed," Norman said.

"The judge just sort of saw through what SCO was doing, particularly its public comments around copyright violations," said Dion Cornett, an analyst at Chicago-based Decatur Jones Equity Partners LLC. "SCO hasn't provided any evidence out there to convince IT managers that Linux violates its intellectual property rights."

DaimlerChrysler didn't respond to SCO's certification request until after the vendor had filed its lawsuit. But in court filings submitted in April, DaimlerChrysler argued that it had "provided SCO with the only certification required under the license" between the two companies.

The filings referred to two letters dated April 6 that were sent to SCO. One of the letters said that DaimlerChrysler was no longer using the software, which originally was licensed under a 1990 agreement between Chrysler Motors Corp. and Unix System Laboratories Inc. In the other letter, DaimlerChrysler CIO Susan Unger said that SCO had no right to seek such a certification in the first place. **48371**

READ MORE ONLINE

For full coverage of SCO's legal fight against Linux, go to our Web site:

QuickLink a3260
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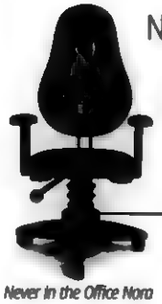
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BRIEFS

Sun Benefits From Microsoft Deal . . .

Sun Microsystems Inc. reported a preliminary fourth-quarter profit of $795 million, thanks to its legal settlement with Microsoft Corp. in April [QuickLink 45957]. Sun recorded a $1.6 billion gain from the settlement in the quarter, which ended June 30. Revenue totaled $3.11 billion, up 4% year over year. Sun said the results aren't final because it's waiting for the U.S. Securities and Exchange Commission to confirm its accounting of the settlement.

. . . And Eyes IBM, Intel Chips for OS

During a teleconference about the financial results, Jonathan Schwartz, Sun's president and chief operating officer, said the company is looking at porting Solaris to systems built around IBM's Power microprocessors and Intel Corp.'s Itanium chips. The goal would be to drive more shipments of the operating system, he said. Sun wouldn't comment further about the ports.

Dell Gets Modified Notebook Adapters

Mobility Electronics Inc. in Scottsdale, Ariz., said it has resumed shipments of notebook PC power adapters to Dell Inc. after completing a revamp that blocks the use of third-party power cords. Dell this month recalled about 38,000 adapters sold with its Latitude and Inspiron systems, saying that third-party cords could cause electrical shocks [QuickLink 47962].

Short Takes

MICROSOFT will pay $20 million to settle a trademark dispute with San Diego-based Lindows Inc., which agreed to change its name to Linspire Inc. . . . ORACLE CORP. said it will fully support an Asian version of Linux jointly developed by a Chinese vendor and a Japanese company that's majority-owned by Oracle.

Continued from page 1

HP Events

The company will announce its plans for the unnamed technical solutions conference at next month's HP World in Chicago, said David Parsons, vice president of HP Americas.

Parsons said the four user groups will likely co-produce the new conference and work with HP officials on a steering committee that will choose conference content and vendors that rent booth space at the show.

But exactly how much power the user groups will have in controlling the content and how much money they will make from the conference are questions that haven't been answered. Parsons said each user group would be able to register members and earn membership fees, as well as earn proceeds from booth sponsorships from other vendors.

Potential Benefits

The idea of a single conference is a response to requests by HP customers for comprehensive information about hardware and software technologies, Parsons said.

One purpose of the conference would be to train HP employees alongside partners and customers in new technologies, he said. The company would also be able to "bring the full brunt of HP resources" to the new event, including appearances by top executives to describe HP strategy, direction and focus, he added.

Parsons said HP has sent letters to or held discussions with leaders of all four user groups. He said he expects to get feedback from the groups by the end of this month.

HP recognizes the need to support the user community's independence and ability to offer quality input, Parsons said. "The last thing we want is user groups that have lost that ability to communicate," he said.

Parsons said some of the user groups might opt to keep their own conferences alive, and he didn't rule out some level of support for those efforts.

But on the matter of whether the single-conference plan might result in fewer user groups, Parsons indicated that it could eventually. "In the context of the bigger picture, at some point one [user group] is always better than four or two," he said.

Chicago-based ITUG, which is also known as the International HP NonStop Users Group, plans to continue its annual conference despite the HP plan.

Users "would much rather go to the boutique, focused show than be lost in the crowd at one of these general Comdex-like shows," said ITUG Chairman Richard Buckle, who is also a consultant at Insession Technologies Inc. in Boulder, Colo.

If HP pulled its support for the annual ITUG Summit, which this year is being held in October in San Jose, "it would be a financial hit but wouldn't spell the end," Buckle said.

OpenView Forum International is still deciding how to respond to HP's proposal and wants more information on funding and how the voices of its members would be heard, said Henry Wojcik, president of the 8,000-member group. Wojcik expressed reservations about the effect of HP's plan, noting that a single conference might be of greater value to hardware- and operating-system-centric user groups than it would be to OpenView software users.

> **"If you surrender your premier event, what is your purpose in life beyond that?"**
>
> **DENYS BEAUCHEMIN**, PRESIDENT, INTEREX USER GROUP

Chicago-based OpenView Forum remains independent of HP but works with the vendor to produce the Software Forum, which was held last month in Montreal. It operates on an annual budget of about $1 million, nearly all of which is raised at the annual event, Wojcik said.

Mixed Responses

"I don't think HP wants to hurt us with this proposal, and that's why they are contacting us," added Sandra Potter, executive director of OpenView Forum.

"Our event is much more of a people-networking event than HP World," she said. "We are worried about the dilution of that people-networking role, and we have to consider the financial impact."

But the idea of having a technical solutions conference was welcomed by members of Encompass, said Kristi Browder, president of the organization that has its roots in the Digital Equipment Corp. user group.

"We don't feel like we're going to be shortchanged in it at all," she said. "It's our responsibility to help them as much as it is for them to help us." HP will develop a revenue-sharing plan that meets Encompass' needs, Browder predicted.

However users view it, HP's proposal probably isn't intended to marginalize user groups, said one analyst.

"It would be a tough transition to one conference, but I see lots of reasons to do it," said Mary Johnston Turner, an analyst at Summit Strategies Inc. in Winchester, Mass. With a bigger conference that covers a range of topics, she said, HP might be able to lure higher-level executives, including CIOs, and help cut down on the need for users to travel. **48350**

Content World Show Bites the Dust

Promoters of the 4-year-old Content World trade show said last week that the event is being canceled this year due to "decreased exhibitor and sponsor interest."

The cancellation comes less than a month after the granddaddy of all IT trade shows, Comdex, was canceled because of what was described as a lack of industry support on the exhibit floor [QuickLink 47727].

John P. Noon, manager of Content World LLC, the Saratoga, Calif.-based company that held the show, said this year's event is being shut down after two straight years of "serious declines in sales and profits." A key problem, he said, was trying to garner interest from vendors to sponsor the event.

Noon said the first show in May 2000 had a "respectable showing," and attendance tripled in 2001. But after the terrorist attacks of Sept. 11, 2001, there was a huge drop in U.S. travel and a decline in the number of people willing to pay to attend trade conferences, Noon said. And with a souring technology economy and cuts in IT and training budgets, "it was like a perfect storm" that halted the show's progress, he said.

There were about 1,200 attendees at Content World in 2001. That number dropped to about 800 attendees in each of the 2002 and 2003 events, he said.

Another problem, Noon said, is that while the content management segment of the industry remained fairly healthy through 2002, the "market has not really found itself." User companies haven't yet created enough demand across all segments, leaving vendors without enough money to sponsor and exhibit at the show, he said.

All hopes for reviving the event aren't dead, Noon said. But he still plans to sell some of the company assets, including several Web site addresses such as Contentmanagement.com and Content.net.

– Todd R. Weiss

Los Alamos Confirms E-mail Security Holes

Latest problem at nuclear lab: Workers sent classified messages insecurely

BY TODD R. WEISS

SECURITY TROUBLES at Los Alamos National Laboratory continued last week as officials confirmed that workers recently sent out an undisclosed number of classified e-mails over a nonsecure system.

The disclosure came less than two weeks after the New Mexico-based lab announced that two removable computer disks containing classified nuclear weapons data were missing [QuickLink 48226]. That incident marked at least the third time since 2000 that storage media containing classified information has been lost at the facility.

Los Alamos spokesman Kevin Roark last week confirmed that the lab recently discovered new incidents of classified information being sent through a nonclassified e-mail system. "We have had occurrences recently, yes," he said. "We have had them in the past. It's anticipated we will have them in the future."

Questionable Judgment

Roark said the incidents occurred when scientists at the lab, which employs about 12,000 people, incorrectly judged information as being classified versus unclassified and sent it without asking for assistance in categorizing the content of their e-mails. Such incidents are always promptly reported to the U.S. Department of Energy and other agencies, as required by law, he said.

When such incidents recur, employees are given additional training to remind them of the proper procedures, Roark said. The problem is that there are "vagaries in the classification rules" that can make it difficult to determine what's classified. Roark said that he couldn't comment on the number of classified e-mails that were sent over the unclassified e-mail system but that it was "a very small number."

"We'd like to get that to zero," he said. "But you've got to understand, you can't legislate perfection on people. All you can do is tell them in security briefings and reiterate it every time you talk about security."

Earlier this month, the lab suspended most activities while continuing the investigation into the missing disks.

Security experts and analysts expressed varied opinions on the recent security incidents at Los Alamos.

Scott Larson, a managing director at Stroz Friedberg LLC, a New York-based consultancy that specializes in computer forensics, acknowledged that accidental releases of sensitive information using nonsecure e-mail systems are unavoidable. But he was critical of the lab's position that such incidents are mostly attributable to human judgment.

"The . . . throwing-your-hands-up approach is unacceptable for this kind of information," Larson said. Classified and nonclassified e-mail systems must be completely separate, and the people who use them must be trained to know the difference, he said.



... at the lab are being addressed by more training. But analysts still worry

Nathaniel Palmer, a security analyst at Delphi Group in Boston, called the security lapses "scary." Palmer said he's amazed that a nonsecure e-mail system is even used in the lab, when instead one system could be used by everyone and all correspondence could be better monitored.

Other analysts were more forgiving.

Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa., said it's possible that the Los Alamos facility experiences no more security lapses than other classified government facilities but that officials there are more willing to discuss problems publicly. **48364**

Continued from page 1

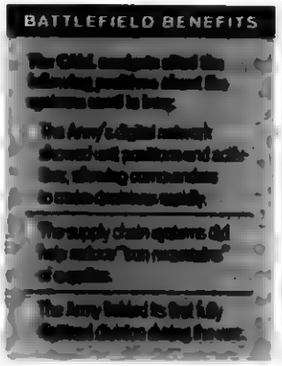
Army in Iraq

itary think tank that's sponsored by the U.S. Department of Defense and based at Fort Leavenworth, Kan.

After studying the Iraq war up to the fall of Baghdad, the CALL analysts found that the performance of logistics and supply chain operations were "barely above subsistence level," in large part because of problems with software based on radio frequency identification technology (RFID) and network communications.

The logistics problems were among the findings detailed in a 542-page book that resulted from the review of the war, which was commissioned by the Army's chief of staff. The book, titled *On Point*, was published by the Army in late May. It is posted on CALL's Web site but can't be printed, downloaded or copied.

There is no one answer to why the logistics failures occurred, said Gregory Fontenot, a retired Army colonel who was one of the three co-authors of the book. But, he added, "in my assessment, the biggest single problem was the communications issue."



The supply chain systems worked as expected until combat began in Iraq, after which the Army's network was quickly stretched too thin, according to Fontenot. "In a civilian organization, you establish connectivity before you move," he said. "We didn't have that luxury."

The Army did stress-testing on its battlefield systems before the war, but Fontenot said nothing could have fully prepared them to deal with fast-moving combat operations involving 150,000 troops and several million supply items.

The Army is already working to replace its 13 core logistics systems, which include several thousand applications, with a version of SAP AG's software tailored for defense operations. Lt. Col. Forrest Burke, a logistics network task force leader in the Army's G-4 logistics information branch, said the custom systems now in use date to the 1960s and 1970s and weren't written to be network-friendly.

Source of Frustration

If SAP's applications had been in place prior to the start of the war in Iraq, the Army simply could have installed an RFID module and "we'd be in business," Burke said. But he added that the communications infrastructure in Iraq was poor when the war began. "Probably our greatest frustration was the inability to connect all these legacy computers to the network," he said.

In addition, the Army was unable to start deploying transmitting devices with satellite dishes and readers that can pull information from RFID tags attached to supplies until just before the U.S. launched its attack. As a result, the ability of logistics managers to track supplies plummeted after the goods reached Iraq, Burke said.

Supply chain visibility has improved since then, according to Burke. He said that about 100 transmitters are now in place as part of RFID systems supplied by Savi Technology Inc. in Sunnyvale, Calif. In addition, IP-based satellite long-haul connections have been installed at all of the Army's supply warehouses in Iraq, and most of the RFID data traffic related to logistics is being moved to secure wireless LANs that are connected to the satellite links.

Another problem was that the logistics systems weren't flexible enough to deal with exceptions and glitches, Burke said. For example, if a combat unit unexpectedly changed its location, there was no way to reroute its supplies. The Army is discussing a possible resolution of that problem that would involve the installation of a customized version of SAP's CRM applications, said Burke. **48340**

MARYFRAN JOHNSON

Educate Your CXOs

I WAS CHATTING UP the CIO of a large manufacturing company recently, and we got on the subject of who really runs his IT organization. He singled out two key IT executives, one in charge of the infrastructure side — all the hardware, networking and moving parts — and one in charge of the software side, where the data management, enterprise applications and business logic live.



Yet the goals for his dual managers were worlds apart. The infrastructure expert was charged with finding ways to tamp down costs and do everything "better, cheaper and faster," as the CIO put it. His software manager, on the other hand, was encouraged to experiment with new applications and, ultimately, to spend some of those savings from the hardware side on new stuff that could advance the business.

So, with the major bases covered, what exactly was left for this CIO to do? (I just had to ask.) "Ah," he said, with a big grin and no offense taken, "I'm in executive sales."

What he meant, of course, was that his time is spent in the role that all successful CIOs master — that of business communicator, educator and guide for the so-called CXOs (that senior business lineup of CEOs, CFO, COOs, CMOs and so forth). If the chief technologist isn't regularly playing Pygmalion with this bunch, the IT group is destined for a leadership change.

I realize that by this point in your career, you've heard and read — ad nauseum, even — plenty of well-meaning advice about the importance of educating business colleagues and speaking their language when you do it. But what I look for when this subject comes up are detailed examples, actual tactics and practical tips on how CIOs can pull it off. I found plenty of that kind of useful advice in our "Educating Your CXOs" story (on page 31, and online at QuickLink 47887) — including a CXO "syllabus" from a business professor with a sense of humor.

"They really do need to have a clue," says Mark Jeffery, a professor at the Kellogg School of Management at Northwestern University, referring to the future MBAs in his classes. His students hear about the real-world complications of ERP systems, the dangers of botching a security backup system, how tech trends in XML or CRM can affect management thinking, and the risks involved in an IT project (failure being the biggest one).

Our story also digs into a few real-world scenarios where CIOs are turning CXOs into knowledgeable allies.

"As a CIO, I always have an agenda. You're crazy if you don't," says Rob Tabb of Ecolab, a $3 billion-plus developer of cleaning and repair products. He describes using both formal and informal approaches to this fine art of educating CXOs, including one-on-one chats during coffee breaks and business lunches in addition to the more standard management council meetings. "You have to think of it as a campaign," Tabb told us. "You have an end state you're trying to get to, and you think, 'How am I going to educate this group of executives to get them to a common point of understanding over time?' "

That "over time" part is a particularly important point. The IT education of your business colleagues is a journey of 1,000 conversations, not a destination arrived at after one big-bang strategy briefing. Your homework assignment is to think about where you are today on that journey. Are you ready to be in "executive sales"? **48322**



VIRGINIA ROBBINS

The Ragged Edge of Outsourcing

AS I APPROACHED my neighborhood sushi restaurant, the friend I was meeting for dinner called. He wouldn't be able to make it; he had to take part in yet another conference call with India. But he promised to make it up to me somehow if I could please, please, pick up dinner and bring it to his place.

He was hungry and wired when I arrived at his door. "American firms just don't understand what outsourcing does to a company," he ranted as he tore open the package and began mixing wasabi into his soy sauce. His day had started with a conference call with India at 8 a.m. and had finally ended at 9:20 p.m. with the follow-up conference call that had scrambled our dinner plans. "It's not that the work is better or worse; it's the time that it takes to communicate with a team of individuals half a world away."



For various reasons, his company has faced extreme financial difficulties during the past few years. Employees in all areas, including IT, have been let go as the company has struggled to match costs with its shrunken revenue. Under pressure from the CFO, and desiring to retain some development, a new CIO recommended outsourcing overseas.

Of the remaining IT managers, a small group was selected to manage the outsourcing project. A respected international consulting group was chosen to assist. Because only those who had the strongest track records and the most positive attitudes were selected, my friend felt honored to be on the team. Nine months later . . .

"Business owners still aren't happy with the fact that application design meetings need to be held at 7 a.m.," he said, jabbing his chopsticks into the pickled ginger. "Projects are taking three and four times longer because

overseas workers don't understand our business the same way my old employees did. It's not that one group of developers is smarter than the other; it's that my old group had more experience on the existing applications than the new one does. In a couple more years, it will probably be OK, but for now, it's a disaster."

I spent my undergraduate years studying economics along with computer science and mathematics, and I understand the benefits that globalization brings me. I like my set of $1 made-in-China porcelain bowls, and I love commuting in my Volkswagen Jetta, which was made in Mexico from parts manufactured around the world. And while it's probable that one of the sushi chefs who prepared our dinners is in the U.S. on a temporary visa, it's certain that about a fifth of my staff was born outside the U.S.

Yet, as an economist, I couldn't help but think about the real value of the decision implemented by my friend's CIO. On one level, it appears to be a very good choice. Development is still going on, and the CFO can confirm that less cash is being spent than before. However, the business owners are very unhappy. With productivity three to four times lower, the total value added by IT is a fraction of what it used to be, and the average value of IT goods and services produced per average dollar spent is lower than before. I wonder which, in the long term, will be replaced first, the CIO or the outsourcing solution. 48217

DAVID MOSCHELLA

Why Comdex Doesn't Matter

MUCH HAS BEEN written about the recent postponement (and possible demise) of Comdex. A few years ago, the same forces that built what became the biggest conference in any industry — critical mass, celebrity glitz and momentum — all shifted into reverse, with predictable, familiar and cumulative effects.

But to me, the story is much more interesting than the implosion of a once extravagant industry event. In many ways, Comdex is emblematic of some important changes in our industry, with significant implications for the way the IT business sees itself and speaks to the outside world.



Think about it: What was the focal point of Comdex? While a lot of business was done on and off the exhibit-hall floors, it was the keynote addresses that drew the most media attention, with people such as Bill Gates, Larry Ellison, Michael Dell, Scott McNealy and Carly Fiorina usually playing the industry leadership roles.

No offense to these enormously successful executives, but who is really listening to them anymore? There is no better example of this than Microsoft. There was a time when the introduction of a Windows 95 or 98 was front-page news, not just in the IT press, but also in the major business magazines and even in local newspapers.

But how many people just can't get enough information about Longhorn or Tablet PCs? Ditto for the latest products from Oracle, Dell, Sun and Hewlett-Packard. The reality is that very few products are especially newsworthy these days. This isn't the fault of the vendors; it's simply the case that the IT industry's center of gravity has shifted. Only in the consumer market are gadgets still exciting, and the Consumer Electronics Show is the place to go for that stuff.

In the business market, it's what you do with IT that matters. This is a sign of industry maturity, and it's a good thing. We can look back and see our business's traditional focus on products as an early phase in which we primarily deployed enabling technology. We should be happy to have outgrown that phase, even though many of us will miss the glitz of the annual Comdex carnival — at least a little bit.

Of course, once you start talking about what we're doing with IT, things become much more complicated, fragmented and diffuse. IT is used for a zillion things these days, and there are major differences by sector. That's why I don't think the IT industry will see another Comdex for the foreseeable future. Our needs are better served by more focused, less glamorous events.

But that doesn't mean the IT industry doesn't need a new generation of spokespeople. The product companies have carried their share of the burden and now need some energetic reinforcements. These new voices should come from the major IT services companies (IBM, Accenture, EDS, CSC), the dot-com giants (Google, Amazon.com, eBay, Yahoo) and even from customers themselves (businesses, governments, schools). The result will be a much more diverse, compelling and representative IT industry. 48240

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www.computerworld.com/columns

READERS' LETTERS

Why the Offshore Backlash Will Dissipate

OF COURSE the debate and the backlash about offshoring will go away sometime in the future ["Gartner: Backlash Against Offshoring to Vanish by 2006," QuickLink 47550]. Why? Because all those affected who couldn't find a new IT job will be too busy flipping burgers, working cash registers, sweeping floors or begging on street corners to be concerned about what is going on in the IT field.

Thomas Zabel
Software engineer (unemployed), Dallas, zabelt@acm.org

AS IF I WASN'T FEELING insignificant and depressed enough after having my job transferred to India nearly a year ago. Now it's official – I am part of "an insignificant issue that will go away."

After 20 years of working hard in this industry, I now cannot find full-time employment in my chosen career. Between the offshoring and the leftover H-1Bs from the Y2k "crisis" still here undercutting me on salary, I feel fortunate when I can find a contract of *any* duration.

Andrew Linton
Database administrator, Amsterdam, N.Y.

I FIND THE ACCUSATION by Craig Baty of Gartner that American IT professionals are racist and xenophobic to be unfounded. No one in this industry that I am aware of enjoys the idea that IT jobs are leaving our country, but that has nothing to do with racism and xenophobia and everything to do with the desire to remain gainfully employed in the field.

Robert Manning
Software engineer, Stanton, Calif., RobertM782@aol.com

Leaders Aren't the Same as Heroes

COMPUTERWORLD'S definition of a hero is far apart from mine. I found no heroes among the 2004 Computerworld Honors finalists ["IT Heroes Think Big," QuickLink 46504]. I found no one who put his life on the line or even his job at risk. Make no mistake: What they accomplished was, in some cases, remarkable and innovative. But it wasn't heroic.

Gerald Goerwelw
Warrenville, Ill.

No-Bull Approach Gets Thumbs Up

I ENJOYED READING Gopal K. Kapur's column "I'm OK; the Bull Is Dead" [QuickLink 47139], which (by design?) followed the format of his advice in that he started with a succinct statement of the message he wanted to deliver, proceeded to flesh it out and ended with the explanation, which was illustrated by a brilliant example. I have to wonder, though: What happened with Kapur's son, the car he was driving and the bull?

Steve Mugiri
Worcester, Mass., mugiri@netscape.net

THAT WAS A GREAT little article. I especially liked Kapur's wife's line: "This is one of your punch-line things, isn't it?" She's pretty good at cutting to the chase too!

Phillip A. Kriley
Systems manager, Allegheny Ludlum Corp., Renfrew, Pa.

Booth Cost Is Comdex's Problem

THE ANSWER to the Comdex problem was in the story ["User Indifference Hurts Chances of Comdex Revival," QuickLink 47782]. When vendors don't purchase booth space and instead prefer to do business in their hotel rooms, than the booth cost is too high.

Dennis Reilley
Flint, Mich., shanedr@sbcglobal.net

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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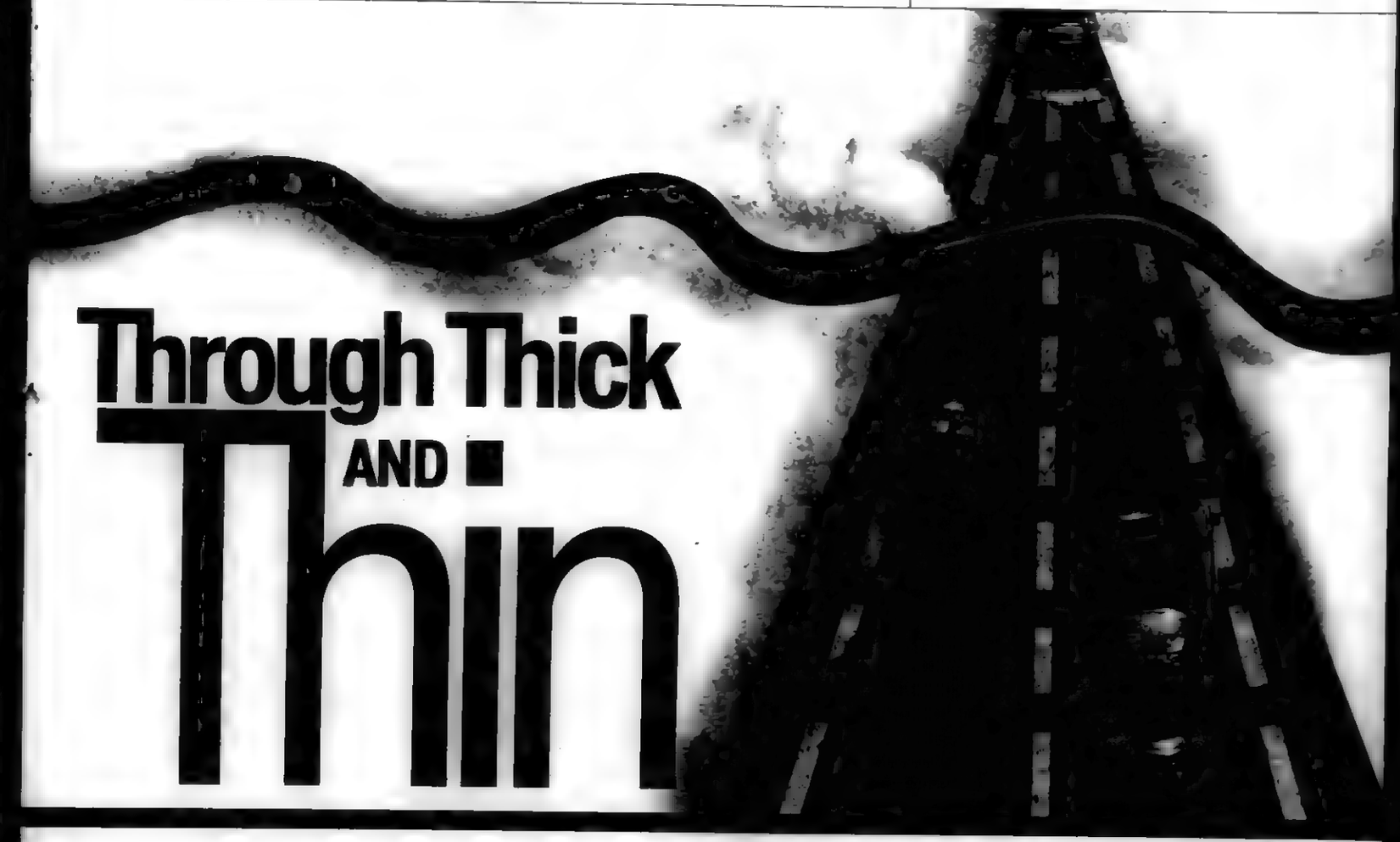
Integration Imperatives
An industry group is pushing the Global Integration Framework to stem the tide of failed EAI projects. **Page 25**



FUTURE WATCH
Producing the Future
Some of the most important things in IT today, such as Unix and the Internet, have roots at MIT. More innovations are likely to follow, says MIT CIO Jerry Grochow. **Page 26**

SECURITY MANAGER'S JOURNAL
FTP Server Offers Illicit Goods
A random check of a public FTP server uncovers an illegal distribution copy of Windows at Mathias Thurman's company. **Page 28**

Through Thick AND Thin



MICHAEL MORRISTEIN

While thin-client computing serverware programs such as Citrix's MetaFrame are gaining ground, for most companies the technology is still a road less traveled.

By Robert L. Mitchell

CHARLES REDDING needed a better way to deploy a suite of 43 line-of-business applications to his rapidly growing list of remote offices. Redding is CIO at Masco Contractor Services, a Daytona Beach, Fla.-based division of Masco Corp. that provides contractor installation services to businesses and consumers. With 11,000 employees in 260 field locations and acquisitions that have kept the company growing at a 25% annual clip, he decided to centralize and provide virtualized access to those applications by way of MetaFrame Presentation Server, thin-client computing software from Citrix Systems Inc. in Fort Lauderdale, Fla.

Now when a new store comes online, Masco can immediately provide secure access in an encrypted session for any client with a Web browser and a network or Internet connection. "We go back and standardize equipment, but from Day 1 that's not a mandatory thing," Redding says.

Providing branch office access to key line-of-business applications is

Continued on page 22

PUT IT IN THE SERVER ROOM.

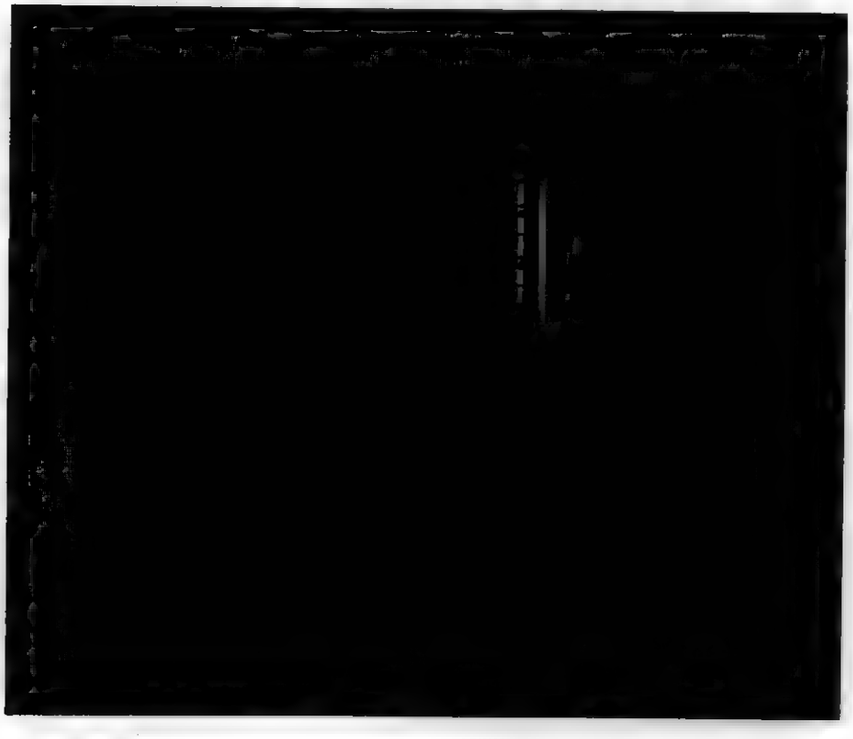
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...ued from page 19

...se of thin-client computing ...s also known as server-... computing or virtual user interface software. Virtualization makes the management of desktops easier by moving applications to a back-end server. Low overhead requirements on the client allow IT to delay PC upgrades or move to Windows terminals.

Virtualization also improves security by keeping data centralized — only screen updates and keystroke information pass between the thin client and server. The systems have also added support for authenticated remote access and Secure Sockets Layer (SSL) encryption so users can securely access applications via the Web.

Those features have stoked renewed interest in thin-client technology as a way to solve specific problems. Yet most companies that use thin-client serverware deploy it across only a portion of all desktops and use it only to access a select group of applications.

About 90% of Fortune 1,000 companies have deployed applications using technologies such as MetaFrame or Microsoft Corp.'s Terminal Server, but most have installed it on only 10% to 15% of desktops, says David Friedlander, an analyst at Forrester Research Inc. That trend is unlikely to change anytime soon, say users and analysts.

Limiting Factors

It seems that users and administrators are still more comfortable with a fat client. Kansas City, Mo.-based American Life Inc., which has virtualized nearly all of its 50 applications on 32 MetaFrame servers, still gives its 550 users a full PC. "It gives me the flexibility to still run applications locally if I ever should need to do so," says CIO Randy Jones. But, Friedlander points out, that means the PC still needs to be managed and patched."

Meanwhile, improvements in software deployment and desktop management tools have lowered the costs of managing traditional Windows desktops, reducing the relative benefits of thin-client systems in this area.

Power users still aren't a good fit for thin clients. Even with today's fast servers, resource-hungry applications such as computer-aided design systems still work better on stand-alone machines. For some mobile users, the need for a continuous network connection has limited the technology's appeal. And older applications can suffer compatibility problems because the application must be hosted on a Windows server running MetaFrame or other thin-client serverware. "We've had some problems, and most of it was specialized legacy stuff, applications running off Cobol," says Redding.

The evolution of the Web has given users another thin-client alternative. As companies move toward Web-enabling internal applications and enterprise software vendors increasingly provide Web-enabled software, users can access line-of-business applications by way of Web portals and SSL VPNs.

Thinning Ranks

Citrix's MetaFrame has long been the leader in thin-client serverware, and after a wave of consolidations in the past two years, administrators have fewer alternatives. Citrix holds about 75% of the market, with the rest split among Microsoft, Tarantella Inc. and a few others.

Sales of the technology actually dipped in 2002, but interest has picked up again. Citrix has broadened its offerings and positioned its products as a way to provide a single point of access to a mix of application types. Its Access Suite includes an SSL VPN product, single sign-on software and a conferencing tool. But the bulk of Citrix's business remains with MetaFrame Presentation Server, which it promotes as an easy way to Web-enable applications without rewriting them.

Microsoft has added features to Terminal Server such as improved scalability and a faster version of the Remote Desktop Protocol client that make it an attractive — and less expensive — alternative to MetaFrame. But Citrix still leads the pack with the most enterprise-class features, including scalability, load balancing and fault tolerance.

"It's improved to the point where you can have data centers in different regions publishing the same applications and failing over to each other seamlessly," says Marc Mangus, national director of technology at systems integrator Vector ESP Inc. in Houston.

That was a critical feature for Toronto-based Scotiabank, which put 20,000 users and 1,000 bank branches on a MetaFrame server farm last July. It has two 50-server sites to provide fail-over support for 35 branch office applications, says J.P. Savage, the bank's senior vice president of systems.

Somerfield Stores Ltd. in Bristol, England, got around the problem of how to host older applications by choosing a product that doesn't require them to reside on the same system as the serverware. Rather than host applications directly, a Secure Global Desktop server from Santa Cruz, Calif.-based Tarantella acts as a middleware layer, presenting a virtual user interface to the end user while communicating to the back-end servers using each system's native protocol.

The grocery chain used Tarantella's product to bring antiquated database applications running in some 600 stores into the data center. That improved performance while giving Somerfield time to design a new database, says John Pelling, head of IT services. The new system paid for itself in 13 months by allowing the company to defer the costs of buying and deploying store hardware and software upgrades, he says.

The most common reason IT managers cite for using thin-client serverware is to save the time and expense of maintaining and replacing PCs distributed across multiple locations. "We can deploy a new application to 500 users in an hour," says America's James.

But Pelling and other IT managers also say they want to Web-enable all of their applications. As applications become more Web-centric, people are likely to move to portal software, says Dan Kusnetsky, an analyst at IDC. But most companies have hundreds or thousands of applications, most of which are unlikely to be rewritten anytime soon.

Thin-client serverware is unlikely to broadly replace fat PCs, Kusnetsky adds, but it will continue to play a role in managing desktop access for specific applications.

James says he thinks companies are missing out by not deploying the technology more widely. He says centralizing desktop applications and data has made it much easier to comply with the Sarbanes-Oxley Act and has reduced desktop administration problems to the point where his staff spends 60% of its time on new projects. "For the typical IT shop, 90% of their time would be consumed just keeping the place running," he says. "I don't know why more people don't do it." 47853

Thin-Client Serverware by The Numbers

- 90% of Fortune 1,000 companies run virtualized applications on MetaFrame or Terminal Server.
- 10% of ... PCs in those companies use the technology, on average.
- 10% to 15% of thin-client users connect from Windows CE terminals or other thin-client hardware.
- 85% to 90% of deployments that use traditional Windows desktops or laptops as the thin client also run applications locally.

Thin Client, Fat Computer

Oklahoma Heart Hospital practices a different kind of thin-client computing. Clinical staff work at what looks like a typical Windows thin terminal from Austin-based ClearCube Inc. But instead of connecting to a server running Terminal Server or MetaFrame, each attaches to a dedicated blade PC in the hospital's data center. "We get the flexibility, quietness and infection control [because the unit has no fans and therefore doesn't spread microbes] and all these wonderful qualities of a Windows terminal, but we have real PCs and hardware," says Jeff Jones, lead systems engineer.

As with traditional thin clients, only keystrokes, mouse clicks and screen updates are transmitted to the blade. PC system hardware, programs and data are centrally located, making it easier to manage and secure. The blades have enough horsepower to handle resource-intensive applications that might bog down a Terminal Server back end. And they can be configured to fail over to a new blade when a blade crashes.

Recently, Hewlett-Packard Co. entered the market with its Consolidated Client Infrastructure. The system consists of HP's t5000 series thin client and a PC blade architecture based on Efficion CPUs from Transmeta Corp.

Blade PCs satisfied Jones' need to have a thin front end capable of supporting a resource-intensive application. But he says the cost of the setup was about twice what he would have paid for a comparable Dell PC. A complete system from HP costs about $1,400 per seat for a 1,000-user configuration.

The approach doesn't make sense to Randy James, CIO at Americo Life, which uses Windows CE terminals and MetaFrame. "There's an enormous amount of processing power wasted in that, [and] you still have the same number of operating systems and everything to manage. I don't think there needs to be a one-to-one relationship between users and PCs."

But vendors remain upbeat. "It could be 15% to 25% of the commercial PC business in three to five years," says Keith LeFebvre, vice president of HP business desktops.

– Robert L. Mitchell

AVOIDING APPLICATION CONFLICTS

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Continued from page 19

just one use of thin-client computing serverware, also known as server-based computing or virtual user interface software. Virtualization makes the management of desktops easier by moving applications to a back-end server. Low overhead requirements on the client allow IT to delay PC upgrades or move to Windows terminals.

Virtualization also improves security by keeping data centralized — only screen updates and keystroke information pass between the thin client and server. The systems have also added support for authenticated remote access and Secure Sockets Layer (SSL) encryption so users can securely access applications via the Web.

Those features have stoked renewed interest in thin-client technology as a way to solve specific problems. Yet most companies that use thin-client serverware deploy it across only a portion of all desktops and use it only to access a select group of applications.

About 90% of Fortune 1,000 companies have deployed applications using technologies such as MetaFrame or Microsoft Corp.'s Terminal Server, but most have installed it on only 10% to 15% of desktops, says David Friedlander, an analyst at Forrester Research Inc. That trend is unlikely to change anytime soon, say users and analysts.

Limiting Factors

It seems that users and administrators are still more comfortable with a fat client. Kansas City, Mo.-based Americo Life Inc., which has virtualized nearly all of its 50 applications on 32 MetaFrame servers, still gives its 550 users a full PC. "It gives me the flexibility to still run applications locally if I ever should need to do so," says CIO Randy James. But, Friedlander points out, "that means the PC still needs to be managed and patched."

Meanwhile, improvements in software deployment and desktop management tools have lowered the costs of managing traditional Windows desktops, reducing the relative benefits of thin-client systems in this area.

Power users still aren't a good fit for thin clients. Even with today's fast servers, resource-hungry applications such as computer-aided design systems still work better on stand-alone machines. For some mobile users, the need for a continuous network connection has limited the technology's appeal. And older applications can suffer compatibility problems because the application must be hosted on a Windows server running MetaFrame or other thin-client serverware. "We've had some problems, and most of it was specialized legacy stuff, applications running off Cobol," says Redding.

The evolution of the Web has given users another thin-client alternative. As companies move toward Web-enabling internal applications and enterprise software vendors increasingly provide Web-enabled software, users can access line-of-business applications by way of Web portals and SSL VPNs.

Thinning Ranks

Citrix's MetaFrame has long been the leader in thin-client serverware, and after a wave of consolidations in the past two years, administrators have fewer alternatives. Citrix holds about 75% of the market, with the rest split among Microsoft, Tarantella Inc. and a few others.

Sales of the technology actually dipped in 2002, but interest has picked up again. Citrix has broadened its offerings and positioned its products as a way to provide a single point of access to a mix of application types. Its Access Suite includes an SSL VPN product, single sign-on software and a conferencing tool. But the bulk of Citrix's business remains with MetaFrame Presentation Server, which it promotes as an easy way to Web-enable applications without rewriting them.

Microsoft has added features to Terminal Server such as improved scalability and a faster version of the Remote Desktop Protocol client that make it an attractive — and less expensive — alternative to MetaFrame. But Citrix still leads the pack with the most enterprise-class features, including scalability, load balancing and fault tolerance.

"It's improved to the point where you can have data centers in different regions publishing the same applications and failing over to each other seamlessly," says Marc Mangus, national director of technology at systems integrator Vector ESP Inc. in Houston.



That was a critical feature for Toronto-based Scotiabank, which put 20,000 users and 1,000 bank branches on a MetaFrame server farm last July. It has two 50-server sites to provide fail-over support for 35 branch office applications, says J.P. Savage, the bank's senior vice president of systems.

Somerfield Stores Ltd. in Bristol, England, got around the problem of how to host older applications by choosing a product that doesn't require them to reside on the same system as the serverware. Rather than host applications directly, a Secure Global Desktop server from Santa Cruz, Calif.-based Tarantella acts as a middleware layer, presenting a virtual user interface to the end user while communicating to the back-end servers using each system's native protocol.

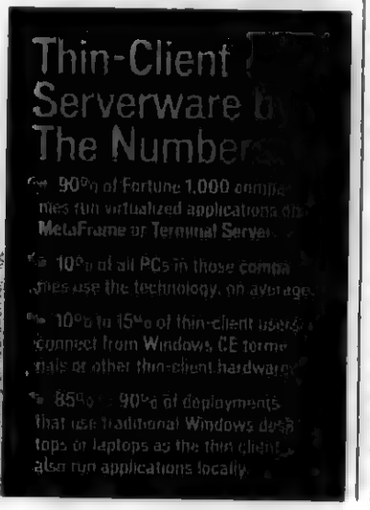
The grocery chain used Tarantella's product to bring antiquated database applications running in some 600 stores into the data center. That improved performance while giving Somerfield time to design a new database, says John Pelling, head of IT services. The new system paid for itself in 13 months by allowing the company to defer the costs of buying and deploying store hardware and software upgrades, he says.

The most common reason IT managers cite for using thin-client serverware is to save the time and expense of maintaining and replacing PCs distributed across multiple locations. "We can deploy a new application to 500 users in an hour," says Americo's James.

But Pelling and other IT managers also say they want to Web-enable all of their applications. As applications become more Web-centric, people are likely to move to portal software, says Dan Kusnetsky, an analyst at IDC. But most companies have hundreds or thousands of applications, most of which are unlikely to be rewritten anytime soon.

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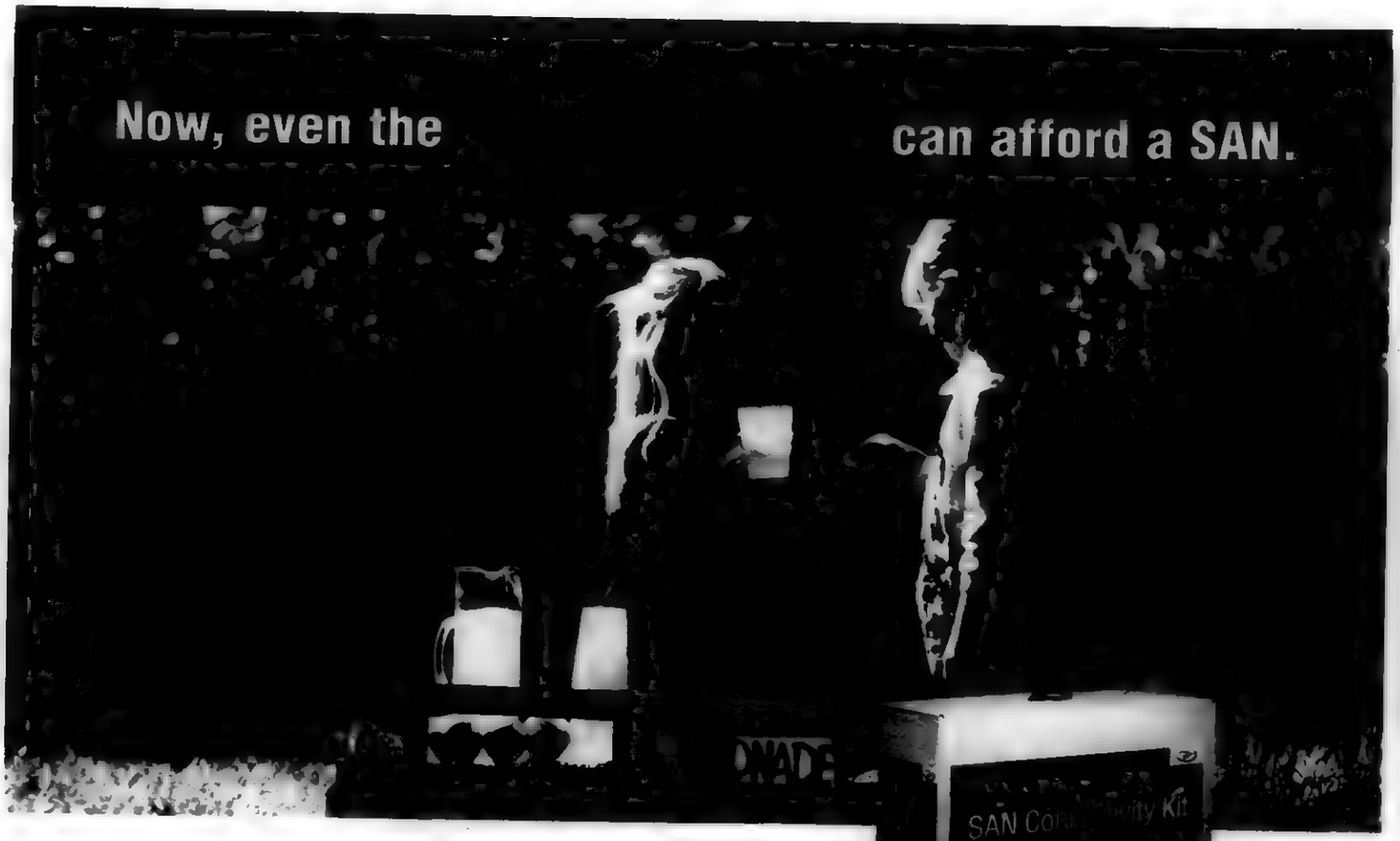


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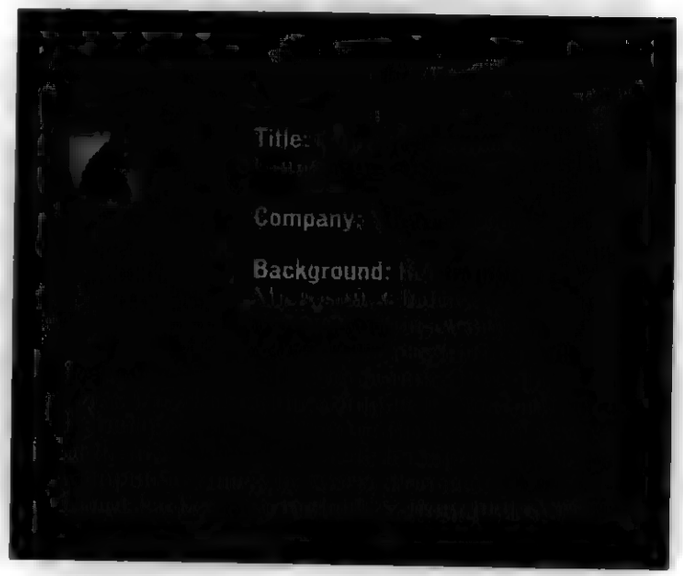
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Q&A

As Microsoft Corp.'s chief Trustworthy Computing strategist, ***Scott Charney*** *can escalate his concerns directly to the senior leadership team headed by Bill Gates and Steve Ballmer. Charney, a former government prosecutor, also spearheads the company's Security Strategies Group, which works to advance the cause of secure products and services. During a recent visit to Boston, Charney met with Computerworld's Carol Sliwa and Robert L. Mitchell to talk about how Microsoft does security.*

Matters Of Trust

Producing secure products has become a prime consideration at Microsoft, says the leader of the company's Trustworthy Computing initiative.



At Microsoft, much of the decision-making power rests with the product groups that, to some extent, might have competing interests with what you're trying to do. How much power do you have to affect the changes you need to make? The Trustworthy Computing initiative was announced by Bill Gates. And Steve Ballmer is behind it. And Craig Mundie, my boss, is kind of the father of Trustworthy Computing. He sits on what's called the senior leadership team, which is Bill and Steve and Craig and Jim Allchin, who owns the Windows platform, and Jeff Raikes, who owns the Office platform. As a practical matter, at the highest levels of the company, there is a commitment to doing this. And if I see an issue and I say I'm going to make sure this is being handled the right way, my boss is Craig. So my escalation path is very short, and the people who I escalate to actually run the company.

There are always competing interests, no matter what your line of work may be. The company's publicly held. We have an obligation to shareholders. But security is now good business and very much aligned. So that tension, to some extent, post-9/11, has been reduced dramatically.

Isn't there tension between the business and the consumer sides, wanting to make things as easy as possible to use versus needing to make them as secure as you can? There is tension there. To some extent, one of the ways to do it is to try to make the security as easy as possible and transparent to the user so they get the security without having to actually manage it or have it impact their experience. On the other hand, there are times when the technology is just not ready.

A smart phone is a great example. It allows me to resync my calendar and my mail. From a security perspective, a lot of people lose these in taxi cabs and leave them behind at restaurants. So maybe one of the things we should think about is encrypting everything on this device to protect the consumer who might lose this device. I've had this discussion with the mobile device people. And what they've said is, "This is a small device, very competitive market." They've got price points in the consumer market that, if they passed them, then people won't buy the product. Moreover, as a practical matter, people like the calendar and the e-mail, but they also want to make phone calls. If you encrypt everything on this device, every time anyone accesses anything like a contact, you have to decrypt it and then when you close that screen, it's got to be re-encrypted. If you encrypt and decrypt every piece of information in every e-mail on the fly, you will have two minutes of talk time. And the reason for that is the battery. There have been no major advancements in battery life. So right now, we're not going to encrypt this device, even though it'd be great for security, because the device becomes unusable.

For security to be embraced, it has to work. People understand that security creates a drag on productivity. The fact that you have to enter your password before you can sign on takes two or three seconds. People have acceptable levels. It takes a minute or two to lock your door when you leave your apartment and open it when you come back. I think most people say, "Locking my door is an acceptable amount of time."

Now you have to think about functionality in the same way. You have to figure out how to provide this functionality in a secure way, and then I figure out how to do this security in a way that doesn't undermine the functionality or so degrade the user experience that they turn it off.

The key thing is that as you try and balance these things. What you don't have anymore that you used to have is, "I don't want to talk about security. I don't want to have to do security. It's not important." Now, at every level of the company, whether it be a developer, an architect, it's like, "OK. How can we balance these competing interests, because they're all important?"

How have you measured progress on the Trustworthy Computing initiative? There are different metrics that we use in different ways. Very often you look for proof points, and some are specific and some are more general. For example, one of the things we have now is the security push and review process. There are things that we can measure internally about the number of components that have gone through this percentage of large products and all of that. Then you get the external measures — the number of bulletins you release. . . . Ultimately, the goal is to make the customer's life easier and make security more manageable. So you look at Sasser. For Windows Server 2000, you had to download this critical patch. For Windows Server 2003, it was a nonevent. When you look at that, you go, "Well, 2003 went through a security push." Someone designed a worm and this product was not affected. The customers who had upgraded to that product didn't have to deal with it at all. This is clearly better than where we were two years ago.

Did you establish specific metrics? We didn't set targets. We didn't say we hope to get down to *x* vulnerabilities in *x* years. We're measuring where we're better than we were before and where we're not. Whenever we have a critical or an important vulnerability, we do a root-cause analysis. And the root-cause analysis is designed to figure out, OK, how did it come to pass? Is it just a question of training, bad application, bad development tools, bad testing tools? You can figure out how you can improve the process. You keep trying to make it better and better. And you measure your current state compared to your old state. . . . Zero vulnerabilities would be our target. It's also not a realistic one. **46109**

GAME PLAN

For more of the Charney interview, including a look at his goals and how he plans to reach them, visit our Web site:

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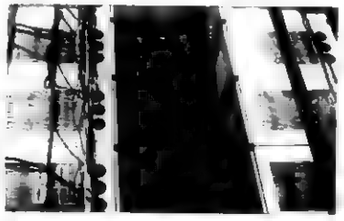
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SUNDAY, SEPTEMBER 12

- CIM Basics; CIM Using and Extending CIM Schema
- WBEM Infrastructure Basics and Integration; What is a MOF and How to Write Models
- SMI-S and CIM for Storage; Server Management with WBEM/CIM and CIM CLI; ERP CIM-based Directory; and Management of Communications Infrastructure with SAF, AIS, HPI and DMTF
- IPv6; CIM Enabled High Availability Solutions; and Grid Computing with CIM

What You Need to Know About Compliance

Digital Rights Management in the Enterprise

Enterprise Linux Commodity Clusters and Grids – A to Z: What They Are, How They Work, How They Pay Off, and Who's Doing Them Today

The Critical Value of Software Asset Management Through Benchmarking

Information Lifecycle Management: Managing Information Not Data

MONDAY, SEPTEMBER 13

Opening Remarks

Opening Keynote

End User Case Study

Industry Leader Presentation

End User Case Study: WAN Optimization Technology Facilitates Enterprise Application Deployment for Global Corporation

Industry Leader Presentation

DMTF Overview

Panel: CIO Insights

- Managing Truly Global Enterprises
- IT Program Success from the CXO Perspective
- IDC Analyst Briefing

- Utility Computing; Security and Identity Management; Application QoS
- Management; Networking; Grid Computing
- WBEM; Pegasus

End User Case Study: Managing the Distributed Computing Environment: The Paradigm Shift

Industry Leader Presentation

The Impact of Storage Network Management Techniques in Managing a Distributed Enterprise for Business Continuity

Strategies for Selecting Service Management Software

Business Continuity Solutions for Geographically Dispersed Data Centers

MONDAY

"The Compliance 12-step"

SOA Roadmap – The Principles for a Successful Incremental Implementation

Effective Data Valuation for Optimized Disaster Recovery Efforts

TUESDAY, SEPTEMBER 14

Opening Remarks

Opening Keynote

End User Case Study

Industry Leader Presentation

End User Case Study

Industry Leader Presentation

CTO Insights Panel

- Service Level Agreement; High Availability; Asset Management
- SANs; Servers; Diagnostics
- DMTF Command Line Interfaces; WMI Mapper

End User Case Study

Industry Leader Presentation

End User Case Study: Operational Management Across a State-wide Enterprise

Panel: Enterprise Security Architecture – A Methodology for Managing Information-security Risks

Integrating and Automating Your Business Process – How Do You Make It All Work?

Networking Priorities for 2005: Users Speak Out

Very Large Scale Implementation of Service Oriented Architecture

Panel: A 360 View of Utility Computing Reality and Directions

WEDNESDAY, SEPTEMBER 15

- Application Modeling; Telecommunications; Policy
- Storage; Policy; Conformance Testing a Profile; Management Protocols
- Solutions with SAML and WebServices; Enterprise Management Suites that are CIM Enabled; Top-down CIM Modeling of Business Applications; Application SLA Attainment with CIM and AQRM

8:30am – 11:45am DATA CENTER COMMUNICATIONS AND NETWORKING SOLUTIONS TRACK

11:45am Conference Concludes

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INTEGRATION Imperatives

One industry group has put together a framework of standards and practices to stem the alarming failure rate of application integration projects.

BY TOMMY PETERSON

START WITH ONE STATISTIC, and it's easy to understand the mission of the Integration Consortium (IC): 95% of all application integration projects fail, according to a 2003 study by The Standish Group International Inc. in West Yarmouth, Mass. That is, the IT staffs assigned to such projects significantly blow their budgets, exceed their schedules or fall far short of the goals.

In an effort to stem that tide of frustration, the consortium, a 130-member alliance of users, vendors, systems integrators and academic institutions based in Calgary, Alberta, this spring launched the Global Integration Framework. The GIF is an attempt to codify and disseminate best practices based on consolidated standards and to provide the technical support necessary to make the practices work.

Standards groups perform a necessary function, but separate groups often produce warring standards that complicate rather than streamline integration projects, says IC President John Schmidt, who is also Best Buy Co.'s leader of systems integration and middleware.

The need for a more effective, broad-based approach is urgent, because all those failed application integration projects add up to plenty of wasted money, according to IC co-chairman Michael Kuhbock. Industry studies peg the cost of application integration at 35% or more of all IT project costs, which can translate into $100 million a year for big companies, says Kuhbock, who is also CEO of Groundswell Revolution Inc., an integrator and enterprise application integration consultancy in Calgary. The IC says that using the GIF could easily cut the application integration portion of total IT costs in half.

There's a price beyond dollars for unsuccessful integration projects, says Schmidt. "When the business side looks at the IT community, [these failed projects] are one of the things that get questioned, and that undermines our credibility," he says.

The consortium's remedy for the situation starts with the GIF repository containing detailed information about proven methodologies, most prominently Johnson & Johnson's Total Business Integration initiative. The approved methodologies in the repository are supported by a formal data model for integration metadata. The repository also provides access to an enterprise architecture development model in the form of The Open Group Architecture Framework, or TOGAF, an integration design and software framework for standardizing interfaces that was developed by the Avalanche Consortium.

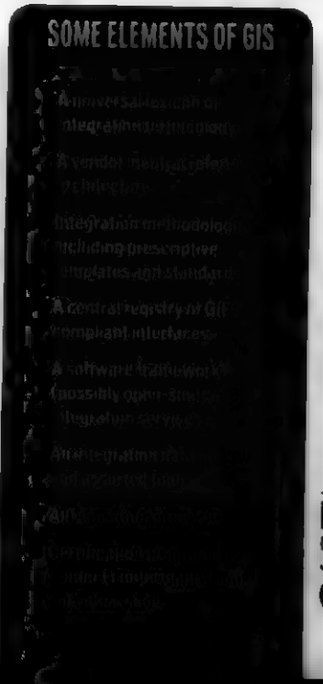
But the IC doesn't define itself as merely a clearinghouse of information or a band of industry evangelists. It's developing a three-year road map that includes training and certification programs for products and procedures that comply with the GIF or GIF-approved standards.

The consortium points to its focus on end users and their concerns. It emphasizes that the GIF is vendor-neutral, but like most similar industry groups, it courts vendor participation and financial support. Mark Tempelmeyer of IBM is co-chairman of the IC along with Kuhbock. The consortium membership also includes Oracle Corp. and BEA Systems Inc., as well as smaller players such as Sonic Software Corp., Fiorano Software Inc., Software AG and Informatica Corp.

So, can one more industry organization, no matter how ambitious or well-meaning, make significant progress toward rationalizing the application integration process in large businesses?

"There's certainly value in what the consortium is trying to do — creating a dialogue between vendors and users on emerging technology," says Gordon Van Huizen, chief technology officer at Sonic Software. "The global framework is very ambitious but may be overly specific at this point." 48120

SOME ELEMENTS OF GIS



INTEGRATION EVANGELIST

For an extended version of this interview with John Schmidt, visit our Web site:

QuickLink 48247
www.computerworld.com

POWER TO THE USER

JOHN SCHMIDT of Best Buy and the Integration Consortium discussed the GIF and users' responsibility in efforts to create standards and best practices during an interview with *Computerworld*.

You come from the user side of the consortium — what does the GIF mean to you? I came to the conclusion that [Best Buy] had solved all the problems we could internally and that for the really difficult problems we needed to engage the broader software community in a different way. I could not solve these problems myself. There had to be some broad-based agreements on key standards. I just felt it was an obligation I had as an end user to be proactive with the community to tell the software vendors what's important and what's critical. So that's when I started going on speaking tours, going to a lot of conferences, writing papers, talking to as many vendors as I could. And ultimately getting involved in the consortium and the GIF. It was an extension of the strategy to solve problems within my company.


JOHN SCHMIDT

Do you recruit your peers? I tell other end users that I feel they have abdicated their responsibility to tell the vendor community what's important to them. Generally speaking, users voice their opinions by not buying the products that don't conform to the standards they think are important. At that point, it's too late. The vendors and suppliers have already invested in the product, and millions of dollars have been spent in development. We need to be telling our vendors two years in advance what they should be building. Then if they don't build it, you say, "We won't buy your product."

Would you say that user empowerment is central to what you're doing? Absolutely. That's part of the vision we're trying to promote and propagate from the consortium board, including all the other vendors. I was concerned about how they would react to this. The vendors actually embraced it. What they've been struggling with is getting a clear message from end users about what they want. End users won't tell them — they haven't spent enough time thinking about it or formulating a clear strategy.

How long will it take for the consortium to effect change in the industry? We have to have short-term goals, but we will not be done in that time. Technology will continue to evolve, businesses will continue to morph, IT's place in business will continue to change. There's no end to it.

— *Tommy Peterson*

Producing The Future

It sounds like corporate IT will have to have very strict standards.

FUTURE WATCH

What technical solutions could there be?

The heterogeneous environments you and many companies operate in will grow only more heterogeneous, won't they?

Jerrold M. Grochow



Vice president for information services and technology

MIT

Grochow earned three degrees from MIT, including a Ph.D. in management. He's responsible for an IT budget of $50 million and manages 250 people in academic and administrative computing. He's also the former chief technology officer at American Management Systems Inc. and a co-founder and CTO at online brokerage Foliofn Inc.

What's [illegible]

How will MIT deal with the [illegible]

What lessons might the corporate world [illegible] from MIT?

[illegible] deal with security, for ex-

47894

MIT Spawns IT Innovations

1961 CTSS (Compatible Time-Sharing System): MIT's Project MAC develops one of the first time-sharing operating systems and one of the first to allow electronic mail.

1967 Multics: Project MAC develops the successor to CTSS, which becomes the first high-availability operating system.

1975 TCP/IP: MIT's David Clark and a team from the Laboratory for Computer Science implement TCP/IP for PCs, resulting in tremendous growth of the Internet.

1977 RSA algorithm: MIT researchers Ron Rivest, Adi Shamir and Leonard Adleman invent the first workable public-key cryptographic system.

1983 Project Athena: MIT deploys a large network of engineering workstations, including a centralized workstation management scheme today known as the "network PC," the Kerberos authentication system and the X Window System.

1994 World Wide Web: MIT's Laboratory for Computer Science forms and hosts the World Wide Web Consortium, led by Tim Berners-Lee, inventor of the Web.

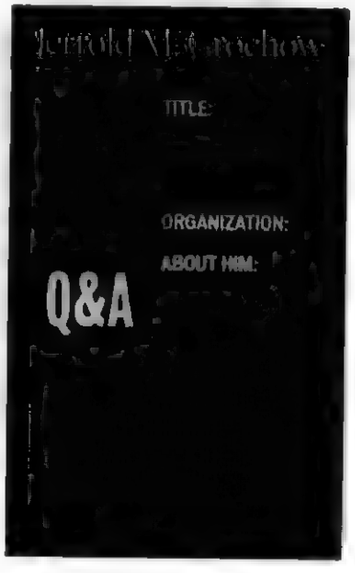
2000 Project Oxygen: MIT develops technologies for human-centered computing and communications.

For more on MIT technology projects, go to QuickLinks a4790 and a4810 on our Web site.

THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICROFORM EDITION.

Producing The Future

A powerful security standard and new Internet protocols are among the innovations being hatched at MIT.



IT pragmatists in the corporate world might wonder what they could learn from the eggheads in academia. The answer is, quite a lot — such as how to secure systems from all sides — says MIT's Jerry Grochow. He recently told Computerworld's Gary H. Anthes how MIT contributes to the future of IT.

What has MIT done for the computer world? Going back to the 1960s, Project MAC — which I worked on as a grad student — developed Multics, which spawned Unix. The principles of Multics exist in every major operating system today. MIT was one of the leaders in Arpanet technology and the invention of TCP/IP. Then there's Project Athena from the 1980s that developed Kerberos, a security protocol that Microsoft, Apple and Sun use. We have had some interest recently in our informal Kerberos alliance from a number of Wall Street firms.

What's happening on campus now that might have an effect on IT in the future? There's research going on in Internet protocols beyond TCP/IP. We may have IP forever, but there may be different things riding on top of it beyond TCP that have different characteristics for very low latency, which is a big issue when you ship big data around the network. We've got Dave Clark, who's been a senior researcher for many years in Internet protocols.

How will MIT deal with the information explosion? We are in the process of upgrading the network backbone on campus from a gigabit per second to 10Gbit/sec., the highest commercially viable speed at this point. Physicists are now doing experiments sending a half terabyte from here to CERN [in Geneva] and back again and wanting to do it in near real time.

What lessons might the corporate world draw from MIT? We are the ultimate in the heterogeneous environment. Maybe corporations think they can enforce being an all-Microsoft shop, for example, but there are always some Macs around and always some Unix machines around, and now, of course, there are a lot of Linux machines.

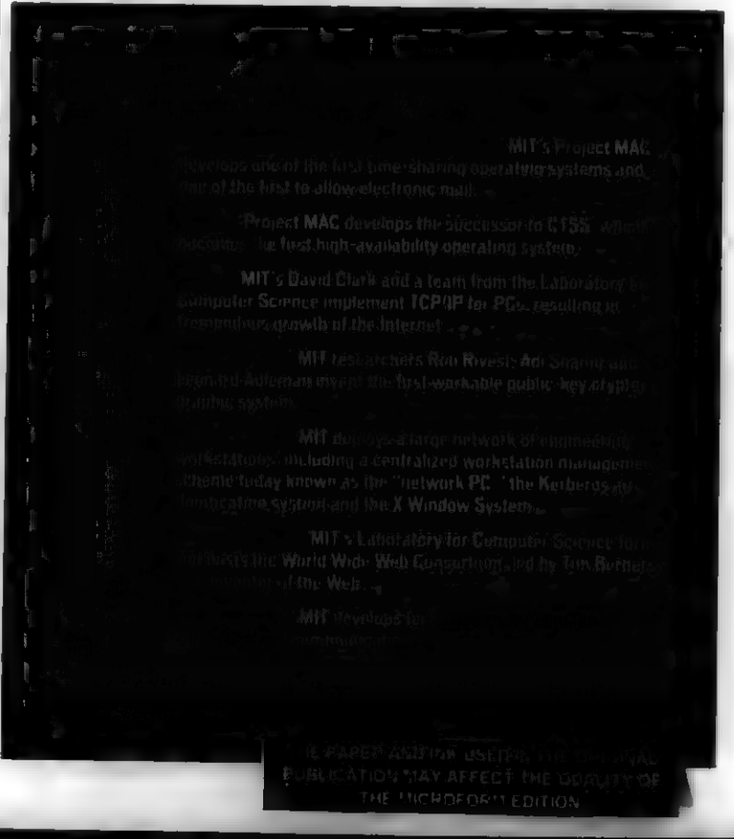
So how have you dealt with security, for example? Universities are not places where you put up a firewall on the front end of the network and assume you have security. Threats are as likely to come from the inside as the outside. We have ... intrusion-detection systems that, interestingly, point both ways — outward but also inward. And that is what major corporations are finding they need to do. We have adopted security structures that are more application-based and role-based rather than firewall-based. We have Kerberos security, where every person on campus has a security ID that is recognized and interrogated by each application in a consistent way, and where people have different roles with regard to different applications. The Roles system is an additional capability that we developed on top of the basic Kerberos structure. Several other universities have expressed interest in that. CIOs also are looking at what will be the next generation in security architecture that will protect from the inside as well as the outside.

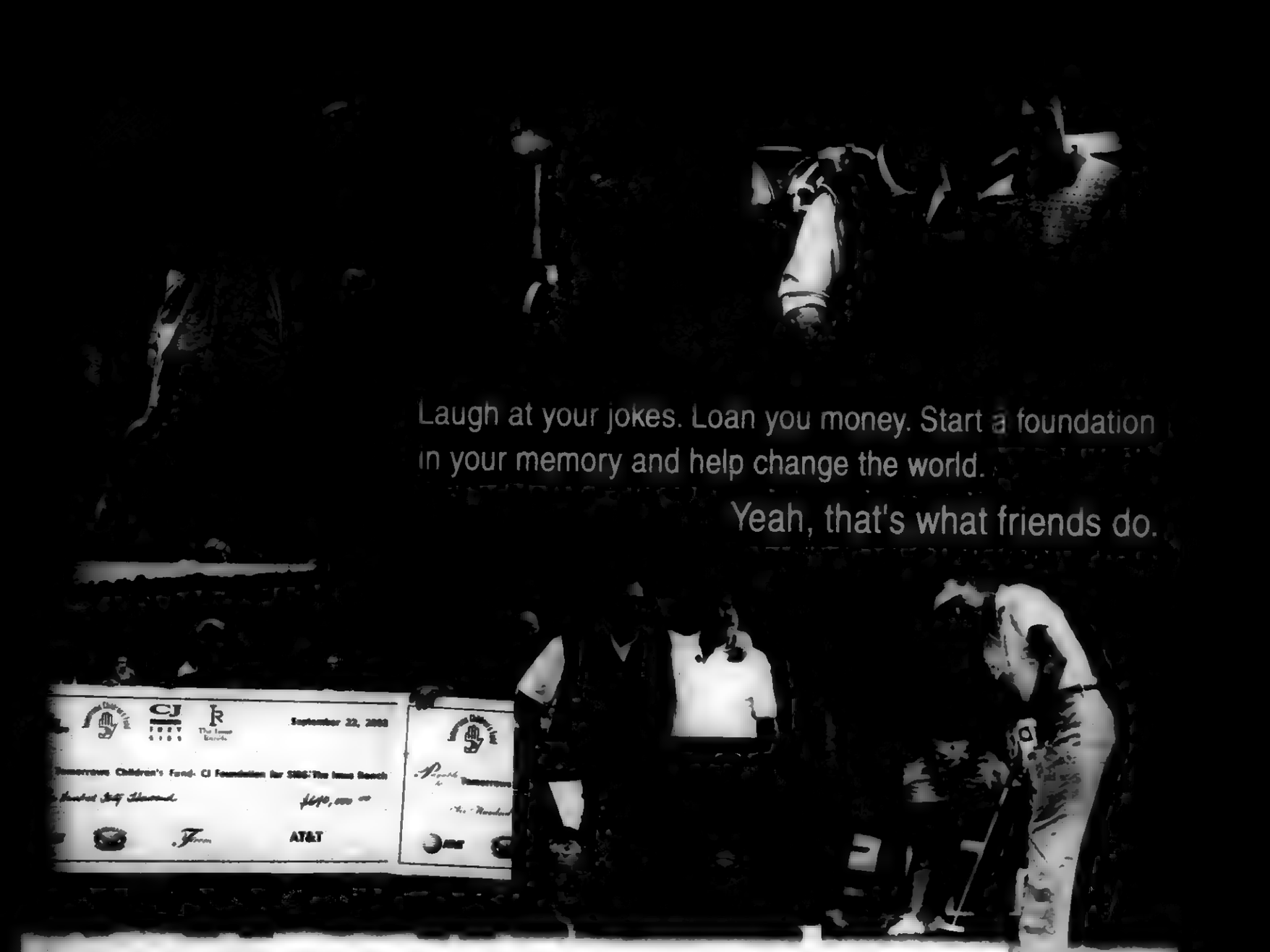
The heterogeneous environments you and many companies operate in will grow only more heterogeneous, won't they? I don't think we can predict which devices will become computing devices and which kinds of services they will want. I'm wearing a new Microsoft watch, and it gets a sub-FM band transmission of weather, sports, news and stock market. It also connects via the Internet to my Outlook calendar, so when my secretary makes a change to my calendar, it actually shows up on my watch. That's a computing device. There are technical issues to making that work, but also security issues and other kinds of things. We have to look pretty expansively in the future at the kinds of computing devices people are going to have and carry around and embed in their clothes.

It sounds like corporate IT will have to have very strict standards. Corporations may be able to say everybody will have the same kind of computer and the same operating system, but are they also telling people what cell phones and PDAs to use? When computing devices are embedded in their clothes, will they tell them how to dress?

FUTURE WATCH

What technical solutions could there be? [MIT is] doing work with a variety of devices and technologies, such as RFID, to allow computing environments to change based on who is present, as determined by their ID device, which might be embedded in their handheld or in their clothes. For example, one of the problems with the current [Microsoft] watch is that I have to go to a Web site to tell it when I am going to another city or else I still get the weather from my hometown. Making it work everywhere automatically would require a much more sophisticated technology, akin to the current cellular phone system. ⊙47894





AT&T STEVEN A. COX CHARITY CLASSIC

Each year the circle of friends at the AT&T Steven A. Cox Charity Classic keeps growing. After losing him to cancer in 1991, friends of Steve Cox started the event as a way to remember his life and help others battling the disease. On September 20th, some 800 golfers will be a friend of Steve's, whether they knew him or not, by raising over $700,000 in the fight against childhood cancer and sudden infant death. Proving real friendship has no limits. To join over 150 companies as a corporate sponsor, visit **www.coxcharityclassic.com**

WFAN broadcasts live from the Cox Classic and Don Imus will be participating in the Imus Teed Off Celebrity Challenge.

2004 Honorary Chairs: Mark Messier and Donald J. Trump

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The Imus Ranch

FTP Server Offers Illicit Goods

A random check of a public FTP server turns up an illegal distribution copy of Windows. By Mathias Thurman

I WAS BATTLING yet another worm infestation this week when it came to my attention that our FTP server might be allowing visitors to download illegal copies of Windows.

As for the worms, we've had one after another, and all of them so far have taken advantage of a well-known Windows vulnerability for which Microsoft has already issued a patch. Unfortunately, until we deploy an effective patch management infrastructure to the entire organization and partition off network segments that can't be patched in a timely manner (specifically our engineering labs), we'll continue to have to attend to these outbreaks.

SECURITY MANAGER'S JOURNAL

Eventually, I hope to convince upper management to support my proposed patch management and network segmentation deployment. But we're so busy fighting the worms that we've had little time to document their negative effects. And until we gather some meaningful historical data, it's difficult to build a decent business case.

Piracy Suspected

This week, an alarming e-mail from one of our product marketing managers also took up quite a bit of my time. He had noticed a file named en-win2k-pro.iso in the public, outgoing directory on one of our file transfer protocol servers. The file name appeared to be an installation image of the Windows 2000 Professional operating system.

The .iso extension indicates a file that contains the complete image of a CD-ROM. We often use image files when transferring CD images over the Internet, and they can be used to make software distributions available for download.

Once you have the .iso image, it's easy to restore the image to a CD-ROM. Doing that with the en-win2k-pro.iso file would essentially create a pirated Windows distribution CD-ROM. All you need then is a license key to turn it on. Not good.

I walked over to the offices of our Unix FTP server systems administrators and asked one of them to log on for me. Sure enough, the file was residing in the outgoing directory. Its size, at about 420MB, matched the size of a Windows 2000 Professional distribution copy. The presence of such an image could get my company into hot water for illegally distributing licensed software.

The public could freely download the image, but the FTP server was configured in such a way that external users, who access the server as anonymous users, couldn't have uploaded the file. Uploads from the public can be directed only to the incoming directory. The only people who can upload to the outgoing directory are users with valid administrative accounts on the server. That meant that an employee or hacker had uploaded the image.

> **I didn't expect that this was the work of an outside hacker.... Most likely, this was an internal job.**

Following our protocol for such incidents, I asked the administrator to create an image of the entire file system in order to preserve the state of the server before we started changing things. I didn't expect that this was the work of an outside hacker, since our FTP server configuration and the firewall rules protecting it are pretty strong. Most likely, this was an internal job.

Tracing the User

With the image complete, I asked the administrator to move the .iso image to a nonpublic directory. Then I asked for the FTP transfer logs and read this: *20040601/ftp.mycompany.com/xfer.20040601.20:31:11 | S,//pub//outgoing/en-win2k-pro.iso, support, 192.168.5.121,, OK,.*

On June 1, an internal user originating from IP address 192.168.5.121 uploaded the en-win2k-pro.iso image to the outgoing directory using a common internal "support" account. This account is shared by many administrators and technical support people, who use it to upload product updates and customer data. To find the user, we had to trace the IP address.

With that information in hand, I went to the Windows help desk manager and had him pull up the server logs to see which user was assigned the 192.168.5.121 address on that day.

Unfortunately, he had to pull the logs from backup archives because we use dynamic addressing, and the addresses had been renewed since June 1. In many cases, users retain the same IP addresses after they expire. But we had to be sure of who held the address in question. It took a few hours to properly restore the log file for the previous month, but we were able to obtain it.

User "jkeaton" (not his real name) had been issued that address on May 10. Since addresses don't expire for 30 days, I could safely assume that jkeaton was the user I was looking for. I then searched our employee database and came up with only one person with the last name Keaton. He works as a help desk technician on the swing shift. That made sense, since the file had originally been uploaded at 8:30 p.m.

I was almost ready to call human resources. But before doing so, I wanted to be absolutely sure that jkeaton had been assigned the IP address on June 1, so I had our Snort intrusion-detection systems administrator pull the IDS logs for June 1 and search for the suspect IP address.

I didn't need to be a Snort guru to see the date of the incident and the username and IP address within the long string of output text. But there was still one last detail. Was the file in question truly a Windows distribution image? I restored the .iso image to a CD-ROM to be sure. It was indeed an illicit copy of Windows 2000 Professional, but fortunately, it wasn't bound to our license key.

Nonetheless, it's still illegal to distribute this software. Now I've given all this information to HR. It's up to them to talk to the employee to see what his intentions were. Maybe he'll get his hand slapped, or maybe they'll let him go. Either way, I'm sure he won't do it again. And I'm relieved to know that it wasn't the work of a hacker.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1580**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG



Security Bookshelf

[illegible] Hackers and Painters: Big Ideas from the Computer Age, by Paul Graham; O'Reilly & Associates, 2004.

[illegible] reviews from [illegible] computer reference books. Paul Graham, well known for [illegible] the computer [illegible] Lisp and other [illegible] technologies, brings a touch of [illegible] to a variety of computer-related topics.

In this [illegible] Graham might have nothing to do with security, but the subject matter [illegible] for an interesting [illegible] from the mind of one [illegible] computer wizards. [illegible] Graham's [illegible] don't just [illegible] technology, he [illegible] about why [illegible] are computer [illegible] how to quit [illegible] and how to [illegible] upon [illegible] my shoulder. This bit of light reading will fit [illegible] in your hands long [illegible] on your office [illegible].

– Mathias Thurman

Turntable Adds Security Features

Turntable Inc. announced a new version of its Secure Global Desktop Software for Windows, a software application for Windows Terminal Servers. New features in V32.4 include support for digital certificates for server authentication, including Secure Sockets Layer (SSL)-secured Web and Citrix/ICA connections. Appropriate software is available [illegible].

GeoTrust Offers New Certificates

GeoTrust Inc. has released PowerServer ID 128-bit SSL certificates for Web servers. GeoTrust's PowerServer ID certificates enable 128-bit Secure Sockets Layer, which is supported by many [illegible] Internet and Intranet Web servers and browsers.

Available [illegible], pricing starts at $399 for a one-year certificate and $1,499 for a multi-year certificate.

BRIEFS

AT&T Launches UMTS Data Service

AT&T Wireless Services Inc. in Redmond, Wash., last week introduced a high-speed cellular data service that operates at speeds of 220K to 320Kbit/sec. The company rolled out the service in Detroit, San Francisco and Seattle and plans to deploy it in Dallas and San Diego by the end of this year. The service, which is based on the Universal Mobile Telecommunications System standard, is priced at $79.99 for unlimited data. Users will need to purchase a Merlin 520 PC card, developed by Lucent Technologies Inc. and Novatel Wireless Inc., for $149.99.

PeopleSoft Updates Supplier Offering

PeopleSoft Inc. in Pleasanton, Calif., has upgraded its e-procurement application by providing out-of-the-box connectivity to the independent supplier network offered by Lee's Summit, N.J.-based Perfect Commerce Inc. Perfect Commerce Open Supplier Network Connect for PeopleSoft will allow PeopleSoft customers to link to up to 8,000 suppliers and more than 21 million stock-keeping units of content. It is available now.

Tandberg Releases SIP-based Products

Tandberg Inc. earlier this month announced its MXP technology for improving video and audio quality and collaboration abilities in its videoconferencing products. MXP is based on the Session Initiation Protocol and will be used in three new products as well as the New York-based company's existing offerings. The Maestro MXP, priced at $25,490, and the 6000 MXP, priced at $18,990, are designed to be used in large conference rooms and boardrooms, and the 3000 MXP, priced at $13,990, is for use in smaller spaces.

ROBERT L. MITCHELL

Get Ready for E-cycling

LAST WEEK, Hewlett-Packard and Dell discovered a new competitive weapon in the PC wars: Both of the hardware vendors launched recycling promotions for obsolete computers and other electronic equipment. One can take the cynical view that these well-publicized initiatives are simply an attempt by each company to gain market share by "out-greening" the other. But they're also a response to the small but growing awareness of e-waste's potential toxicity and the need for more responsible disposal practices.



Electronic equipment often contains toxic metals, fire retardants and other carcinogenic substances that can pollute the air and water when sent to landfills or incinerated [QuickLink 43804]. Yet many businesses and consumers continue to simply throw out unwanted equipment. Gartner analyst Frances O'Brien calls business ignorance about e-waste the "single largest problem for the industry."

As public perception of the problem continues to rise, however, vendor practices are facing increasing scrutiny by activist groups. By taking the lead on recycling programs, PC makers hope to head off further negative publicity. And corporate IT's disposal practices are also likely to come under scrutiny.

Both Dell's and HP's new programs take aim at consumers and small-business users. Dell's program lets consumers who buy new PCs return their old systems for recycling at no charge. After receiving a new system, the customer simply packs the old one in the same box and ships it back. Meanwhile, HP announced a joint program with Office Depot. Customers can drop off almost any electronics item at one of the retailer's 850 stores. Office Depot will collect and ship the equipment to one of two HP-owned recycling facilities for free.

Both programs are short-term promotions. HP's offer ends Sept. 6, and Dell says its program will run for a "limited time." Both vendors typically charge $15 to $46 to recycle computer equipment.

One reason for running these programs is to help jump-start the e-waste recycling market. Ultimately, vendors hope to increase the supply of recyclable materials and create demand for recycled content by incorporating it into new products. "It's about helping develop the infrastructure to facilitate recycling," says Walt Rosenberg, a vice president at HP. And that would benefit businesses as well as consumers.

Currently, the nascent e-waste recycling market is dominated by small, regional vendors. Since shipping equipment is expensive, large companies that want to recycle often must work with different local vendors at each of their branch offices. Increased demand should encourage larger players capable of servicing every location to enter the market.

Free promotions to consumers are good publicity for PC vendors, but for corporate IT, cost remains the big barrier. Spending an average of $30 per unit to properly dispose of 1,000 PCs — a process that typically includes wiping the hard disk, providing a documented chain of custody and shipping — looks pretty steep when compared with the cost of a 30-yard Dumpster. As recycling technology and eco-friendly product designs improve, however, those costs could go down.

But the real problem is that businesses underestimate the risks of improper disposal. By placing recycling front and center, HP, Dell and others are educating the public about the problem. That increased awareness will also heighten the risk of negative publicity when equipment that has been inappropriately discarded is traced back to a business. Organizations lacking a clear end-of-life equipment strategy will face stiff fines as the confusing patchwork of restrictive state regulations expands. But the real damage may be to a company's reputation and brands.

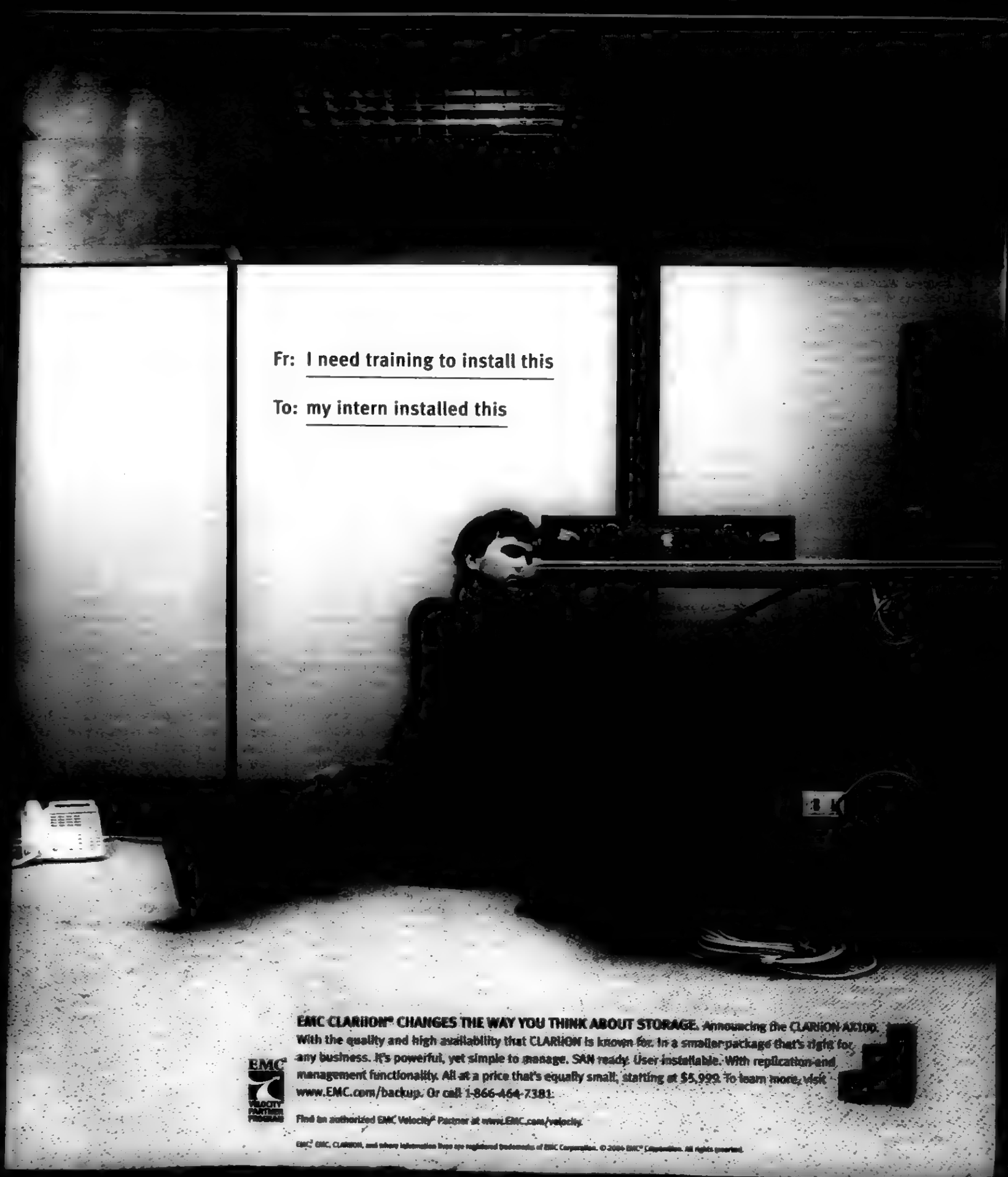
On the positive side, the publicity from recycling initiatives is also likely to increase top corporate management's understanding of the problem — and the true value of establishing proper disposal practices. In some cases, IT managers might even get a call from the CEO asking what the company is doing with its equipment. But don't count on it just yet.

HP includes computer take-back programs, when asked, in customer RFPs. In the first six months of this year, the total value of RFPs that included social or environmental requirements amounted to $3 billion — about what HP received for all of 2003. But much of that came from companies in Europe, with U.S. businesses far behind. Still, Rosenberg says, "we've seen interest on the corporate side increase dramatically. Two years ago, that wasn't even measurable."

The day is coming when throwing e-waste in landfills will sound as strange as allowing smoking on airplanes. IT organizations will need to decide soon whether they want to get in front of the trend, or follow it and risk becoming an example. **48295**

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Career Watch
How to dig out from an IT infrastructure disaster; big bonuses for information systems directors; and where companies are putting their software dollars in 2004. **Page 36**

OPINION
Turning Around the Hard Case
Discouraged by subpar employees who just don't seem to care? Don't despair, says consultant Sue Young. It may be easier than you think to motivate them. **Page 38**

Are You Annoying?
Everyone is annoying at times, and IT workers have their share of irritating behaviors. But letting your conduct run amok can wreak havoc in the workplace and even derail your career. **Page 34**





JAMES O'BRIEN

EDUCATING YOUR CXOs

Smart CIOs are turning business executives from potential adversaries into staunch allies.

By Mary Brandel

CIO John Wade was busy this past May, lining up his ducks for St. Luke's Health System Inc.'s annual planning meeting. For the second year in a row, the senior-level executives at the health care facility in Kansas City, Mo., would be gathering for a half day to set business goals for the coming year and determine how those agreed-upon objectives would realign technology priorities.

Wade would be attending less as a strategist, however, than as an educator. "I need to give the management team some appreciation for what can and can't be done with technology today," he says. Wade's reality checks would include telling his colleagues what's possible with radio frequency identification and whether voice recognition technology is affordable. "The idea of physicians walking down a hallway and having their conversation instantly transformed into a medical record — that ain't going to happen anytime soon," he says. Wade even invited an outside consultant to help him with his presentation.

CIOs have always played a role in educating nontechnical managers. But today, with tighter budgets, tougher questions, a demand for guaranteed return on investment and CXOs who know enough about technology to be dangerous, smart CIOs are turning the tables by creating stronger, more knowledgeable advocates out of potentially distrustful adversaries.

The teaching role includes everything from advising CXOs on a new technology for strategic advantage and explaining why an older infrastructure needs a refresh to adding technology realities to a business discussion.

And educating CXOs is essential, given a recent trend observed by John Lutz, vice president of on-demand sales at IBM. More CXOs are sitting alongside CIOs at customer briefings, he says. "They're just different kinds of cats than the previous generation — not as intimidated by technology," Lutz says.

But don't start passing out the pocket protectors. Senior executives still don't want to hear about the relative merits of .Net versus J2EE or even tablets versus handhelds. "It's not a technology conversation; it's a solution conversation," says Nigel Hughes, head of business consulting at Compass Management Consultancy in Chicago.

If you want to introduce Web services into your company, for instance, it would be better to talk about how integrating general ledger and accounts payable systems will result in an invoice-processing free environment than to discuss SOAP or XML. "That's what the CFO needs to know," Hughes says.

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A crucial part of the CIO's job is understanding what CXOs need to know and the best way to teach them. And there's no one-size-fits-all answer, says Rob Tabb, CIO at Ecolab Inc., a $3 billion-plus developer of cleaning and repair products in St. Paul, Minn.

When Tabb wants to help C-level execs understand, for example, how mobile technology could improve productivity and customer service, as well as the technology's costs, capabilities and deployment challenges, he uses both formal and informal communications. The informal venues are at least as important as the formal ones. In addition to business advisory board and senior management council meetings, Tabb looks for opportunities at business lunches and Tuesday morning coffees held for senior executives. "CIOs have to be extremely sensitive about what all the opportunities are," he says.

Tabb finds most CXOs want to go one level deeper than the one at which they operate day to day. For instance, how stable is the technology? How easy is it to use? What is its expected life span, and will there be cost escalations over time?

One-on-one conversations at the coffees are particularly effective for freely exploring potentially threatening subjects, Tabb says. "You have to think of it as a campaign," he explains. "You have an end state you're trying to get to, and you think, 'How am I going to educate this group of executives to get them to a common point of understanding over time?' "

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In the end, says Bart Perkins, managing partner at Leverage Partners Inc. in Louisville, Ky., and a *Computerworld* columnist, IT isn't a spectator sport, and the best participants are educated. "There are those who say, 'You fix it; call me when it's done,' and those guys end up being unhappy with the results," he says. "You have to be part of the team that's doing IT, because it's changing the business." **47887**

Brandel is a Computerworld contributing writer in Grand Rapids, Mich. You can contact her at marybrandel@comcast.net.

A Syllabus

Educating your CXO is "incredibly important," says **Mark Jeffery,** assistant professor at the Kellogg School of Management at Northwestern University. His MBA class, called "Enterprise Technology for General Managers," aims to give business executives enough technology smarts to "not shoot themselves in the foot," he says. "They really do need to have a clue."

HIS BASIC SYLLABUS FOR THE EDUCATED CXO:

What can happen if you don't manage technology well. The class hears stories like this: In 1999, Hershey Foods Corp. went live with an ERP/CRM/supply chain system the month before Halloween. The system failed, crippling sales and causing a 35% stock hit [QuickLink a4780].

The language of technology. "They're not going to be Java programmers, but they need to know what bandwidth is; not how a network works but enough to understand why you need one; and why the investment in infrastructure is so incredibly important to the competitiveness of the firm," says Jeffery.

Corporatewide systems like ERP and CRM: The class learns what they are, what they do and that they are "very, very complicated," he says.

Why CXOs need risk management skills. Since 72% of large projects are late, over budget or don't deliver anticipated value, Jeffery says, "if you're a sponsor of a project, you've got a 28% chance of success. That's why."

What can happen if you botch security. When The Bank of New York Co.'s data center and primary backup center were wiped out on 9/11, the bank's secondary backup center in New Jersey was overwhelmed. "It couldn't process transactions, and its stock took a beating," he says. "They need to learn the importance of redundancy."

Technology trends such as Web services, XML, data warehousing and analytic CRM. "They need to understand how those trends will impact management decisions," Jeffery says.

– Kathleen Melymuka

The teaching role includes everything from advising CXOs on a new technology for strategic advantage and explaining why an older infrastructure needs a refresh to adding technology realities to a business discussion.

And educating CXOs is essential, given a recent trend observed by John Lutz, vice president of on-demand sales at IBM. More CXOs are sitting alongside CIOs at customer briefings, he says. "They're just different kinds of cats than the previous generation — not as intimidated by technology," Lutz says.

Nerdville It's Not

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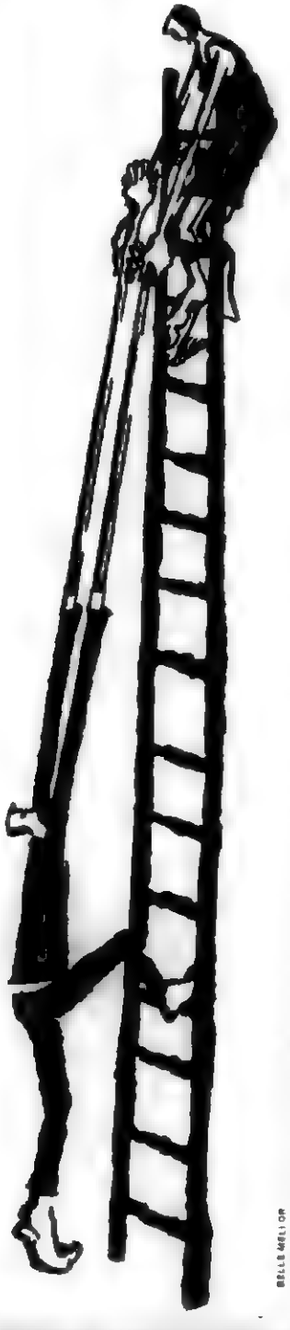
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Stretch YOUR TALENT

Challenging your IT staff with growth-oriented assignments can be a win for everyone – if you do it right. By Steve Ulfelder



BILLY HOLLON

A "STRETCH assignment" is one that requires a worker to take a leap beyond his comfort zone and, in the process, pick up new skills. Long used in business as a career development tool, stretch assignments are gaining popularity among corporate IT managers.

The idea is to help promising staffers round out their résumés by, for example, exposing them to a hot technology or placing them on a team of high-profile end users. In theory, both the organization and the employees win — the latter through enhanced career prospects, the former through the development of more capable workers.

In practice, though, stretch assignments are "fraught with peril," says Ron Jeffries, a veteran programmer and consultant based in Ann Arbor, Mich., who is also editor of XProgramming.com, an online resource for programmers. Jeffries adds that while the concept is sound, IT managers too often slap the label on impossible projects — only to blame the staffer when the assignment fails. "Telling a programmer, 'I bet you can't implement this compiler by Thursday,' is not a legitimate stretch goal," Jeffries says.

So what is? IT managers say stretch assignments, when handled properly, can be a valuable management tool. Their experience has taught them some valuable do's and don'ts.

The first key to a successful stretch assignment is to decide who can handle one. According to Murray Horwitz, CIO at Waukegan, Ill.-based Uline Shipping Supplies, likely candidates are "people who've done the same thing for a while and are getting bored."

Horwitz says Uline actively pursues stretch assignments for workers, with several notable successes. For example, the company's lead Web programmer began as a second-shift AS/400 operator. Managers marked him as a worker with talent and ambition, and he was challenged to learn HTML and Visual Basic.

A Gentle Push

For IT staffers, the payoff for a successful stretch is a richer résumé, which could lead to higher-paying jobs. While it might seem that any employee would leap at such an opportunity, some workers need prodding, and some are simply not able or willing to tackle new, possibly uncomfortable assignments.

Horwitz recalls another stretch candidate who needed a gentle shove. "We had an extremely smart PC tech. He could fix any hardware problem," Horwitz says. But in order to better leverage the technician's time, managers wanted him to learn to write scripts for remote PC management tools such as PatchLink Corp.'s Update.

"He didn't want to do it," Horwitz says. The tech's comfort zone was one-at-a-time PC fixes, and he balked at the stretch assignment. Horwitz persuaded him by pointing out the logical advantage of updating dozens of PCs at once. Implication: Uline needed more productivity in that area. "I told him he should do it for his career," Horwitz says. The employee saw the light and successfully learned the necessary script-writing skills.

Making It Work

Once you've chosen a likely stretch candidate, you need a legitimate stretch assignment — not, as is often the case, an impossible task with an optimistic label. "If I were coaching a [programmer or developer], I would try to sense a gap in their skill set — something they'd benefit from learning," Jeffries says. "Then I'd try to challenge them with a project that would sound interesting to them and be difficult but doable."

Stretchers should be provided tools and support to increase their chances of success. Otherwise, you're not helping them stretch, but rather practicing sink-or-swim management, an age-old but inglorious tradition in IT.

That support sometimes comes from peers. An IT manager who works in a division of General Electric Co. says that when he was offered a stretch assignment to spearhead the drive to comply with the Sarbanes-Oxley Act, he leaned on more than two dozen peers from other GE divisions. "We had all these other 'SOX' managers with more experience, and contacting them was encouraged," says the manager, who requested anonymity. One vehicle for this peer support was an internal portal called Support Central, where "you can have a community about anything," he adds.

Stretchers should also be assigned a mentor, says Diane Morello, an analyst at Gartner Inc. "The mentor should be outside the person's normal reporting structure," Morello says, because the mentor may need to discuss the stretcher's weaknesses — such as a lack of interpersonal skills — in a way that would be difficult for a direct manager to do.

Failure Is an Option

The GE manager says that in his division, every IT employee is expected to stretch; indeed, the company has long been known as a pioneer and leading practitioner of the stretch. "They call it a stretch goal," the manager says, "but you're expected to complete them." He says his stretch projects, while difficult, have been a vital way to learn new skills, make contacts outside his immediate group and boost his career prospects.

Nevertheless, some believe that GE's stretch-or-stagnate approach is a mistake. They argue that IT workers must understand that failing in a stretch project is not a career-breaker. "We've had failures," says Uline's Horwitz. When that happens, he says, "you've got to assess whether he failed because he's not capable, or because he didn't want to extend beyond his comfort zone." In Horwitz's experience, the latter is usually the reason, and it's important to let the worker know he's still a valued contributor.

That way, he retains elasticity — and may someday stretch again. **47797**

SAFE

Thinking about putting an IT worker on the rack? The following characteristics indicate that a worker may be ready to thrive if challenged:

- Eager to learn new skills
- Masters tasks quickly but then gets bored
- Has potential for promotion but lacks a few key skills, like business knowledge or ability to present to top execs
- Is obviously intelligent but underachieves in a low-level position

Ulfelder is a Computerworld contributing writer in Southboro, Mass. Contact him at sulfelder@charter.net.



DAVID CLARK

Are You Annoying?

Irritating behaviors not only annoy your co-workers, but they can also compromise your effectiveness and even derail your career. By Alan S. Horowitz

DO YOU TELL IT insider jokes that users don't understand? Do you sprinkle technical jargon through discussions with business people? Do you find that you've usually got the right answer to any problem and you let everyone know it? If so, you may be something you didn't think you were: annoying.

Everyone's annoying some of the time, says Kimberly Alyn, a corporate trainer and co-author of *Annoying People and Why You're One of Them* (Llumina Press, 2003). But annoying behavior can have serious consequences in IT, where it can compromise your effectiveness, wreak havoc with projects and even derail your career.

Annoying behaviors are tricky because what annoys one person may sail by another. "You can say the same thing the same way to two people, and one person will say, 'Damn, that's annoying,' and the other person will not think anything of it," says Dan Bent, CIO at Benefit Systems Inc. in Indianapolis, an administrative services provider to health care plans.

But annoying behavior in IT sends ripples through the whole business. Gary Langer, associate vice president for academic technology at Chicago's Roosevelt University, explains that when IT support people are annoying, "people lose confidence, and they just give up. They stop asking questions."

Bent concurs. "You're always communicating with other people, and if you're annoying them, it reduces the likelihood your message will get across," he says.

Projects may also suffer. Jackie Palmer, a senior product manager at CRM software maker E.piphany Inc. in San Mateo, Calif., tells of participating at a meeting for a large insurance company that involved implementing process change. "The only way to do it is get [users] to buy in themselves," says Palmer. But a consultant at the meeting began to dictate what would happen. "The users became very combative," she recalls. It took several weeks of meetings to resolve the issues, and the project fell behind schedule.

If you think that you can't be annoying because you often work alone, think again. You still deal with people for support, advice and information, as well as to get a promotion, notes Gini Graham Scott, author of *A Survival Guide for Working With Humans* (Amacom, 2004).

For the worst offenders, the consequences of being annoying are potentially dire.

"Say someone comes to you and asks you a question today, and they find you annoying," says Bent. "Maybe the next time, they'll ask someone else. Soon people stop coming to you and asking you things, and you end up without a job."

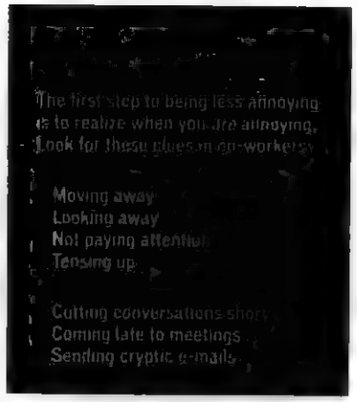
The IT Niche

IT has its own annoying quirks. Langer says some IT people label users as neophytes and then blame them for any difficulties. "The user insists their e-mail doesn't work, and the IT person says, 'My e-mail works perfectly,' and assumes the user is the problem. Users really find this annoying," he says.

Some IT people are so sure they know what the problem is that they don't even listen to the user, says Katherine Spencer Lee, executive director at IT staffing firm Robert Half Technology in Menlo Park, Calif.

IT people expect users to always know what they want, and they can get exasperated when they don't. "Business people have a right to change their minds, because the business changes," says Ellen Gottesdiener, principal consultant at EBG Consulting in Carmel, Ind.

And IT folks often require the "right" decision, says Gerry McCartney, CIO at the University of Pennsylvania's Wharton School in Philadelphia. "[They] have difficulty between shades of gray," he says. "Sometimes there are a lot of 'rightish' answers," and insisting that there's just one can be annoying.



The Cure

To be less annoying, take care with how you communicate technical concepts to nontechnical people, says Lee. "It's not only how good your code is or how well you can fix a computer, but how well you can communicate," she says. "That's a skill set IT people have to have."

Try to understand the type of person you're dealing with, says Steve Smith, a technical business consultant in Seattle for storage maker EMC Corp. "If I'm dealing with a [nonintuitive] person, I need to put things in concrete language. This person doesn't want abstractions."

Try to understand the other person's frame of reference, says Bent. And don't make assumptions, adds Lee. Listen to what people have to say.

Ask for help. For example, if you have a tendency to blurt things out and interrupt people, tell your listeners they'd be helping you by pointing out every time you do that, recommends Naomi Karten at Karten Associates, a customer satisfaction consultant and seminar leader in Randolph, Mass.

Use peer reviews to help curb annoying habits, says Greg Walton, CIO at health care provider Carilion Health System in Roanoke, Va. "If [IT workers] are annoying customers, they're probably annoying their peers," he says. The peer reviews let everyone know who is being annoying and how.

Finally, realize that it's occasionally OK to be annoying. "If you move your institution's agenda forward and you have to irk someone to do so, it's a good thing," says McCartney. Just don't do it without a good reason. **47890**

Horowitz is a freelance writer in Salt Lake City. Contact him at alan@ahorowitz.com.

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8:15am to 8:45am	**Rebuilding the IT Foundation** Maryfran Johnson, Editor in Chief, Computerworld
8:45am to 9:15am	**Consolidation and the Data Center: Boosting Business Performance and Application Availability** Matt Eastwood, Research Director, Global Enterprise Server Solutions, IDC
9:15am to 9:45am	**Perspectives from the Chicago Mercantile Exchange** Steve Goldman, Director, Network Architecture, Chicago Mercantile Exchange
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**User Case Study** Alejandro Lopez, System Architect, University of California, Davis Medical Center
10:45am to 11:15am	**Customer Challenges and Solutions: Real-Life Scenarios Connecting Data Centers Over Distance** Steve Adolph, CTO, Enterprise Solutions Group, CIENA
11:15am to noon	**Panel: Overcoming Management Barriers — Making the Case for Consolidation** Panel Moderator: Maryfran Johnson, Editor in Chief, Computerworld Panelists: Joe Puglisi, CIO, EMCOR; Stephen Monn, CIO, TAC Worldwide; Frank Enfanto, Vice President, Operations Delivery & Information Security, Blue Cross Blue Shield of Massachusetts; Alejandro Lopez, System Architect, University of California Davis Medical Center
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Alejandro Lopez
System Architect, University of California Davis Medical Center



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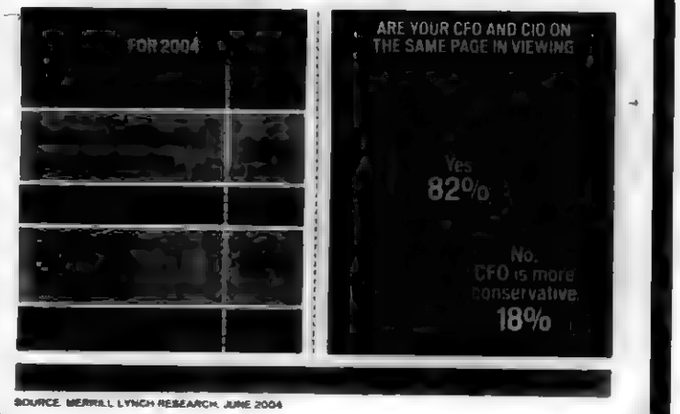
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SOURCE: MERRILL LYNCH RESEARCH, JUNE 2004

Big Bonuses for IS Directors

Over the past two years, salary increases of 3% have been the norm for IS directors, who plan, direct and control day-to-day information systems functions. This year, however, the average bonus is expected to be 11% of base salary. That's $10,600.

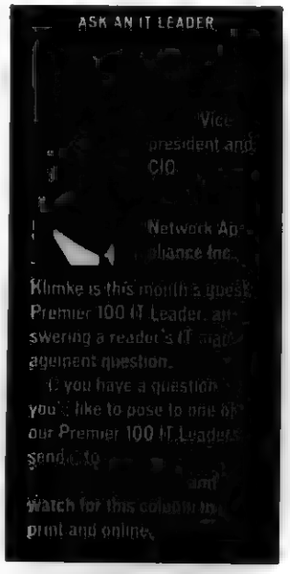
IS Director Salaries

2001	2002	2004
$95,250	$92,510	$99,100

Less than 10 years	11-20 years	More than 20 years
$75,600	$104,000	$95,700

Mainframe	OS/400	AIX/Unix	Windows	Nonmainframe Linux
$107,800	$97,700	$106,500	$88,600	$100,800

BASE: 1,300 IT sites ■ SOURCE: ENTERPRISE SYSTEMS, SEATTLE, WWW.ESA.COM



I'm a new IT manager within a department of a local government agency. I have walked into an IT infrastructure disaster! How do I navigate the situation and the politics to put together a new and effective IT infrastructure? Your letter was light on details, but I will assume that your position affords you the opportunity to be a change agent.

First and foremost, a complete, thorough, unbiased assessment is needed. Because many of your coworkers/staff were probably involved in creating the "mess" you describe, it is difficult for you to rely on their evaluation. There are several outside firms that can conduct these assessments. The cost may be higher than you might like, but the assessment becomes the rationale for changes you will propose.

Second, I suggest that you boil down the findings to a few key problems. Show the assessment and short list to senior business leaders in your organization. In addition to gaining potentially good input, this process helps establish you as a knowledgeable, can-do person. Building credibility with these folks will be very beneficial when you undertake the changes you envision.

Third, engage your staff. Give considerable thought to potential emotional responses and push-back. Then, offer a draft agenda of the concerns you have identified based on the objective, unbiased assessment. Balance this with your vision of what the environment will look like down the road. The discussion should be less about why the IT infrastructure is lacking and more about what it could become. Establishing a shared vision with your team is critical because the buy-in of the team is necessary to drive the changes you propose. I can't stress this point enough.

Finally, after getting your agenda through your staff and management, it's time to start the hard work. Going from a conceptual plan to a real action plan is the next step. Be judicious in your selection of projects. The projects should be of very short duration, with clear benefits to both the IT group and the business. Keep the team focused.

Here are a few suggestions:

- **You can't have enough communication;** talk to anyone who will listen. Make these meetings valuable: Be a take-charge person with an agenda, and stress the benefits that will result from changes. Be realistic about risks, but balance risks with benefits.
- **At the very least, adopt the rudiments of solid project management.** Have a budget, a project plan and a governance structure along with a list of expected downstream benefits.
- **Provide regular feedback to the implementation team.** Keep the shared vision alive. Build the team's personal objectives around the initiatives on which you've elected to focus.
- **Resist the urge to take on more than you can handle.** I'm sure there are a hundred things to fix. But having too broad an agenda dilutes resources; results take too long to notice and the outcome can be disastrous. Less is more.

Companies and agencies hire strong IT managers because of the problems the organizations are facing. Your value in the marketplace now and in the future will be largely based on your ability to get a critical project agenda in place, to motivate your team and to execute flawlessly. It takes personal leadership, yet you can't go it alone. **48046**

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- Issue employee guidelines for use of Wi-Fi
- Institute security policies related to organizational wireless use

Security strategies currently deployed:

- Defined security standards
- Privacy statements
- Intrusion-detection/prevention systems
- Access management
- Provisioning systems
- Directories

Security strategies to be deployed over the next 18 months:

- Defined security standards
- Intrusion-detection/prevention systems
- Access management
- Provisioning systems
- Directories

BASE

SUE YOUNG

Turning Around The Hard Case

HOW DO YOU HANDLE chronic mistake-makers — especially those who treat their mistakes as something to be laughed at and overlooked? How can you get such people to recognize that there is a problem they need to correct?

As a self-motivated manager, you may wonder at subordinates who don't hold themselves to the same standards you do or even notice that there's a problem with their work. How can a competent worker consistently underperform, as if he just doesn't care? When nothing you've tried makes a difference, what do you do?



I once worked with a development team whose only quality assurance guy didn't make test plans and hardly tested at all. The manager called him into his office several times and even threatened to fire him. Nothing changed the QA guy's behavior.

Then one of the coders pulled the QA guy aside and said, "Hey, I need your help. My code is due tomorrow, and if it breaks on the users one more time, I'm in deep. I can't test it myself. Will you stay late tonight and help me out?"

The QA guy stayed late and tested. Thoroughly. The coder thanked him profusely and told him how much everybody else on the team needed him, too.

There were no more problems with that QA guy. He tested his backlog, then proactively asked his teammates if they needed anything from him.

This experience taught me that, as a manager, you can take the following steps to help a subordinate realize that a chronic problem needs his attention and develop an eagerness to fix it. (Although if the problem involves routinely missing deadlines, you may have unrealistic schedules.)

Ask for his help. Sincerely say, "I need your help." By doing that, you're showing the worker that he's important and valued, which may surprise him. People like to be needed, valued and respected, and when they feel they are, it's amazing how quickly they can change and rise to the occasion.

Explain why there's a need to change. You may think it's obvious why what has happened in the past can't continue. But the person may think that what has happened is acceptable because it has happened so many times.

Even if you think he understands, show the employee how important his role is and why his work is vital to the project. Again, you may think it's obvious. But this person may not see things as you do.

Ask for his recommendations. Remind the worker that this is his area of expertise and that he probably knows more about it than you do, and then ask, "What do you recommend we do in the future to improve this?" Your attitude is key. Show that you sincerely value the person's input.

If the subordinate doesn't answer, or if he evades the question, go back to the first two steps. If this person feels that no one listens to him, it may take a while to convince him you're serious.

Create a strategy. When he gives you suggestions, keep prompting him until he comes up with a viable strategy.

Verify that there wasn't any miscommunication. Say, "To make sure we're both on the same page and we don't forget anything, let's write this down." Write it down together — right away, not later. Agree on the steps that will be taken, when they will be taken and by whom. Now you both have a plan that he has created and agreed to. There's no question what's expected.

Reinforce how needed, important and trusted the person is. Even if you don't need reinforcement and don't understand why anyone else would, it never hurts to applaud specific efforts that you want to see more of.

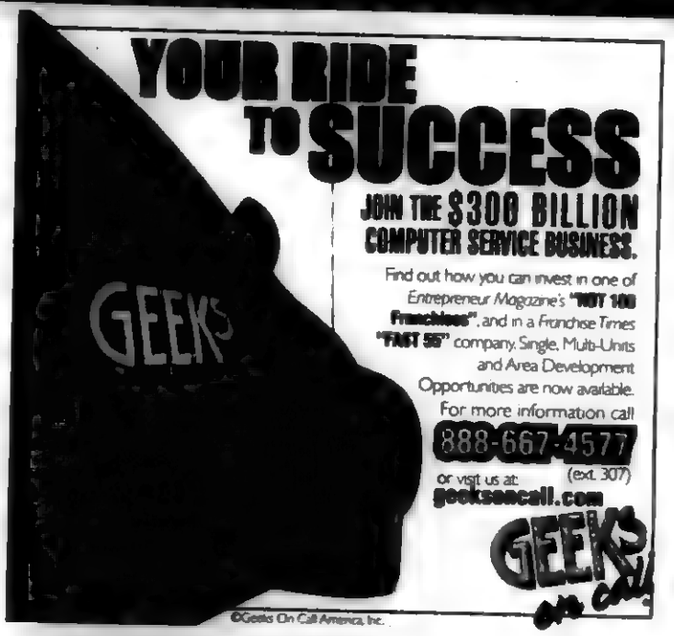
Show him you rely on him. Tell the worker, "I'm counting on you to make this change by the end of the quarter. Otherwise, I'm in hot water because no one else can do it." If you want subordinates you can rely on, show them you trust and rely on them.

And remember: Hold a high image of employees in your mind that you expect them to live up to — just as you do for yourself. **47628**

STRETCH YOUR TALENT

Giving promising staffers assignments that challenge them to move beyond their comfort zones is another way to get people to realize their full potential. **See page 38.**

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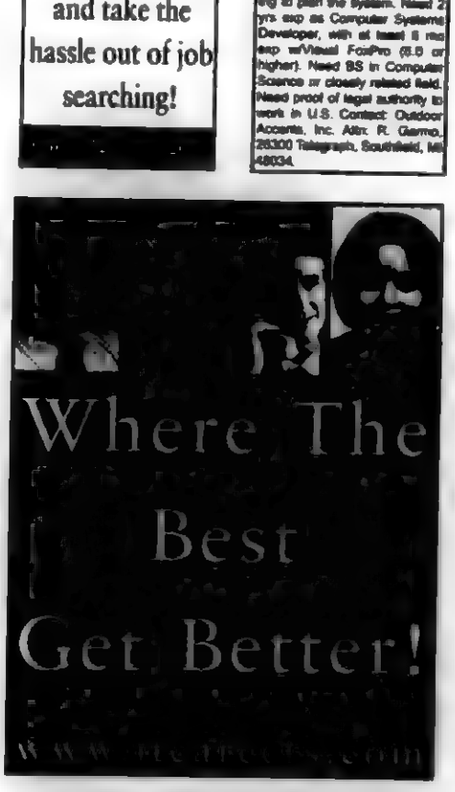
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The wage offered is $74,752 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree in Computer Science, Math, Engineering (any type), Information Systems or Business Administration + 2 years of experience in the job offered or 2 years of experience as a Consultant, Infrastructure Consultant, Sub Team Lead or Systems Analyst. Related experience must include at least six months of experience in Siebel, BEA Weblogic, ATG Dynamo, SeeBeyond, Oracle and Lightweight Directory Access Protocol (LDAP).

Please send your resume, referencing Job Order Number WEB437639 to the PA CareerLink, FLC Unit, 235 West Chelten Avenue, Philadelphia, PA 19144. EOE

Senior Engineer I - Under close supervision & w/assistance, rsrch, dsgn & dvlp comptr s/ware sys, in conjunction w/ h/ware product dvlpmnt. Analyz s/ware requirmnts to determ feasibility of dsgn within time & cost constraints. Cnslt w/ h/ware enggrs & other engg staff to eval interface betw h/ware & s/ware, & operatnl & perfrmnc requirmts of sys. Asst in formulating & dsgning s/ware sys using scntfc anlys & mathmtcl models to predict & mar outcome & consequences of dsgn. Dvlp product specs. Code embedded cntrl s/ware using C lang. Code in C & C++ lang for dvlpng graphical user interface s/ware. Asst h/ware enggrs integrating cmpnnts in dsgns. Code comnictns protocols (Modbus/DNP 3.0/other protocols). Dvlp & troubleshoot lsting probs. Wrk w/ engg tst technicians. Write & debug s/ware using real-time prgmg & simulators. Dvlp s/ware sys using prodrs, prgmg, & docmtn. Cnslt w/ cstmr concrning sys requirmt. Asst in sys implm. Tech cstmr assstnce. Wrk as team mbr. Reqd: BS or equiv - Electrncs & Comnctns Engg & 1 yr exp in job offrd &/or in occupns involvng dvlpng comnctn protocols, & using C &/or C++. $54,805+/yr - 40 hr wrk wk. Job Order # FL2532852. Send resume: Workforce Program Support, P.O Box 10869, Tallahassee, FL 32302-0869.

CG Maersk USA, Inc. providing cutting edge IT services to clients all over the world is seeking a professional with bachelors in CSci/EE w/2 yrs exp in network infrastructure/storage system, SAN, WEB tools to work at various US locations. Apply to: CG Maersk USA, 386 N. Wabasha, #1500, St. Paul, MN 55102.

IT PROFESSIONALS

Senior Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.) Responsible for the design and development of custom made/tier software applications for transaction processing including multi-tiered web-based applications. Responsible for the analysis, gathering and documentation of complex functional requirements, as well as conceptualization and development of design prototypes and alternatives. Design and develop each tier in multi-tiered systems including the presentation tier, the business logic tier and the database tier. Engage in the design and development of software applications and electronic interfaces using Active Server Pages (ASP), Microsoft BizTalk Server, Visual Basic, COM+ and related web technologies. Engage in database design and development in SQL Server including data model design, stored procedures and functions and relational data modeling using tools such as ERWin. Engage in design and development of Electronic Data Interchanges to external systems and trading partners using Microsoft BizTalk Server and XML based technologies. Involved in entire software system development life-cycle including design, code development, unit testing, system testing, user acceptance testing, configuration management and phased implementation. Design and develop complex financial reports utilizing report development software such as Crystal Reports.

The wage offered is $79,000 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: Master's degree in Computer Science, Math, Engineering (any type), Information Systems or Business Administration + 2 years of experience in the job offered or 2 years of experience as a Senior Consultant, Consultant or Graduate Research Assistant. Related experience must include at least six months of experience in ASP, COM+, Visual Basic, Microsoft BizTalk Server, XML, SQL Server, ERWin and Crystal Reports.

Please send your resume, referencing Job Order Number WEB437699 to the PA CareerLink, FLC Unit, 235 West Chelten Avenue, Philadelphia, PA 19144. EOE

SMS Administrator. Dvlp & maintain Systems Mgmt Server (SMS) for n/work. Install, configure & support SMS, which is connected to wkst & core systems within n/work. Monitor system performance, perform updates & provide tech'l assistance to users. Administer eRO orchestrator, a tool for centralized, enterprise-class system security mgmt. Utilize SMS tool to remotely manage & support 400 systems within n/work worldwide. Req.: Bach or foreign equiv in CS or related field. 4 yrs exp in job offd or as System or Network Admin. CCNA & MCSE certifications. 4 yrs exp in following, which may have been obtained concurrently: MS SQL, MS 2000 Server & MS SMS, & network admin incl DHCP & VLAN networking technologies. Resume (NO calls) S. Blaser, Candan Corp., 8 Concourse Pkwy., Ste. 2800, Atlanta, GA 30328.

Architect/Lead wanted by electronic license management services co. Requires B.S. in Comp. Sci. plus 8 yrs. exp. Reply by resume to Open Channel Solutions, Attn: HR, 1400 Providence Highway, Norwood, MA 02062.

IT PROFESSIONALS

Manager

(Glen Mills, Pennsylvania and other locations through the U.S.) Provide advisory services to improve performance of major financial services institutions primarily in the securities and banking segments. Develop and implement strategies to improve performance of international financial services companies through operational effectiveness, revenue growth and organizational alignment initiatives. Analyze market trends and benchmarking performance against competitors to understand areas for improvement. Develop comprehensive business cases to support initial hypotheses. Identify opportunities for organizational design and effectiveness. Utilize financial services knowledge to analyze processes, identify disconnects and re-engineer processes for improvement. Develop and implement cost rationalization strategies including organizational re-location and resource re-allocation. Identify client opportunities and formulate detailed proposals for clients across a broad spectrum of topics. Develop materials for and conduct interviews with senior level executives. Facilitate working sessions with senior level executives and provide insight to improve company performance. Manage project teams comprised of both clients and consultants including mentoring, evaluation, feedback. Manage project financials (reconcile actuals, burn rates etc.)

The wage offered is $115,000 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Business Ad, Economics, Finance + 5 years of experience in the job offered or 5 years of experience as a Consultant, Senior Consultant, Manager or Investment Banking Analyst. Related experience must include financial modeling, knowledge of financial services business and operating models, competitive analysis and a detailed understanding of business revenue and cost drivers. Experience must also include at least 2 years working for a management consulting firm in strategy with detailed knowledge of banking and capital markets with strong client management and facilitation skills at the senior management level.

Please send your resume, referencing Job Order Number WEB437589 to the PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144 EOE

Systems Analyst needed to analyze, dsgn, dvlp & implmt next generation e-commerce, distributed computing & 3-tier architecture systms using LiveLink Builder, SDK, LiveLink (Workflows, Forms, LAPI), SQL, Shell Scripts in Win2000/NT & Unix OS. Resume to: Global Consultants, Attn: Hiremo, 171 Elden St, #212, Herndon, VA 20170

Do you want to be part of the team building and managing a state-of-the-art network? A New York State government agency is seeking a project manager at its IT office in Manhattan. The position requires experience in managing large and complicated projects, strong background in networking (data and voice communications), excellent organizational and communication skills. Knowledge of web site development is a plus. Starting Salary $75,804 with $1,200 location pay. Great benefits including 4 weeks annual leave and 13 days sick leave. Send resume to: [redacted]@aol.com

Software Engineer IV (Temple Terrace, FL) Under limited direction, responsible for planning, development, and implementation of applications and systems in support of general business operations. Lead a team of software developers to provide conceptual and technical solutions to complex business or technical problems. Provide technical expertise in operating systems for the telecommunications industry. Independently responsible for complex projects and operate under deadlines. Utilize full life cycle development methodology including design, development, testing, implementation, maintenance and support of automatic telecommunication circuit design/provisioning systems for the telecommunications industry on client-server architecture using C/C++, Java, HTML, Javascript, Unix and Windows NT Provide senior management with system design recommendations to alternatives in conformance with corporate architectural guidelines and coordinating the implementation of such designs within projected time frames. Recommend techniques and methodologies to systems personnel that will result in improved productivity and product quality. Provide guidance to and assist in training less experienced software engineers. Requires Bachelors degree in Computer Science or Engineering, plus either 3 yrs exp in the job offered or 3 yrs exp in telecom software engineering to include 1 year using full life cycle development methodology in the automatic telecommunication circuit design/provisioning systems on client-server architecture using C/C++, Java, UNIX and Windows NT Salary $94,200/yr, Mon-Fri, 8AM-5PM, 40 hrs/wk. Send resume to Workforce Program Support, P.O Box 10869, Tallahassee, FL 32302-0869, refer to J.O # FL-2533076

NETWORK SYSTEMS ANALYST under supervision of Project Mger, implement & support IT systems including Win 2000, Exchange, IIS, ISA, SQL, DNS Servers & Workstations. Design & maintain Local, Wide and Wireless networks using TCP/IP & VPN, company's web-sites, Internet firewalls running ISA, & MS Access & SQL Server databases. Provide regular IT training. Draft & implement IT business policies/procedures, forms & templates. Provide technical support for wired & wireless routers, switches. Remote Control of workstations & automated system updates. Maintain networking hardware including Dell Servers, Dell/HP/CISCO routers & switches. Require Bachelor's degree (or equivalent) in Computer Science, Applications, or a closely related field. Each 3 yrs of progressively responsible work exp in the field will be considered equivalent to 1 yr of college education. Must have a demonstrated ability to perform the stated duties gained through academic coursework/previous work exp. Competitive salary offered. Send resume to Bradley Watkins, The Friedman Watkins Company, Inc., 2548 Industrial Blvd., Orlando, FL 32804, Attn: Job AE

Computer Programmer Must have BS in Comp. Sci or Electrical Eng, and proficiency Vis Basic, SQL, AutoCAD. Duties: design & devlp FM automation tools and reports, support calls, network admin, process data. Also work with AutoLisp, ColdFusion, HTML, JAVA, C++, MS OFFICE, Win desk top & Server. Resume to Integrated Data Solutions, Inc., 3000 Cabot Blvd West, Suite 3001, Langhorne, PA 19047.

Consultant; Coral Gables, FL and at various client sites throughout the U.S. Consult, lead and interact with clients regarding Business Intelligence Consulting and Visual Warehouse products. Plan and execute a Business Intelligence plan and work with client and IBM teams to apply technology on implementing the plan. Conduct "spot consulting" at various client sites to arrive at specific client requirements and to ensure needs are met. With no on-site supervision, lead medium to large complex client engagements and manage fact-finding, analysis, development of hypotheses/conclusion, production of final reports and delivery of presentation. Provide guidance on methodology and code verification for Programming Developers. Utilize C, DB2, SQL and Assembly on Unix (AIX). Master's Degree or equivalent in Computer Science, MIS, Engineering or Industrial Engineering and one (1) year of experience in the job offered or one (1) year of experience in the related occupations of Software Engineer-Applications or Technical Support Specialist. Employer will accept a Bachelor's degree plus five (5) years of progressively more responsible work experience in lieu of a Master's degree. $85,001 per year, 40 hours per week, 9:00 am-6:00 pm. Please send resumes to Job Order number FL-2532364, Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869.

NETWORK ENGINEER to design, configure, test & troubleshoot LAN/WAN using Cisco, Juniper, Nortel Routers, Switches & Hubs connected via T1/T3, Frame Relay, ATM, POS & Ethernet links. Maintain network elements using Cisco Works, Remedy, Pace & Visionael TDS. Build redundant MAN using HSRP/VRRP, VLAN, Trunking & Port Aggregation features. Optimize traffic patterns using routing protocols (BGP, OSPF, EIGRP, MPLS with RSVP & RIP) & traffic filtering (ACL's, distribution lists, filter lists & AS path prepending lists); Implement security measures using network firewalls, DMZ, Inner & Perimeter Router Design, AAA, IPSEC, NAT, PAT, TCP intercepts, CBAC & Intrusion Detection; Monitor systems & bandwidth performance using Net cool, NetScout probes, Ethereal & Smartbits data generators. Require B.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered. A M.S. degree with a demonstrated ability to perform the stated duties gained through academic coursework/previous work exp will be accepted in lieu of the B.S. degree & 2 yrs of exp. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Roz L. Alford, Principal, ASAP Staffing LLC, 3885 Holcomb Bridge Rd., Norcross, GA 30092, Attn: Job RS.

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PROGRAMMER/ANALYST to analyze, design, develop and implement complex client/server web-based application software using object oriented programming, J2EE, JSP, EJB, Servlet, JMS, Java, XML, WebSphere, WSAD, WebLogic, Crystal Report, Crystal Enterprise, Oracle and MS SQL Server on Windows and UNIX platforms under ISO 9001 and SEI CMM quality procedures. Require: B.S. degree in Computer Science, an Engineering discipline, a closely related field with 2 yrs. of exp in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Sophie Mookerji, Software Paradigms International, Inc., 3901 Roswell Rd, Ste 134, Marietta, GA 30062, Attn: Job SG

Computer System Analyst

Person will be resp. for Programming computers using C, Pro*C, UNIX Network Programming (TCP/IP, UDP-SNMP), Multi-Threading, Shell Programming, JAVA-Swing, JDBC, Socket Programming, Applets, JSP, EJB, HTML, Visual C++, VRML, Adobe Photoshop. Use Oracle 7.x/8i, Oracle, PL/SQL, Sybase 12.0, MS-ACCESS 7.0 databases. Also Program on UNIX, Dec Alpha 8200, HP-9000, Sun Solaris 2.x (SPARC), IBM-AIX, Windows-NT 95 98, ME 2000, Linux-Redhat 6.2, Redhat 7.0 and DOS (6.22) operating Systems. Rate $57,450 per year, Hours 40/WK (8am-5pm). Must have Bachelor's degree in Computer Science +2 years as Computer or IT Programmer Experience. Mail resume to: Case # 200300047 Labor Exchange Office 19 Staniford St., 1st floor, Boston, MA 02114.

NETWORK SYSTEMS ANALYST to design, configure, test and troubleshoot LAN/WAN under Windows NT/2000 and UNIX using SONET, ATM, TCP/IP Frame Relay, X25 and mobile computing. Network main office with potential new branches. Implement and maintain LOTUS NOTES databases and mail servers. Analyze implement, install and maintain information systems for financial and business applications using C, C++, Java, HTML and XML. Responsible for network performance and hardware optimization. Assign IP addresses, install and configure software and peripherals to the network. Require B.S. degree in Computer Science or a closely related field with 2 yrs of exp in the job offered or as a Network Engineer. Competitive salary offered. Send resume to Susan Murphy, Stone Age Designs LLC, 1020 Hull Rd, Atlanta, GA 30318, Attn: Job SF

Software Engineer (Temple Terrace, FL) to serve as module lead on preprovisioning system and perform project management of cyberpop services; develop regression testing tool for provisioning system; maintain applications; develop software on UNIX, Oracle, SQL Plus, C++, C, proc, JSP, Javascript, HTML, CVS and Makefile; analyze system requirements; coordinate with regression test team and stress test team to measure performance of systems; perform release management; schedule and assign development tasks to developers; assess system impact, measure and monitor system performance; perform production bug tracking and coordinate production support for day-to-day management of system. Requires Bachelors in Engineering and 3 yrs exp in the job offered or 3 yrs exp in software development and web programming with C++, C, Java, JSP, UNIX, Oracle, XML, SQL Plus, CVS and Makefile. Salary $72,100/yr, Mon-Fri, 8AM-5PM, 40 hrs/wk. Send resume to Workforce Program Support, P.O Box 10869, Tallahassee, FL 32302-0869, refer to J.O. # FL-2533142

Software Engineer - Technical Support (in Temple Terrace, FL). Responsible for database and website administration, multi-platform system administration, provide application development, implementation, configuration and support as well as investigate and analyze program defects; provide 24x7 coverage. Requires Bachelors degree in Computer Science and either 2 yrs exp in job offered or 2 yrs exp in database and website administration, multi-platform system administration, and application development and support. Salary $61,400/yr, Mon-Fri, 8AM-5PM, 40 hrs/wk. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to J.O. # FL-2531382.



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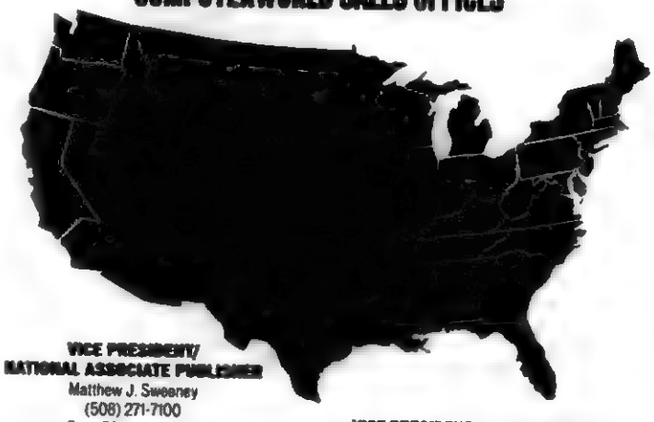
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E-voting

ing an issue at the convention. But if it's not, Rep. Johnson certainly plans to make it one," said John B. Townsend, a spokesman for the congresswoman.

However, speaking on condition of anonymity, an IT industry source who met last week with members of Sen. John Kerry's staff said the Kerry campaign is considering a move to pull back from the position taken by the Democratic National Committee and Howard Dean's Democracy for America organization. Dean and the DNC have endorsed the voter-verifiable paper ballot requirement for e-voting systems — something that only the state of Nevada has planned for November. According to the official, the Kerry campaign is considering support for verification of the final vote tally through some form of encryption.

THUMBS DOWN
E-voting is rejected in Ohio:
QuickLink 48248
www.computerworld.com

For many Democrats, however, the issue boils down to a Republican-controlled Congress that has refused to force voting-system vendors to open their software to inspection and verification.

"The Republicans have an interest in not doing anything about electronic voting security," said Townsend.

But some analysts, along with liberal organizations, said that although security of the systems and the integrity of the software used are real concerns, the rhetoric surrounding the debate could actually hurt voter turnout. And that could backfire on the Democrats.

"We're worried about voters being scared off," said Tanya Clay, director of public policy at Washington-based People for the American Way. "It's one thing to push for security in all voting machines, but it's another thing to scare people into thinking it's useless for them to go and vote. We can't allow this issue to hijack the election."

Damage Control

But the e-voting security debate may have already damaged the trust of some Americans who will vote electronically this November. One reason for that is the appearance of a possible conflict of interest stemming in part from a comment made publicly last August by Diebold Election Systems CEO Walden O'Dell that he was "committed" to delivering Ohio's electoral votes to President George W. Bush.

In addition, Federal Election Commission records reviewed by *Computerworld* show that between 1997 and 2003, O'Dell contributed $10,465 of his own money to Republican campaigns.

David Bear, a spokesman for Diebold, said O'Dell immediately expressed regret for having made the comment and has curtailed all personal political activity. Bear also noted that Diebold has since introduced a company policy banning employees from participating in the political process beyond voting.

In another case, Aldo Tesi, CEO of Omaha-based Election Systems & Software Inc., contributed $1,200 to Republican candidates in 1999 through the Commercial Federal Bank political action committee.

Meghan McCormick, a spokeswoman for ES&S, said the PAC in question makes contributions to candidates of both parties and noted that Tesi made the contribution as a member of the board of Commercial Federal Bank and not on behalf of ES&S.

> **"We can't allow [the e-voting] issue to hijack the election."**
>
> **TANYA CLAY,** DIRECTOR OF PUBLIC POLICY, PEOPLE FOR THE AMERICAN WAY

"We understand and appreciate the serious responsibility we have in the democratic process," McCormick said. "ES&S company policy prohibits associates from making political contributions for any candidate or political party for or on behalf of the company."

Still, such activity fuels the debate about the integrity and security of e-voting systems, Clay insisted. "You don't have to be a conspiracy theorist to connect the dots on this issue," she said.

Clay also cited the lengthy process involved in Congress passing the Help America Vote Act of 2002, which provided $3.86 billion to replace punch card and lever-based systems with new touch-screen systems.

"It took two years to pass HAVA, despite the fiasco of 2000," said Clay, referring to voting system malfunctions in the last presidential election.

"There were a lot of people who didn't want that bill because they had nothing to gain from it," she said. "Why would you want to change an election process that has put you in office? And that's what's happening with electronic voting machines."

Avi Rubin, the Johns Hopkins University computer science professor at the center of the debate over e-voting security, last week told members of a House subcommittee that it would be "irresponsible" to move forward with the November election without addressing the legitimate security problems identified to date. Townsend said Johnson shares that view.

"Voting is not like other applications," Rubin said in an interview. "There is no reason why anyone should trust a vendor." QuickLink 48368

Platform Focuses on Outsourcing, Access to Broadband

The government should focus on protecting U.S. workers' jobs and creating universal access to broadband services, according to the Democratic Party's 2004 platform.

The platform, approved by the party's platform committee on July 10, doesn't specifically refer to offshore outsourcing, but it does appear to focus on the position taken by some Republicans that U.S. companies have the right to move jobs overseas.

"We believe Americans are the smartest, toughest competitors in the world," the platform states. "Our products and ideas can compete and win anywhere, as long as we're given a fair chance. And our companies can keep and create jobs in America without sacrificing competitiveness."

While John Kerry hasn't been involved in many technology issues during his Senate career, Democrats included a handful of technology-related planks in the 41-page platform. Some issues, including the party's advocacy of universally available broadband and a permanent research and development tax credit, mirror positions held by many Republicans.

The document accuses the Bush administration of defending policies that "weaken America's competitive position and destroy American jobs."

The Republican National Committee didn't immediately respond to a request for comment on the Democratic platform.

Democrats are concerned about offshore outsourcing, and the two parties have some major differences on the issue, said Rep. Rick Boucher (D-Va.), who's frequently involved in technology-related matters brought before Congress.

U.S. tax law should give U.S. companies incentives to keep jobs at home, Boucher said, echoing a Kerry campaign theme. Democrats have decried a tax loophole through which corporations can take advantage of tax deferrals for money made overseas, as long as the money stays overseas.

Boucher suggested that Congress should even consider penalties for companies moving jobs overseas. "I think we should have tax incentives the reverse of what we have today," he noted.

Technology groups such as the Washington-based Business Software Alliance have opposed most legislation designed to curb outsourcing, saying U.S. companies need that option in order to stay competitive. U.S. companies need to take advantage of ideas from foreign workers and need foreign workers to localize and sell products in overseas markets, said Robert Crescenti, the BSA's vice president for public policy.

Crescenti praised most of the Democratic platform, saying that a couple of the IT issues it addresses, including universal broadband and a permanent R&D tax credit, "are right squarely within the technology industry's agenda."

Crescenti said the BSA opposes tax penalties in response to outsourcing, saying that such a policy could slow job growth in the U.S. "If we start to fiddle with penalizing companies for moving jobs overseas, we could easily find ourselves in uncomfortable straits," he said.

The 2004 Democratic platform (available at QuickLink a4820) also calls for the U.S. government to enforce trade laws on countries such as China, which the U.S. has accused of discriminatory semiconductor trade practices.

– Grant Gross, IDG News Service

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BPA ABM

SCO Gets KO'd

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And defensive is pretty much how AutoZone has played it. A week before the DaimlerChrysler decision, AutoZone's lawyers convinced a judge in Nevada to put the lawsuit against it on hold until after certain key issues are settled in SCO's suit against IBM.

No shame in that — it was good lawyering. SCO had accused AutoZone of breaking copyright law by using Linux. IBM has spent the past year proving that Linux doesn't violate any SCO copyrights. Letting IBM do the heavy lifting just made sense. But that delay leaves AutoZone open to the possibility that SCO will get an injunction to stop it from using Linux while the case is on hold. It's a long shot for SCO — but it's still a risk for AutoZone.

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FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

For SCO, that means trouble. For DaimlerChrysler and every other big corporate IT user, it means a lot more than that.

It just may mean the end of the software business as we know it. Because once corporate software customers figure out how much leverage they have when they flex their muscles, this industry will never be the same. 48324

Almost, but Not Quite

User complains to support pilot fish that he can't get his laptop's e-mail to work, and while he can surf the Web, he can't get to any of the company's private Web sites. Once fish gets to the user's desk, it doesn't take long to figure out why. "He wasn't using our internal, cabled LAN," fish says. "He had his unsecure home wireless card installed – and he was using a neighboring company's unsecured wireless LAN."

SHARK TANK

Nothing Like Security

How security edict comes down: Cables must be installed on all desktop PCs to prevent theft. "But there was no money for mounting brackets," says IT pilot fish. "So when the tech came to my desk, he just took one support off the above-the-desk shelf, wrapped the cable around the shelf and slid the bracket back onto the wall." No tools needed to install it – or to walk off with the PC. "But now," fish says, "I had a useless, ugly cable stretching from PC to shelf and back."

Well, It Seems to Keep 'Em Happy

This company runs Windows applications using Citrix servers, and all users have thin clients on their desks, so there's no local data to worry about. At least IT isn't worrying about it. "I had a call from a user who had just swapped offices with someone else, complaining that we didn't move their computers so they won't be able to read their personal files," reports IT pilot fish. "Rather than disconnecting two machines, swapping them around and reconnecting, I took the top front of the case off each and swapped those when the users were on a break. Problem solved."

The Right Tool For the Job

Pilot fish spots a backless ergonomic chair – the kind where you're kneeling all day – in the server room and gets the boss's OK to use it. "Three days later, crusty old server admin returns from his vacation and storms around the office looking for his chair," fish says. But you don't sit on it, fish points out. Admin's reply? "He says the chair is at the right height to hold rack-mounted servers when pulled out from under work tables for maintenance or upgrades."

Just Desserts

This user brings his dead PC in for service, and tech pilot fish diagnoses the problem as a motherboard failure. "We set about replacing the motherboard," says fish. "When I removed the board, there was a fork wedged under it – complete with cherry pie remnants on the tines. The customer's response? 'Oh, I wondered where that had gone.'"

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FRANK HAYES ■ FRANKLY SPEAKING

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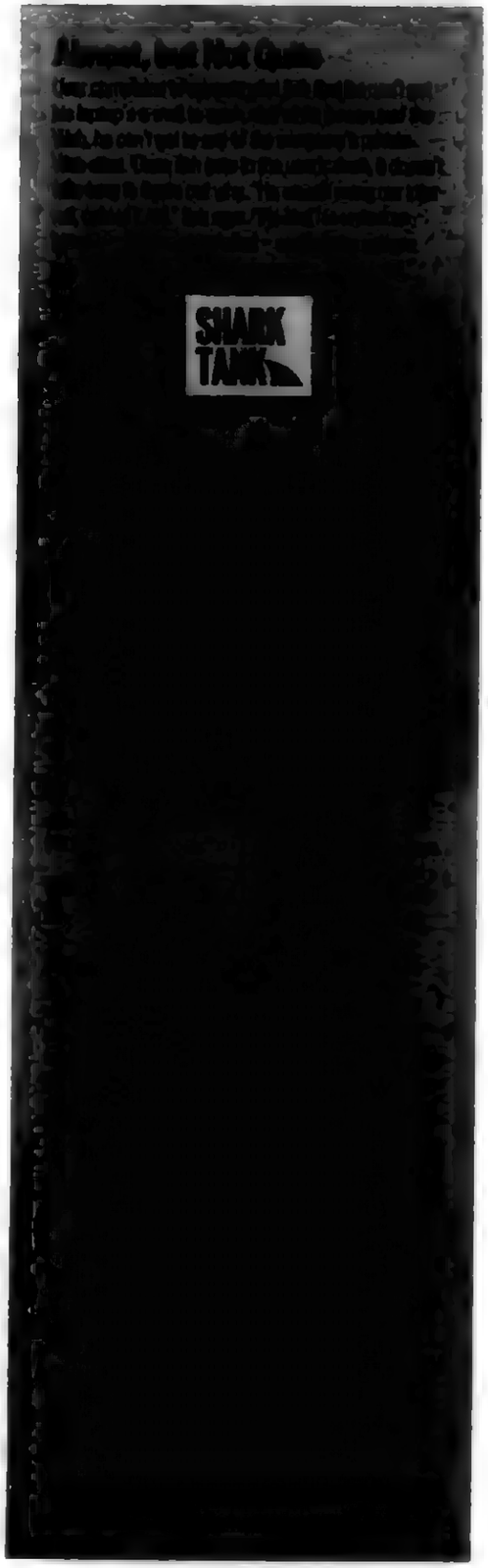
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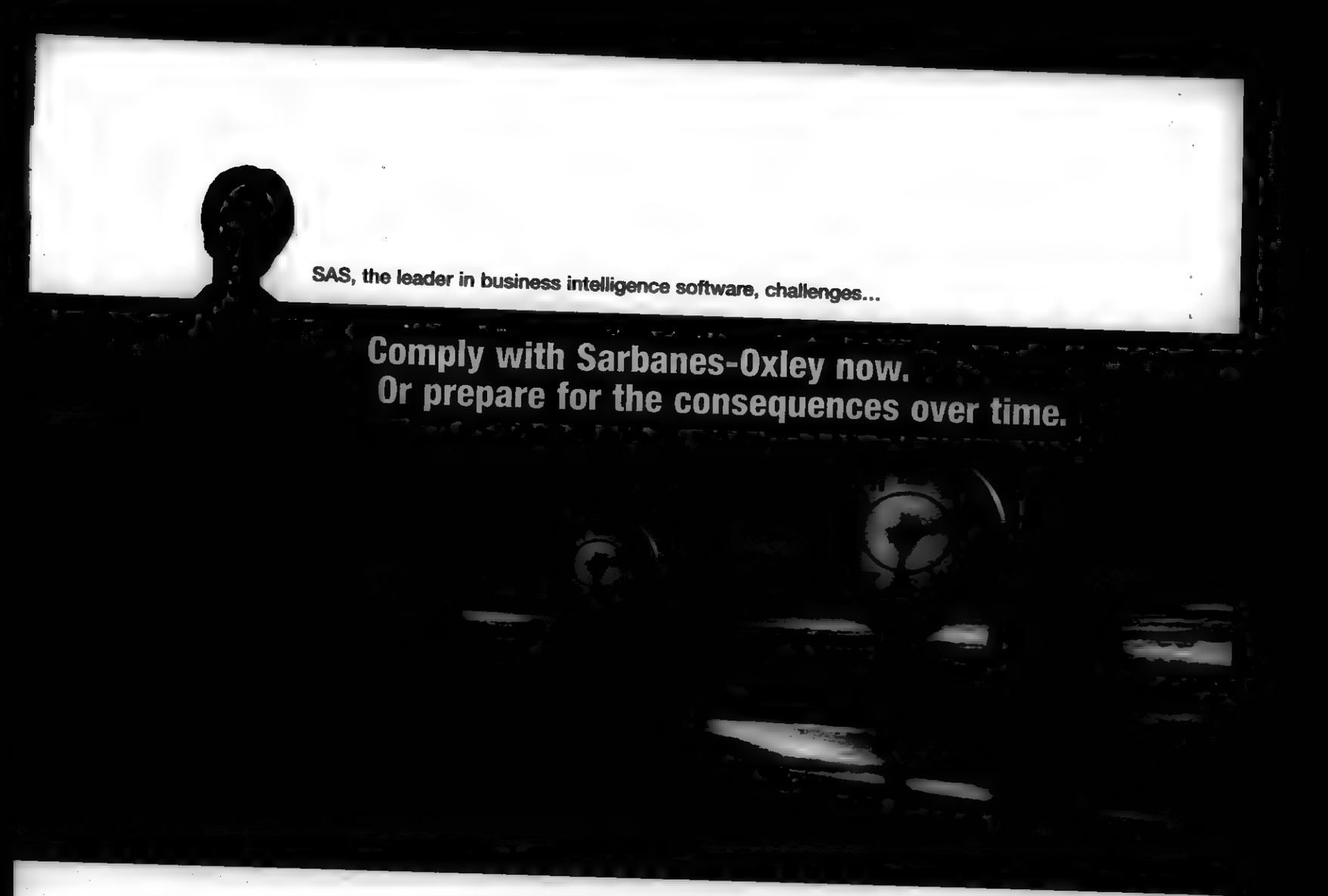
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For SCO, that means trouble. For DaimlerChrysler and every other big corporate IT user, it means a lot more than that.

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Iss. 31
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2004

Directly affected or not, IT managers are wary of Microsoft's product-delay propensity. Software vendors may be getting less aggressive about conducting audits.

COMPUTERWORLD

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AUGUST 2, 2004 • VOL. 38 • NO. 31 • $5/COPY

Accenture IT System Under Fire in Ontario

Upgrade needed to calculate welfare benefit changes; inquiry sought into deal with vendor

BY MARC L. SONGINI

Questions about the cost, stability and usability of a controversial $213.8 million welfare payments system being used in Ontario continue to plague IT services firm Accenture Ltd., which developed the system for the province's Ministry of Community and Social Services.

In the most recent development, an Ontario legislator is calling on the province's attorney general to open a formal inquiry into the contract with Accenture, including an investigation of whether the province did sufficient due diligence before awarding it and whether there were any improprieties during the bidding process.

ONLINE

Accenture is currently billing the province nearly $1 million (U.S.) to tweak the mainframe-based system so it can calculate a 3% across-the-board

Ontario, page 12

WHEN A VENDOR'S SOFTWARE FALLS SHORT IN A KEY AREA, OR IT'S BLOATED AND TOO EXPENSIVE, MAVERICK IT SHOPS BUCK THE TREND TOWARD OFF-THE-SHELF PACKAGES AND WRITE IT THEMSELVES.



ISABELLE CARDINAL

Roll Your Own

BY GARY H. ANTHES

Page 29

One Year Later, IT Prepares for Next Disaster

BY LUCAS MEARIAN

Asiff Hirji, CIO at Ameritrade Holding Corp., said his business continuity plan for the company's Jersey City, N.J., data center worked flawlessly when the lights went out in much of the Northeast last August. Well, almost flawlessly. Ameritrade had 36 hours' worth of diesel fuel in its backup generators, and the main power grid wasn't fully restored for two days.

Ameritrade has since increased the amount of diesel fuel it keeps on hand, and Hirji has made other changes in response to the blackout. "We learned a bunch of things because in every plan,

Blackout, page 12

High-Tech Bunker Monitors Convention Security 24/7

Cold War facility equipped with new IT systems to ensure delegates' safety in Boston

BY DAN VERTON
FRAMINGHAM, MASS.

For the first time in 26 years, the Massachusetts State Emergency Operations Center — an underground bunker built during the height of the Cold War — last week began round-the-clock operations. The purpose was to ensure the security of the Democratic National Convention by means of newly deployed IT systems.

The facility, built in 1963 as the nation's first underground EOC designed to withstand a nuclear blast, last week gained the ability to communicate in real time with hundreds of businesses in and around Boston. It also initiated the use of a Web-enabled medical emergency management system.

MORE INSIDE

Dean and other Democrats assess off-site voting security

On July 29, the final and most security-intensive day of the convention, *Computerworld* was given access to the facility, located 30 feet below a nondescript plot of land on state Route 9. The EOC was aglow with wall-mounted large-screen displays showing real-time data feeds on poten-

DNC Security, page 43

NEWSPAPER

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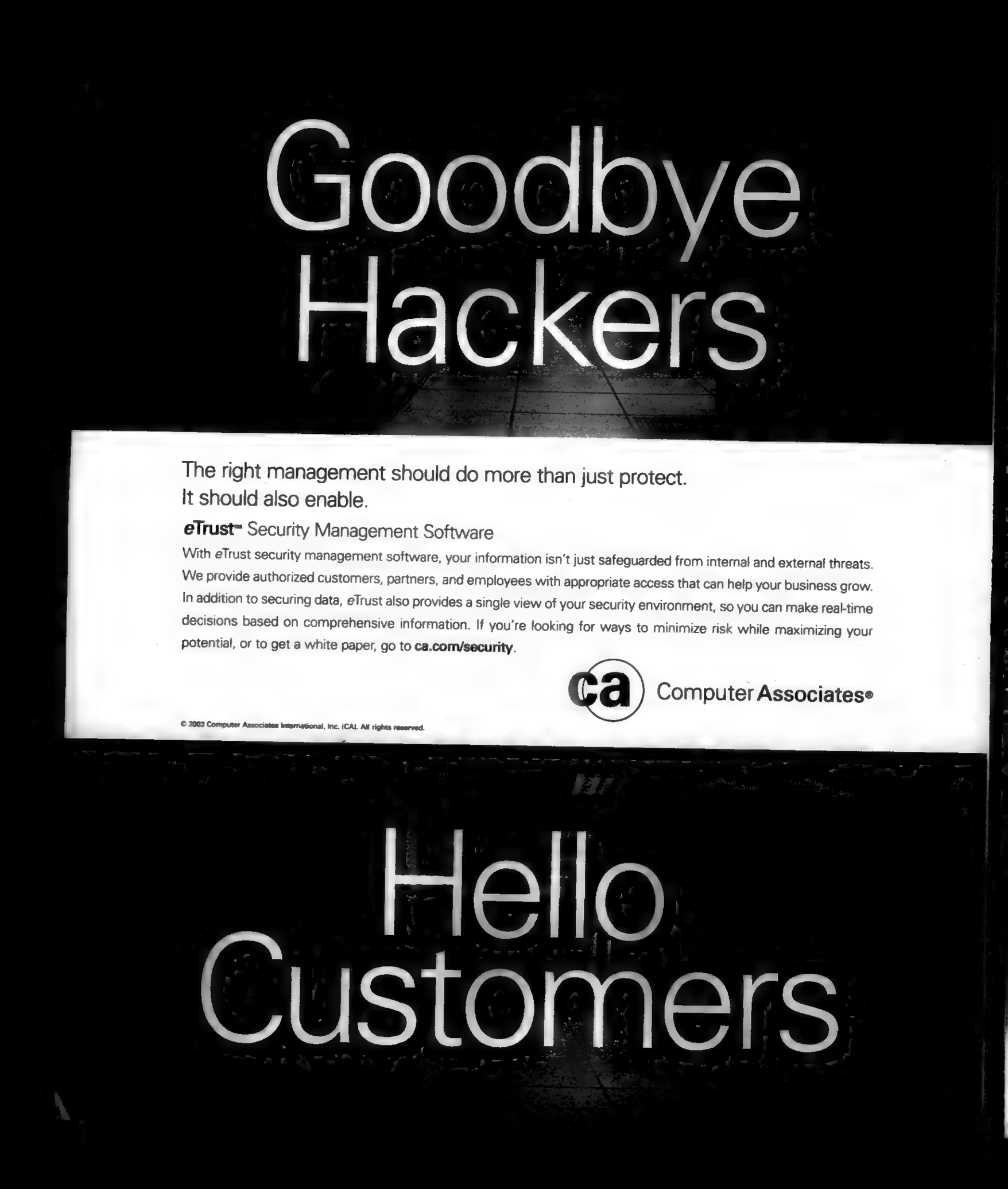
"We performed over 807,000 successful software deployments to 65,000 desktops in 2002 alone and saved over 247,000 administration hours."

Steven Bramson
Senior Systems Architect, *Motorola*

Microsoft Windows Server System makes Motorola's infrastructure easier to manage. Here's how: using Microsoft Systems Management Server and SQL Server, powered by Windows Server, Motorola conducts system inventory of their 65,000 desktops from one location, identifies necessary system updates, then deploys those applications across the enterprise automatically. It's software that helps you do more with less. Get the full Motorola story and a hands-on management tool at **microsoft.com/wssystem**

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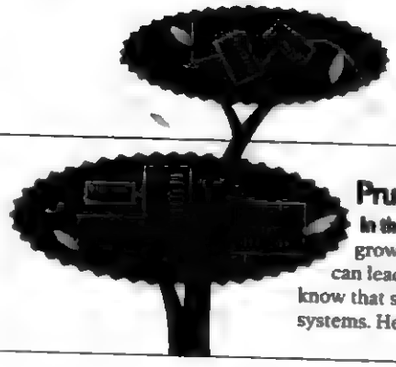
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08.02.04



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Prudent Pruning

In the Management section: IT applications grow like weeds, and unchecked growth can lead to sluggish performance. Smart CIOs know that selective pruning can reinvigorate your systems. Here's how. **Page 31**

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Battling Cybercrime: Stories From the Digital Front

SECURITY: This excerpt from *High-Tech Crimes Revealed* details how IT pros helped New York City police investigate a theft and pornography case. **QuickLink 47907**

A Matter of Life or Death

STORAGE: Consultant Steve Duplessie discusses the roles — both good and bad — that storage technology played in his cancer treatment. **QuickLink 48437**

A Bit of 'Geek Heaven'

MOBILE/WIRELESS: *Computerworld* Web developer Peter Smith got his hands on the new AirPort Express wireless access point and was surfing and streaming music before he knew it. **QuickLink 48417**

Blogs at the Convention

GOVERNMENT: The question "Are bloggers real journalists?" misses what's most interesting about new media in politics, writes online managing editor Sharon Machlis. **QuickLink 48473**

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AT DEADLINE

Microsoft Releases Patch for Browsers

Microsoft Corp. released an out-of-cycle software patch to fix three security holes in Internet Explorer, each given a severity rating of "critical." Microsoft, which typically issues patches monthly, urged users to install the new one as soon as possible because of potentially serious risks posed by the flaws. One hole has already been used in an attack called Download.Ject that was launched by hackers in June.

EDS Sees Bigger Loss on Navy Pact

Electronic Data Systems Corp. increased this year's projected loss on its $8.8 billion IT modernization contract with the U.S. Navy, citing order deferrals and lower-than-expected payments. EDS also said it has agreed to end another contract with an unidentified corporate user. EDS reported a second-quarter profit of $270 million on revenue of $5.24 billion, although it lost $16 million from an operating standpoint.

SCO Group Seeks to Revive Unix Name

Lindon, Utah-based The SCO Group Inc. confirmed that it has applied for a trademark on the name "Unix System Laboratories," which would revive the name of the former AT&T Corp. unit that once owned the rights to Unix. But The Open Group consortium said it will object "strenuously" to SCO's application on the grounds that it would conflict with the consortium's Unix trademark.

Short Takes

IBM said it's buying Cyanea Systems Corp., an Oakland, Calif.-based vendor of performance monitoring tools for Web-based applications. . . . HEWLETT-PACKARD CO. today will announce a disk array that can support SCSI and Serial ATA drives behind a single controller.

Microsoft Confirms More Product Delays

XP SP2, 64-bit Extended Systems slated for 2005

BY CAROL SLIWA

MARSHALING resources to finish off the security-focused Service Pack 2 for Windows XP is having a trickle-down effect on other Microsoft Corp. products.

The company confirmed last week that the first service pack for Windows Server 2003 is being delayed to the first half of 2005. Just weeks ago, the vendor had said it would be ready in the second half of this year.

Also being delayed to the first half of 2005 are versions of Windows Server 2003 and XP designed to run on Advanced Micro Devices Inc.'s 64-bit Opteron chips and Intel Corp.'s Xeon EM64T processors. Service Pack 1 for Windows Server 2003 forms the basis of the new Windows for 64-bit Extended Systems releases.

A Microsoft spokeswoman said the development cycle is driven by quality "rather than an arbitrary date" to ship products. However, Microsoft today plans to release a beta for the AMD and Intel chip sets, according to Dennis Oldroyd, director of the Windows Server business group.

Several IT managers said the delays won't affect their companies, although some of them expressed concerns about the pattern that Microsoft is increasingly demonstrating. "It won't affect us, but if there are fixes that reflect additional security/error correction, I would like to have it now — not tomorrow," said Zeke Duge, CIO at Smart & Final Inc. in Commerce, Calif.

"We are always anticipating increased security fixes for Microsoft products. While we agree that a solid solution is better, and we are willing to wait, there are always concerns about weakness in the operating system," said Les McCarter, IT infrastructure and operations director at Hawaiian Electric Co. in Honolulu.



"I don't like the idea that new stuff that I was not waiting for is being sprung on me. More fluff, less meat."

ZEKE DUGE, CIO, SMART & FINAL INC.

Charles Emery, senior vice president and CIO at Horizon Blue Cross Blue Shield of New Jersey in Newark, said he'd like Microsoft to start hitting its stated target dates because it would help his department to plan more efficiently.

So far, companies with exceptionally large databases have been the primary users of 64-bit applications, and the delay isn't expected to bother such companies because they've already sought out other 64-bit systems. Bob Crownhart, director of infrastructure at Premera Blue Cross, said the Mountlake Terrace, Wash.-based insurance company uses servers from Unisys Corp. to run its 64-bit SQL Server data warehouse.

Oldroyd said Microsoft has yet to see mainstream adoption of Windows for 64-bit systems but expects that to happen within 12 to 36 months. "We see a lot of evaluation from customers now," he said. "They want to figure out where they can use it."

One Microsoft product update that did ship last week was Service Pack 1 for Office 2003. The new edition bundles not only bug and security fixes but also feature enhancements for OneNote (such as improved integration with Office) and InfoPath (including enhanced support for managed code, digital signatures and form-sharing via e-mail).

Mixed Feelings

But users have mixed feelings about adding features in service packs, which have historically been restricted to bug and security fixes. Crownhart said he views it as a positive option to deliver pockets of features earlier to customers so they don't have to wait for major releases.

"If the features are fully tested, I see no reason to wait," Emery said.

But Robert Rossati, CIO at Werner Co. in Greenville, Pa., said he doesn't like the trend. "If Microsoft wants to add new features, they should call it something else — perhaps 'feature pack.' Service packs should just fix bugs and security issues," he said.

"I don't like the idea that new stuff that I was not waiting for is being sprung on me," Duge added. "More fluff, less meat." QuickLink 48536

Microsoft Scant on Longhorn Specifics

REDMOND, WASH.

Microsoft's chief financial officer, John Connors, last week talked up the "innovative pipeline" that will ensure that new products and technology keep rolling out in the future.

And "future" was the operative word at the annual financial analyst meeting here when it came to the next major version of Windows, because that was the extent of the details Microsoft provided about the final ship date for the release, code-named Longhorn.

"We've made really good progress in the last year. The next milestone for us is getting the beta out sometime next year, and that'll be the point at which the feature set and the schedule will really be pretty much locked down," said Bill Gates, Microsoft's chairman and chief software architect. "It's a release that's driven by the breakthrough features, and we'll have a strong sense of exactly what gets in and what the schedule looks like as we get that beta out sometime in the next . . . well, next year sometime."

Gates didn't say the beta would be released in the first half of next year, as the company had said prior to last week. If the beta should slip to the second half of 2005, that could have a snowball effect and push the product's final ship date beyond the 2006 target that the company has bandied about.

"It's a big release, and pulling together that many pieces in an integrated fashion, it's bigger than anything we've ever done," said CEO Steve Ballmer. "I always tell our people [that] relative to our scale, it's a lot more like Windows 1.0, maybe 3.0, than anything we've done before. It's a whole new development platform, and getting the whole new development platform done is harder than just making incremental improvements in user and administration features. We're working hard at it."

– Carol Sliwa

MORE ON LONGHORN

Microsoft says it won't outsource core Longhorn development overseas.

QuickLink 48533
www.computerworld.com

NASA, Navy Buy Massive Supercomputers

Market is growing for high-powered systems, IDC says

BY PATRICK THIBODEAU

U.S. government agencies announced purchases of two large supercomputers last week, including a massive 10,240-processor system for use by NASA that will likely be ranked among the world's most powerful computers.

The NASA system, from Silicon Graphics Inc., is based on Itanium 2 processors running Linux. The other system, an IBM supercomputer purchased by the U.S. Naval Oceanographic Office uses 2,944 Power4+ processors and runs IBM's AIX version of Unix.

The Navy declined to disclose the value of its deal with IBM. NASA's system will cost about $50 million, somewhat of a bargain price because Intel Corp. and SGI, among other vendors, will be studying the system as part of a research agreement, a NASA spokesman said.

The two sales may prompt IDC to slightly increase its high-performance technical computing market numbers in its next forecast, said Chris Willard, an analyst at the Framingham, Mass.-based research company.

IDC last week said that the market for systems used in research and technical computing grew 14% to $5.6 billion last year and will keep growing at an annual rate of 6.5% through 2008, when the market is expected to reach $7.6 billion. Commercial users are typically in the automotive, pharmaceutical, and oil and gas industries.

But the market for the largest systems, such as those purchased by NASA, is due to grow only 2% annually until 2008, from $771 million to $849 million. "There is only so much money the world is willing to spend on this class of computers," said Willard.

The NASA system, which will be used for space exploration and global warming research, is a very-large-node cluster, made up of 512-processor systems with shared memory and a single instance of the Linux operating system.



NASA DIGITAL ANIMATION / NASA/JPL

...the SGI supercomputer at NASA is a 3668 high-definition animation of a Mars mission

InfiniBand I/O technology is being used to connect the 20 512-processor systems that make up the supercomputer, which will be housed at NASA's Ames Research Center in Moffett Field, Calif. It's expected to be operational in November.

The Navy's IBM supercomputer is a cluster of 368 IBM eServer p655 systems. It's slated to go online in September and will allow the military to run larger and more detailed weather and ocean models, including one that depicts the earth's surface. The supercomputer will also be able to handle more disparate data generated by buoys, satellites and other sources, said Steve Adamec, director of the Naval Oceanographic Office's Major Shared Resource Center at the John C. Stennis Space Center in Mississippi.

U.S. government agencies tend to buy a variety of supercomputing systems, and Stennis Space Center, where the IBM system will be housed, is indicative of that diversity. In addition to running older IBM systems, the center has systems made by Cray Inc., Sun Microsystems Inc. and SGI. **ID 48525**

Sun Aims to Attract HP-UX, Windows Users to JES

Some users hail pricing model; others not so sure

BY PATRICK THIBODEAU

In an effort to broaden its reach as a middleware vendor, Sun Microsystems Inc. plans to make its Java Enterprise System available on Windows and Hewlett-Packard Co.'s HP-UX by the end of the year.

Sun's pricing model for the integrated software stack of 14 back-end services — $100 per employee per year — is particularly appealing to companies that provide hosting services to large numbers of external users. Canada's Saskatchewan Telecommunications Holding Corp., which has about 3,800 employees, is one example.

Curt Smith, general manager of the Regina-based telecommunications provider, said the pricing model allows him to provide JES-based services such as messaging and calendaring functions to external customers on a hosted basis, without having to pay additional software-licensing costs to Sun. Smith's cost remains fixed based on the number of employees at his company, so external customers can tap into JES services at no extra charge.

Smith said that his company was attracted to JES because it provided integrated and tested services, and the pricing model is an added benefit because it fixes his costs. "The price works for us, and the model works for us," he said.

But that isn't true for the *The Atlanta Journal-Constitution*. The newspaper is a Sun hardware shop but is using BEA Systems Inc.'s Web applications server.

Bruce Bowles, a technology manager at the newspaper, said he met with his Sun representative about six months ago and discussed JES. Bowles said he asked how the vendor's per-employee pricing would account for all of his part-time workers, who bring his workforce total to about 10,000 people, but he never got an answer.

A Sun spokeswoman said that JES pricing applies only to full-time employees, not part-time or contract workers.

The pricing model for the bundled applications "is a great idea, but that pricing model is not necessarily going to work for every business," said Bowles. Regardless, he added, "I'm not going to replace my investment in BEA."

JUST THE FACTS

Java Enterprise System

- **STACK INCLUDES:** Web and application services, network identity services, portal services, communication and collaboration services, availability services, security services
- **SUPPORT:**
  Current: Solaris on Sparc, Opteron and Xeon, Linux
  By end of year: Windows, HP-UX on PA-RISC
- **PRICE:** $100 per employee per year

Analysts said Sun had no choice but to extend its JES model to include support for Windows and HP-UX. The stack currently operates on Solaris and Linux systems, and Sun is considering making JES open-source.

"Sun needed to port to other operating systems if they were ever going to be a serious contender in the middleware space," said Shawn Willett, an analyst at Current Analysis Inc. in Sterling, Va. The ability of JES to operate on other systems is "pretty much a requirement for large corporate sites, who can't all be running Solaris everywhere," he said.

One JES user, Fotis Karonis, director of IT and telecommunications at the Athens International Airport in Greece, is running Solaris systems on 64-bit Sun hardware. Karonis said he sees both advantages and disadvantages in running JES on Wintel systems.

Advantages include lower-cost hardware, leveraging the existing Windows expertise of systems administrators, and uniformity in hardware and operating systems administration, he said. But among the disadvantages are duplicate technical support in running JES in two environments and Windows security concerns, Karonis added.

Karonis said the stack is meeting his expectations. "JES offers a rich and open development environment where we can integrate most of our airport-specific applications and systems," he said. Regarding making JES open-source, Karonis didn't seem to think it would matter. "JES is already open enough for developers," he said.

Whether Sun's pricing model makes sense for users depends on a number of variables, including which applications they use in the middleware stack, said Thomas Murphy, an analyst at Meta Group Inc. in Stamford, Conn. If an IT shop is interested only in Web development tools, for instance, then it may want to go with IBM's WebSphere or use the open-source Apache Tomcat.

In any case, Sun's JES pricing model does "shake up the market" and is something IT managers should consider, Murphy said. **ID 48621**

BRIEFS

Insurer Hands Off Apps Work to CSC

Zurich Insurance Co. said it's outsourcing application development and maintenance work in the U.S., the U.K., Switzerland and Germany to Computer Sciences Corp. About 1,600 IT workers will be shifted to CSC late this year and in 2005 as part of the deal, which is valued at up to $1.3 billion over seven years. Last fall, Zurich outsourced PC support to IBM and signed Equant NV to manage voice and data networks.

Nortel to Announce Additional Cutbacks

Nortel Networks Ltd. plans to announce more cost-cutting actions later this month, along with preliminary financial results for this year's first and second quarters. Bill Owens, president and CEO of Brampton, Ontario-based Nortel, said he still expects revenue to grow faster than the networking market this year. But the company isn't meeting its operating cost targets, Owens added.

Design Snafus Must End, Says Intel CEO

In an internal memo, Intel Corp. CEO Craig Barrett wrote that the chip maker needs to do a better job of bringing products to market. The memo, dated July 21, followed a series of design problems and delays. "This is not the Intel we all know, and that is not acceptable," Barrett wrote. But in another delay, Intel said it's postponing shipments of a 4-GHz Pentium 4 by up to three months, to the first quarter of next year.

Short Takes

MICROSOFT CORP. released a second beta-test version of its delayed SQL Server 2005 database. . . . The European Union's second-highest court set a hearing date of Sept. 30 on Microsoft's request that antitrust remedies imposed in March by European officials be suspended while it appeals.

[ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL]



MATTHEW FAULKNER

Open-Source Boosters Lack . . .

. . . a full IT vocabulary when chatting up CIOs. That's what Robert Lefkowitz told an audience of nearly 2,000 hackers at the O'Reilly Open Source Convention (Oscon) in Portland, Ore., last week. Although Lefkowitz is vice president of enterprise data, systems and architecture at AT&T Wireless Services Inc. and dresses like a natty Wall Street executive, he's got lots of credibility with the open-source crowd, given his history with open-source at AT&T, Merrill Lynch and elsewhere. Plus he's got a cool online handle, ROML (pronounced "Rommel"), that his admirers used relentlessly at Oscon. He argues that when a CIO is thinking about the "source" of a corporate application, he's not just considering endless screens of C++, Java or other languages typed by a programmer. The CIO is also thinking about the application requirement documents, modeling work, validation procedures, testing, administration and much more. He cites the book *Software Assessments, Benchmarks, and Best Practices*, by Capers Jones (Addison-Wesley Professional, 2000), which shows that less than one-fifth of an application's effort is made up of code. "*Source* doesn't mean code," says Lefkowitz. "In fact, the whole movement in software engineering is away from code to more abstract thinking about the application." In effect, he says, a CIO looks at an application like a meal, the preparation of which involves a kitchen, utensils, a recipe and ingredients. But all the open-source advocates see are the ingredients. Lefkowitz suggests that if open-source proponents can learn the CIO's lingo, they will better advance their cause in the data center.

18% Portion code contributes to a business application, says author Capers Jones

Novell's Enterprise Server 9 Draws . . .

. . . big crowds of hackers at Oscon. They wanted to see what will likely be the first release of an enterprise-class server software with the Linux 2.6 kernel. As yet unannounced, but widely expected to ship in the next two months, Enterprise Server 9 for multiprocessor Intel-based machines gets oohs and aahs from Linux lovers for its nonuniform memory access technology, which makes the computers exceptionally fast. Linux aficionados also give high marks to the stability of the beta now in the field and the improved security features. Novell Inc. in Waltham, Mass., is certifying third-party software on its SUSE Linux 2.6 release. Once enough applications have been blessed, expect some big news.

2,000 Number of tests on Linux kernel 2.6, says IBM

Microsoft Pushes Middle Ground . . .

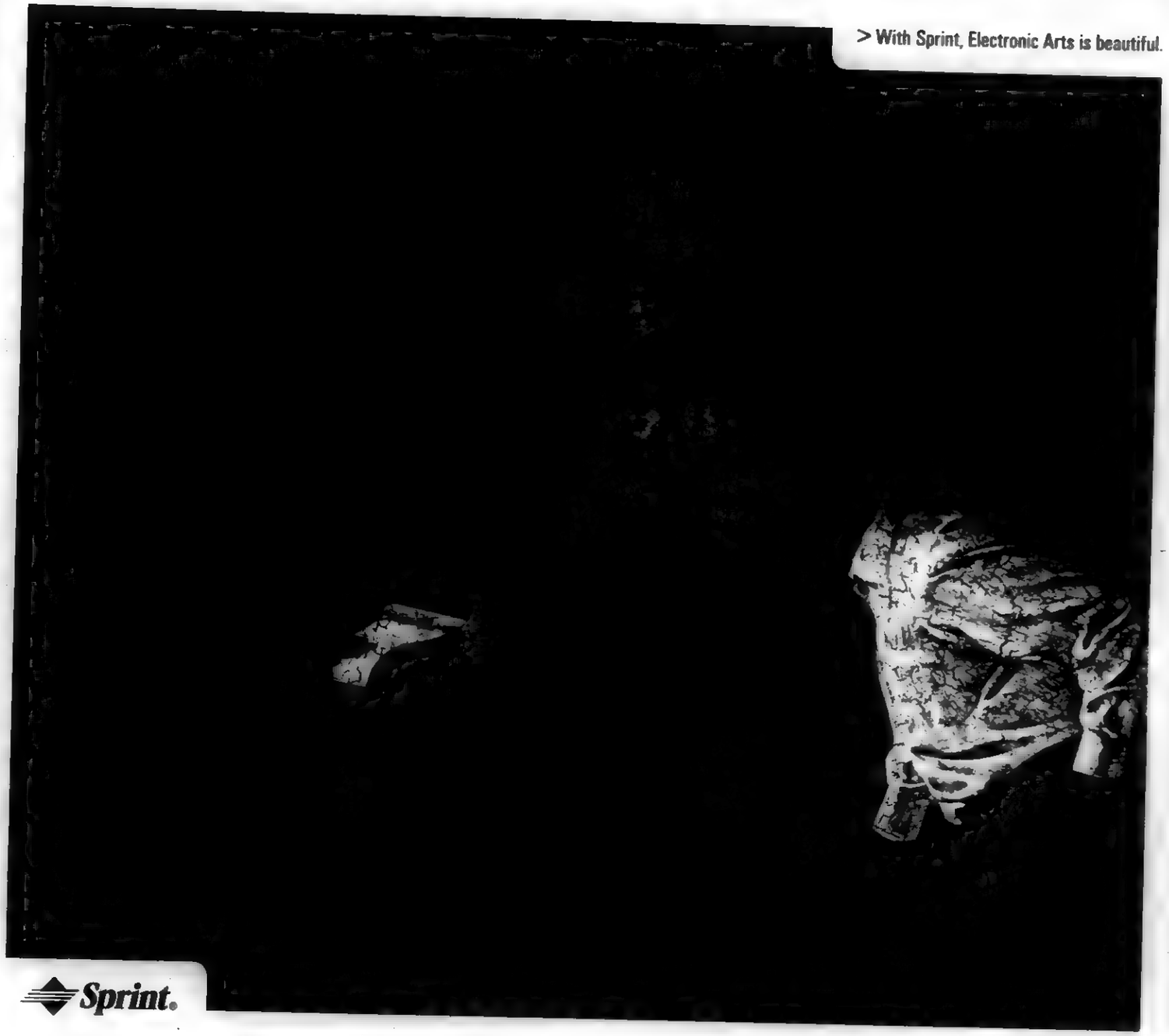
. . . in the open-source debate. Jason Matusow, director of Microsoft Corp.'s shared-source initiative, points to two trends that he hopes will bring a happy middle ground for IT users who like the idea of open-source products but still worry about who's ultimately responsible for the code. First, Matusow says, virtually every major vendor, including his company, is contributing to the open-source movement. He claims that Microsoft's shared-source programs and open-source work so far are "just the tip of the iceberg" and that much more will be coming. He also gives credit to IBM, Sun Microsystems Inc., Apple Computer Inc., RealNetworks Inc. and others that are, to varying degrees, releasing proprietary source code into the hands of users. The second trend he highlights is that open-source developers such as MySQL AB, Red Hat Inc., Zend Technologies Ltd. and others are building profitable businesses around specific open-source products. He calls the two-pronged trend a "move to the middle where the value is" for both users and vendors. He does acknowledge that it's IT's "voting with their pocketbook" that's forcing this shift to the middle ground by vendors. So vote early and often, if you want to find more goodies in the middle.

Wyse Readies Linux Thin Client . . .

. . . based on the hot new 2.6 kernel of the operating system. The 5150SE from Wyse Technology Inc. will ship early in Q4 and cost you a mere $399. It's the first thin client for the new Linux kernel, and it's the first using a chip set designed for thin-client Linux from Advanced Micro Devices Inc., claims Mike DeNeffe, a senior director at Wyse. DeNeffe says the Linux thin-client market is a "growth opportunity" for the company, and the 5150SE will be added to its other Linux thin clients, the 5455 and 5125. The new machine runs twice as fast as its predecessors and improves video performance, according to the San Jose-based company. Junaid Qurashi, a Wyse senior product manager, boasts that his company has added thin-client features such as stateless configuration to the Linux 2.6 kernel. That means IT administrators don't have to set up each machine on the network because each 5150SE autodiscovers its server and configures itself. **48506**

Wyse 5150





Electronic Arts makes beautiful video games. Since this entertainment powerhouse switched its data transport from ATM to IP with Sprint, coupled with Electronic Arts' technology, network performance has improved dramatically. Gigabytes of game code and digital assets that took 8–10 hours to send now take less than 20 minutes. Thanks to shortened data transport times and the ability to host digital assets in one place, the process of developing games is now both quick and highly collaborative, with information sharing amongst more than 40 countries. And since switching to Sprint, Electronic Arts saves roughly $100,000 a month. With Sprint, Electronic Arts is reliable, faster and more effective – in a word, beautiful. **With Sprint, business is beautiful.™**

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MCI Ups Performance Pledges to Retain Users

Guarantees faster transmissions on IP network as possible buyout bid looms

BY MATT HAMBLEN

MCI INC. last week announced new performance guarantees for users of its IP network, another in a series of network services enhancements that the company is promising to its business customers.

The continuing effort to boost customer confidence in MCI's services comes as the company faces a possible buyout bid by Leucadia National Corp. On July 12, MCI said it had received a notice from Leucadia that the New York-based investment firm intends to seek clearance from federal authorities to buy a majority of MCI's common stock. Leucadia officials wouldn't comment about the company's plans last week.

Colleen Boothby, an attorney who represents dozens of large companies in contract negotiations with telecommunications carriers, said the MCI users she works with don't appear to have any plans to abandon the vendor. But, she added, some do wonder if the buyout proposal could spell the end of MCI as a separate company, which could result in less competition for network services contracts.

"The big end-user concern is whether . . . MCI and AT&T will exist in a year or two," said Boothby, who works at Levine, Blaszak, Block & Boothby LLP in Washington. "Every day, it looks more likely that they'll be gobbled up." She said MCI's ability to keep service levels high will determine whether the company, which emerged from Chapter 11 bankruptcy protection in April, can retain customers in the coming months.

Nortec Inc. in Providence, R.I., has another year left in a two-year, $4 million contract under which MCI provides network services to about 10,000 employees at 35 locations in the U.S. Gary Rosenberg, director of telecommunication services at Nortec, said MCI's service quality remained high throughout the bankruptcy process.

Rosenberg added that he has seen a marked improvement in MCI's billing, which previously was problematic. But the Leucadia move "puts MCI in play, and eventually somebody will gobble them up," he said.

Getting Better

An IT manager at a large MCI customer in the transportation field said the possible buyout "doesn't have us too worried right now." The user, who asked not to be named, said he experienced service problems with MCI last year but has seen "a pretty good turnaround" in recent months. The improvement has been encouraging enough for his company to consider giving MCI part of its future network services business, he added.

MCI's new Internet service guarantees include reductions in transmission latency worldwide, with a guarantee of 20% faster transmission in North America, said Ralph Montfort, the company's director of Internet access services. MCI is also guaranteeing that Internet service will be 100% available, with North American users automatically receiving credits for free service time if outages occur (see chart).

MCI's business-related IP services revenue declined 18% last year, according to Steven Harris, an analyst at IDC in Framingham, Mass. But he said MCI's Internet service-level agreements are among the most impressive being offered by network operators. "SLAs are an awful area that carriers are trying to improve," Harris said. 48504

MCI's new Internet service guarantees:

- **Network latency** has been reduced globally, with round-trip transmissions in North America now averaging 45 milliseconds or less between hub routers.
- **Packet delivery rates** for ensuring that network traffic reaches its intended destination will be 99% in all areas and 99.5% in some regions.
- **Internet access** will be 100% available for services ordered and provisioned by MCI, with users getting a one-day credit for each hour of network outage.

Banks Balk at Info-Sharing Provision in Privacy Law

Claim compliance with Calif. SB 1 will raise IT costs

BY JAIKUMAR VIJAYAN

Banks doing business in California are planning to appeal a recent federal court decision that lets the state enforce tough new provisions related to the sharing of customer information with affiliates.

The provisions are part of California's Financial Information Privacy Act, known as SB 1, which went into effect July 1. The law, which is hugely unpopular among financial service providers, requires banks to give customers the opportunity to opt out of cross-marketing programs in which their information is shared with affiliates such as mortgage and credit card companies.

Most financial companies in the state had expected that the affiliate sharing provisions in SB 1 would be preempted by existing guidelines in the federal Fair Credit Reporting Act of 1996, under which no such permission is required.

An attempt by the American Bankers Association, the Financial Services Roundtable and the Consumer Bankers Association to legally block the affiliate sharing provisions of SB 1 was rejected by a California Federal District Court judge in late June.

"We were certainly disappointed by that ruling," said Harvey Radin, a spokesman for Bank of America Corp. in New York. "The decision really makes it harder for our customers to do business with us." IT expenses associated with maintaining and processing customer preference information could contribute to increased costs, he added.

Under the law, companies have to send notices to all California-based customers and give them a chance to opt out of affiliate sharing. They must wait 45 days for replies. During that time, customer records have to be quarantined and can't be shared with others. Companies that share information with nonaffiliated third parties also need to get separate opt-in permissions.

Compliance Headaches

From an IT standpoint, complying with the requirements means creating new database tables for recording information about when notices were sent out, when they were returned and a customer's preference, said Arshad Noor, CEO of StrongAuth Inc., an identity and compliance management company in Cupertino, Calif.

It also means putting policies in place "that spell out what business divisions need to do and a process for ensuring that they check this table before sharing any information with affiliates" and third parties, Noor said.

"Companies are making a huge effort to comply with the law. It caught a lot of them by surprise," said Fritz Elmendorf, vice president of communications at the Consumer Bankers Association. A lot of that group's members have "simply shut down cross-marketing activities" because they have not yet gone through the process of sending out notices, he said.

Notating the opt-out and opt-in selections on customer files "becomes complicated, time-consuming and expensive," given the separate systems that banks often maintain for mortgages, credit cards and deposit accounts, Elmendorf said. "Mergers often complicate this and compound it where there may be multiple systems in multiple states," he said.

"We remain fully confident that we will prevail on appeal," said Tom Dresslar, a spokesman for California Attorney General Bill Lockyer.

"I can understand why [banks] were taken by surprise," Dresslar added. "They've been on a long winning streak on these kinds of issues." 48524

JUST THE FACTS

California's SB 1 Privacy Act

- Took effect July 1, 2004.
- Is designed to give bank consumers notice when their personal information is being shared with bank affiliates and third parties.
- Allows consumers to opt out of such info-sharing.
- Provides for fines of up to $2,500 per violation.


Designed to work the way
Samsung's 193P display
We know how business works
ergonomic
Magic Tune™ softv
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Mobile Devices Move Wi-Fi, Cellular Closer to Convergence

HP, Motorola products let users roam between networks but have limitations

BY BOB BREWIN

WI-FI AND cellular network technology finally tied the knot last week, as Hewlett-Packard Co. and Motorola Inc. each introduced mobile devices that can roam between the two technologies. But both products have limitations.

Motorola said its CN620 phone can function as a voice-over-IP phone on Wi-Fi wireless LANs and as a cellular phone on Global System for Mobile Communications networks. The CN620 also supports data communications on both networks, Motorola said, adding that handoffs between the Wi-Fi and GSM networks will be handled by technology developed by Avaya Inc. and Proxim Corp.

HP and T-Mobile USA Inc. announced an iPaq handheld computer that can roam without dropping a signal between T-Mobile's 802.11b Wi-Fi hot spots and GSM cellular data network. The iPaq 6315 can also operate as a voice phone on the T-Mobile GSM network, but it works only in data mode when used in both Wi-Fi and GSM modes.

Rick Roesler, vice president of handheld marketing at HP, said his company and Bellevue, Wash.-based T-Mobile view the development of a combined Wi-Fi/GSM device that would support VoIP as a "very interesting" possibility. But he didn't disclose specific plans for offering such a product.

No 802.11b Support

Motorola's new phone also has a potential drawback. The CN620 doesn't support the well-entrenched 802.11b Wi-Fi standard, meaning users would be required to install WLAN equipment based on the newer 802.11a technology.

Several IT managers hailed the potential of a combined Wi-Fi/cell phone, but they balked at the cost of installing new WLANs to support the CN620.

For example, FedEx Corp. has already deployed an extensive 802.11b infrastructure at its facilities worldwide. Ken Pasley, director of wireless business development at FedEx, said he doesn't see any cost justification for upgrading the Memphis-based company's WLAN infrastructure to gain the savings on cellular time that the CN620 promises when used as a VoIP phone.



MOTOROLA's dual-mode CN620 phone lets users roam from Wi-Fi LANs to cellular networks.

"It's hard to spend yourself into savings," Pasley said, noting that the cost of using cell phones continues to go down.

Milton "Mac" McClurkan, CIO at Bronson Healthcare Group Inc. in Kalamazoo, Mich., said he wants to take advantage of combination devices that can operate on his company's extensive WLANs, which are based on a mix of 802.11b and 802.11g technology. Therefore, McClurkan said, he views HP's new iPaq as a "more significant" product than the CN620.

A Motorola spokeswoman said the company built its combination phone around the 802.11a standard, which supports raw data rates of up to 54Mbit/sec. in the 5-GHz band, because it has more capacity for voice phone calls than 802.11b does. The latter technology provides data rates of up to 11Mbit/sec. in the 2.4-GHz band. **48522**

Red Hat to Launch Java App Server

Vendor extends its reach beyond Linux

BY JAMES NICCOLAI

Red Hat Inc. plans to release its first Java application server at the LinuxWorld conference in San Francisco today, broadening its business beyond the Linux operating system, industry sources said.

Red Hat Application Server will be sold on a subscription basis with services and support, under a pricing model similar to what Red Hat uses for its Linux operating system, according to the sources. Pricing is likely to also be announced today.

The software is based on Jonas, or Java Open Application Server, an open-source application server developed by the ObjectWeb Consortium, a France-based nonprofit group. It incorporates The Apache Software Foundation's Tomcat Java servlet engine and Struts, a software framework for building Java Web applications, the sources said.

Raleigh, N.C.-based Red Hat said last August that it would work with ObjectWeb to offer a Red Hat-branded application server. A beta version was released in December. Representatives for Red Hat and ObjectWeb declined to comment last week on any upcoming announcements.

Red Hat Application Server is expected to compete with proprietary offerings from the likes of BEA Systems Inc., IBM and Oracle Corp.

One effect of open-source products has been to apply pricing pressure on proprietary vendors, analysts have said. Sun Microsystems Inc., which has struggled to boost its middleware business, offers a low-end version of its application server for free.

Red Hat said last year that it would also release clustering software to link groups of servers and programming tools based on the open-source Eclipse project. Along with the application server, the products comprise what it calls its Open-Source Architecture, a collection of server software that runs on its Linux operating system.

ObjectWeb was founded in 2002 to foster the development of open-source middleware. Along with Red Hat, its members include Bull SA, France Telecom SA and the French National Institute for Research in Computer Science and Control. **48617**

Niccolai writes for the IDG News Service.

LINUXWORLD PREVIEW

Desktop Linux will be a major focus at this week's event.

QuickLink 48480
www.computerworld.com

Dell, IBM Tap Intel 64-bit for Servers

It will be raining servers today if IBM and Dell Inc. follow through on expected announcements of new systems built around Intel Corp.'s x86 processors with 64-bit extensions.

The rack and tower configurations that the companies plan to detail will differ in serviceability and manageability. But from the perspective of speed and pricing, "the one-to-four-way Intel architecture models are commoditized," said John Enck, an analyst at Gartner Inc. in Stamford, Conn. "If you try to make a decision on that basis, it really doesn't matter."

Dell today is expected to announce four dual-processor servers based on Intel's Xeon processor with 64-bit extensions. The systems will include OpenManage 4, an upgraded version of Dell's management system that adds remote administration capabilities. Other system enhancements include PCI Express technology and up to 8GB of Double Data Rate 2 memory.

Two rack-mounted servers, the PowerEdge 1850 and 2850, are available now, with pricing starting at $1,799 and $1,899, respectively. The two tower systems, the PowerEdge 1800 and 2800, will be available in October.

Meanwhile, IBM plans to announce eight systems based on Xeon and Pentium processors with 64-bit extensions. IBM's offerings feature a mainframe technology called calibrated vector cooling that optimizes air flow to allow its servers, including its thinnest (1U, or 1.75-in. high), to meet the requirements of application server environments. They also include IBM's fourth-generation Light Path Diagnostics tool, company officials said.

The IBM servers will be released over the next eight weeks. Pricing for a two-way, 2U rack-mounted server starts at $2,399.

– Patrick Thibodeau

Pace of Vendor Audits Said to Be Slowing

Users increase self-auditing of software licenses; vendors seek to avoid conflicts

BY THOMAS HOFFMAN

Over the past few months, Microsoft Corp. and other software vendors have become less aggressive about threatening customers with audits to gauge whether they're complying with their license contracts, according to analysts.

That's largely because users have become more diligent about conducting self-examinations with license-tracking tools to defend themselves against audits, IT managers and analysts said last week. In addition, vendors such as Microsoft have shifted toward resolving licensing issues with users instead of running the risk of jeopardizing customer relationships by doing audits.

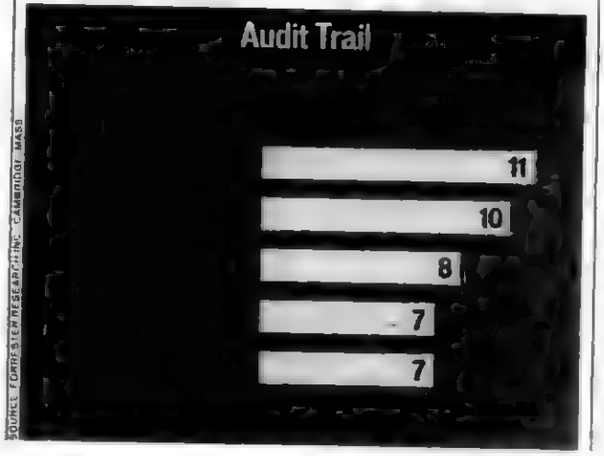
"We're not feeling any direct pressure from vendors, but you hear stories from people whose companies have gotten dinged for a couple of hundred thousand dollars," said Clayton Bretschneider, a network engineer at Stiles Machinery Inc. in Grand Rapids, Mich. "So with that in the back of your mind, I think it's forcing the record keeping in our IT department to be a lot tighter than it was several years ago."

Stiles, which makes woodpanel saws and other equipment, last year began using a Web-based tool developed by CDW Corp. to track its use of software products, including Microsoft Office. The tracking software is hosted by Vernon Hills, Ill.-based CDW, and Bretschneider said he can access information about his licenses via a Web browser.

According to a report that was issued July 23 by Forrester Research Inc., only two of the 41 IT executives who responded to a March survey said they had seen a decrease in the number of audits conducted at their companies during the previous 12 months. Thirteen said there had been more audits at their companies.

But the survey also found that more audits were being driven by internal factors than by vendors (see chart). "We were getting indications during the budget cycle in the fourth quarter of 2003 that there was heavy activity in audits [by vendors]," said Forrester analyst John Rymer. "But the survey found that there isn't a problem."

At a conference held by Gartner Inc. in June 2003, attendees said enterprise software vendors were increasingly threatening users with audits to help make up for reduced spending on new licenses due to the sluggish economy [QuickLink 39183]. "At that time, I was getting quite a few customer calls about audits, and it's only in the last three or four months that activity has started to drop off," said Gartner analyst Jane Disbrow.



Sound Processes

"I think we've avoided the need for auditing because of the processes we have in place," said Ron Ellis, an IT manager at Northrop Grumman Corp. in Dallas. Those practices include using license-tracking software from Macrovision Corp. in Santa Clara, Calif., Ellis said, adding that the technology helps the company monitor compliance with licensing agreements.

A few months ago, Microsoft began a formal push to conduct fewer audits of corporate users in the U.S. Instead, it's working with users to help them better understand their license terms, said Keith Beeman, Microsoft's director of worldwide license compliance. "There are still situations where we audit customers, but ideally we're trying to avoid audit situations," he said. **48528**

IT Managers Brace to Meet Ongoing Sarbanes-Oxley Compliance Demands

Documentation, workflow apps are in demand

BY THOMAS HOFFMAN

IT managers at several large companies said last week that the software they now have should help them meet the Sarbanes-Oxley Act's internal documentation requirements on an ongoing basis. But analysts think many corporate users aren't so well prepared.

Companies that face year-end deadlines for complying with Section 404 of Sarbanes-Oxley have spent a lot of money this year on consulting services in an effort to help themselves "focus on their immediate needs and get their arms around what they need to automate later," said Cathy Hotka, principal at Cathy Hotka & Associates, a retail IT consultancy in Washington.

Section 404 requires companies to document their financial and IT controls and attest to the effectiveness of the controls on an annual basis. Hotka and other consultants said they believe that starting next year, companies will have to begin investing more heavily in technologies such as workflow, document management and identification management tools to help them automate some of their Section 404 compliance processes.

Compliance work isn't a one-year project, noted John Hagerty, an analyst at AMR Research Inc. in Boston. "It may not be Y2k every year, but it's an ongoing process that's hanging over people's heads," he said.

"The biggest challenge is to get software that facilitates Sarbanes-Oxley certification,"



said Ross Wescott, chief IT auditor at Portland General Electric Co., an electric utility in Portland, Ore. "If we leave it all to manual paperwork or Excel spreadsheets, the effort will soon become too cumbersome."

Existing Systems Capable

But Wescott added that he thinks Portland General's existing ERP system — which includes software from SSA Global Technologies Inc. and PeopleSoft Inc. — plus other tools it runs are capable of handling the company's ongoing controls documentation and testing requirements.

In some cases, though, "if you try to force-fit Sarbanes-Oxley requirements into existing technologies you have in-house, it doesn't always work," said Karl Kispert, a director at Jefferson Wells International Inc., a Brookfield, Wis.-based risk management consultancy. Kispert added that he expects most companies to increase their Sarbanes-Oxley technology budgets next year.

Some companies have been more forward-looking. For instance, Bresler & Reiner Inc. purchased Web-based software called the SOAx Toolkit from Orlando-based Axena Inc. in June 2003. Prior to buying the software, executives at the Rockville, Md.-based real estate investment trust decided that they wanted to develop a 10-year plan for Sarbanes-Oxley compliance, said Eric Clarke, Bresler & Reiner's internal audit director.

Clarke said Bresler & Reiner is using Axena's technology not only to document and test its internal controls, but also to assess the ongoing risks it faces. "We've gone through $200 million in acquisitions over the last six months, so we have to constantly assess what are significant risks under Section 404," Clarke said. **48529**

Continued from page 1

Ontario

increase for welfare recipients. The upgrade is expected to eventually cost the province a total of $7.5 million, which includes the coding work and the creation of a specialized testing system, according to a spokeswoman for the social services ministry.

Legislator Peter Kormos last week said the disclosure that the system couldn't handle the increase in payments prompted him to seek an inquiry into the Accenture contract. Not being able to increase welfare payments without modifying the system "is like buying a car without a steering wheel and General Motors is talking about it as an optional accessory," said Kormos, who leads a small opposition party in Ontario's legislative assembly.

The custom-developed system was originally slated to cost $135.5 million. The province's goal was to create a real-time, Web-enabled application that embedded some 800 rules governing eligibility for social services payments and that could help the province prevent fraud, reduce caseloads and improve service.

The new system, which is based on a mainframe running OS/390, replaced eight incompatible applications. End users access data via Internet Explorer, using Microsoft Corp.'s Active Server Pages technology. The system also includes Business Objects SA's reporting tools and is supported by a network built around equipment from Cisco Systems Inc.

Users Complaints

Development work started in 1997, and the system went live provincewide in January 2002. But critics have charged that the technology is difficult to use and requires time-consuming work-arounds.

"It's too cumbersome," said Heather MacVicar, general manager of social services for the city of Toronto. Her 2,000-member staff uses the Accenture-written software to process payments for 67,000 welfare recipients. Although MacVicar acknowledged that the new system has a more user-friendly interface than the previous one used in Toronto, she added that it's "hugely more complex."

For instance, the system's design doesn't let end users skip steps built into business processes, sometimes doubling the time required to do simple tasks, according to MacVicar. "We would like the flexibility to bypass certain things," she said, adding that trying to get Accenture to make such changes has been "an ongoing process."

According to a report issued by the Ministry of Community and Social Services itself, downtime on the system cost Ontario $1.6 million in lost worker productivity last year. But the downtime was partly caused by hardware and batch processing issues, not just by the software, the report noted.

In his July 7 letter requesting an inquiry, Kormos described the deal with Accenture as "an obviously bad contract" and charged that Ontario officials had been "thoroughly bilked by Accenture."

A spokesman for Attorney General Michael Bryant declined to comment about Kormos' request. The spokeswoman for the social services ministry also wouldn't comment about the request or the use of the new system.

In a case study posted on its Canadian Web site, Accenture said the system has helped the province save $521 million so far. A spokeswoman for the consulting firm said that it has been paid $181 million based on the system's performance. The company "would not have received a dime had it not generated savings," she said.

Regarding the concerns about the system's rigidity, the Accenture spokeswoman pointed to Ontario's desire to have a centralized set of welfare policies. She described the $1 million price tag for the application update needed to support the increase in welfare payments as a "reasonable amount" given the scope of the system. **48520**

AT-A-GLANCE

Ontario's Business Transformation Project

- The new system went live across Ontario at the start of 2002, replacing eight older applications that were unable to share welfare case data.
- It includes a central database, can exchange data with an interactive voice response system and lets workers use third-party sources to verify applicant information.
- According to Ontario officials, the system has cost $213.8 million thus far – 58% more than the amount that was originally budgeted.

Continued from page 1

Blackout

no matter how good, there is some little detail you forgot," he said last week as the one-year anniversary of the outage approached.

The blackout, which struck last Aug. 14 and left more than 50 million people without power for days, has given many IT managers food for thought over the past year. In interviews last week, a half-dozen IT executives said they have modified their business continuity plans in the wake of the blackout, investing in projects such as reinforcing their networks and increasing the amount of testing they do.

Drew Hiltz, deputy CIO at CDC Ixis North America Inc., said the New York-based asset management company experienced a communications meltdown for two days as a result of the blackout. In June, CDC Ixis completed a blackout-driven deployment of a Sonet ring that connects multiple offices in New York and New Jersey at OC-48 port speeds.

"As a result of the blackout, the central office had significant problems," Hiltz said. "Their equipment fried." The company is using the Sonet ring not only for data links but also for voice communications, which Hiltz said has helped increase communications resiliency. In addition, the company's IT staffers have worked with Verizon Communications Inc. to reposition circuits so they can support different offices around Manhattan.

Hiltz wouldn't say how much the Sonet ring cost to install. It's more expensive than the T3 lines that CDC Ixis had before the blackout but less costly based on the amount spent per megabit of bandwidth, according to Hiltz. And officials felt they had no choice. "Resilience is something we couldn't ignore anymore," he said.

Bill Moore, telecommunications manager at the Museum of Modern Art in New York, said all of the museum's IT and building operations systems went down during the blackout. At the time, the museum was undergoing a major renovation and expansion, so IT staffers asked Verizon to install two points of presence for redundancy. They also added the museum's data and telecommunications center to its main backup generator.

Moore said that before the blackout, the museum had only battery-powered uninterruptible power supplies to temporarily keep its computers up and running.



NEW YORK CITY was left without power during last summer's blackout.

Lessons Learned

Dan Morreale, CIO at North Bronx Healthcare Network in New York, said one lesson he learned was that he needed to rethink and expand his emergency testing procedures.

The blackout's only impact on North Bronx Healthcare's IT operations was a downed server and the loss of lights in the stairwell leading to its basement data center, Morreale said. But after seeing other companies suffer millions of dollars in productivity losses, he decided he couldn't afford to simply assume that the systems would keep running if another disaster struck. As a result, North Bronx Healthcare began testing its backup generators every month instead of once a year. IT staffers also started testing the generators under a full systems load, Morreale said.

Gregg Therkalsen, vice president of business continuity solutions at EMC Corp., said the blackout has pushed many companies to expand their data center infrastructures to support data replication between two or even three IT facilities — one of which may be located on a separate power grid.

One side effect of the blackout has been a shortage of power generators, because vendors can't keep up with the demand, according to Ken Brill, executive director of The Uptime Institute Inc. in Santa Fe, N.M. Brill said a combination of the blackout and new regulations, such as the Sarbanes-Oxley Act, has created a 20-day waiting period for generators nationwide. **48528**

Continued from page 1

Ontario

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Continued from page 1

Blackout

no matter how good, there is some little detail you forgot," he said last week as the one-year anniversary of the outage approached.

The blackout, which struck last Aug. 14 and left more than 50 million people without power for days, has given many IT managers food for thought over the past year. In interviews last week, a half-dozen IT executives said they have modified their business continuity plans in the wake of the blackout, investing in projects such as reinforcing their networks and increasing the amount of testing they do.

Drew Hiltz, deputy CIO at CDC Ixis North America Inc., said the New York-based asset management company experienced a communications meltdown for two days as a result of the blackout. In June, CDC Ixis completed a blackout-driven deployment of a Sonet ring that connects multiple offices in New York and New Jersey at OC-48 port speeds.

"As a result of the blackout, the central office had significant problems," Hiltz said. "Their equipment fried." The company is using the Sonet ring not only for data links but also for voice communications, which Hiltz said has helped increase communications resiliency. In addition, the company's IT staffers have worked with Verizon Communications Inc. to reposition circuits so they can support different offices around Manhattan.

Hiltz wouldn't say how much the Sonet ring cost to install. It's more expensive than the T3 lines that CDC Ixis had before the blackout but less costly based on the amount spent per megabit of bandwidth, according to Hiltz. And officials felt they had no choice. "Resilience is something we couldn't ignore anymore," he said.

Bill Moore, telecommunications manager at the Museum of Modern Art in New York, said all of the museum's IT and building operations systems went down during the blackout. At the time, the museum was undergoing a major renovation and expansion, so IT staffers asked Verizon to install two points of presence for redundancy. They also added the museum's data and telecommunications center to its main backup generator.



was left without power during last summer's blackout

Moore said that before the blackout, the museum had only battery-powered uninterruptible power supplies to temporarily keep its computers up and running.

Lessons Learned

Dan Morreale, CIO at North Bronx Healthcare Network in New York, said one lesson he learned was that he needed to rethink and expand his emergency testing procedures.

The blackout's only impact on North Bronx Healthcare's IT operations was a downed server and the loss of lights in the stairwell leading to its basement data center, Morreale said. But after seeing other companies suffer millions of dollars in productivity losses, he decided he couldn't afford to simply assume that the systems would keep running if another disaster struck. As a result, North Bronx Healthcare began testing its backup generators every month instead of once a year. IT staffers also started testing the generators under a full systems load, Morreale said.

Gregg Therkalsen, vice president of business continuity solutions at EMC Corp., said the blackout has pushed many companies to expand their data center infrastructures to support data replication between two or even three IT facilities — one of which may be located on a separate power grid.

One side effect of the blackout has been a shortage of power generators, because vendors can't keep up with the demand, according to Ken Brill, executive director of The Uptime Institute Inc. in Santa Fe, N.M. Brill said a combination of the blackout and new regulations, such as the Sarbanes-Oxley Act, has created a 20-day waiting period for generators nationwide. **48628**

COMPUTERWORLD HAS BEEN NAMED MAGAZINE OF THE YEAR FOR 2004.

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COMPUTERWORLD

THE VOICE OF IT MANAGEMENT

MARYFRAN JOHNSON

IT's New Balance

I SPENT A DAY LAST WEEK listening to a group of CIOs and IT executives trade ideas on how to solve their biggest problems with governance, regulatory compliance and outsourcing. This trio of hot topics kept the conversations cooking at an executive education program at Ohio State's Fisher School of Business.



Nobody had solved all the mysteries of life by day's end, but everybody walked away with new ideas, as well as the kind of insight that only peers can provide. For these were totally frank, safely off-the-record, egos-checked-at-the-door discussions. Barely a word was spoken about specific products or technologies. Rather, most of the talk was about managing people — from IT department staffers, business users and compliance auditors, to external customers, top executives and CEOs. It was about communication and expectations, about conveying the value of IT.

Most important, it was about finding the right balance between what the business demands and what technology can deliver.

One IT leader from a car manufacturer described his tough-love approach to driving quality metrics and more professional project management into an international operation. He communicated IT progress and accomplishments by translating it into carmaker jargon that his executive colleagues could readily grasp. He underscored the need to negotiate very specific service-level agreements between IT and the business units (which led to the best quote of the day: "If your SLA is 'happiness,' you're dead.") His approach to IT governance is a highly customized one, with smaller steering committees set up based on dedicated business functions (such as marketing) rather than concentrated in one überboard of decision-makers.

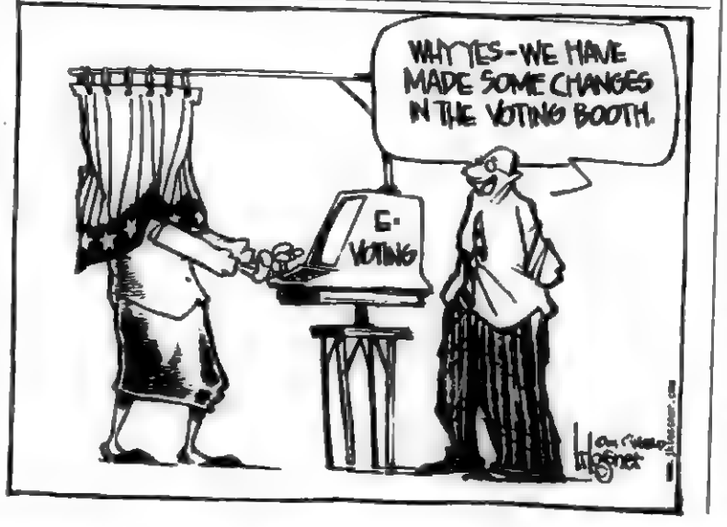
The executives also took turns acting as IT consultants in residence, diagnosing one another's management woes and prescribing new approaches. One CIO described a deteriorating relationship with other top executives at his insurance company in the wake of some rapid growth and the imposition of more disciplined IT procedures that users disliked. His IT/business alignment had clearly lost its balance.

The advice he got was classic, practical and focused on dousing the fire of dissatisfaction with IT. Start by interviewing the CEO and other company officials about what they think is wrong with IT, his peers suggested. Do a lot of listening and very little talking. Seek out the IT champions on staff to get their informal advice too. Then craft the next steps to regain that lost balance.

The assembled execs agreed that the most vital element in any IT governance or business alignment plan is the decision-making process itself — meaning who's involved and how much clout they have to get things done. It seems like such a no-brainer to ensure that this kind of high-level thinking about IT direction happens, but it's still surprisingly rare to find it done well. Or even done at all.

A few weeks ago, we ran some rather discouraging survey results in a special report about IT governance [QuickLink 48025]. The PricewaterhouseCoopers study showed that despite the fact that 76% of 335 CEOs and CIOs said they knew of IT problems that could be resolved with a formal governance framework, fewer than half of the respondents (42%) said they had plans to create anything like an executive-level steering or board-level strategy committee. So shortsighted, and such a shame.

So, how's the balance between IT and business at your company? If you haven't thought about it in a while, take a moment to do so. Then start the conversation. **48496**



DAN GILLMOR

Executive Blogging for Fun and Profit

SOMEONE I know posted an intriguing item on his weblog the other day. It began: "It's tough to compete against a social movement. Especially one in which you're a believer."

The blogger was Jonathan Schwartz, president and chief operating officer of Sun Microsystems. When it comes to the expanding blogosphere, he's a welcome addition.

Schwartz is among a small number of senior executives in corporate America to adopt the blog format for explaining his views. He's already one of the best at it, and other executives could learn something from him.



The average corporate Web site has much in common with the average annual report. Both are loaded with information, too much of which is hidden or disguised in an effort to minimize problems and maximize what's going right. To that end, particularly in the case of companies with problems, such sites seem designed to thwart the casual visitor who wants to look deeply into a corporation and its doings.

The least interesting feature of a corporate Web site, with few exceptions, is the typical "Letter From the Chief Executive," a content-free missive, most likely written by a committee of lawyers and marketing people, that does nothing to reveal the character either of the company or its leader. Creating an impression of openness isn't the same as actually being open. Establishing a corporate weblog can change that.

What the best blogs tend to have in common is voice: They clearly have been written by human beings with genuine ideas and a passion for what they're saying.

Schwartz isn't the first high-ranking executive to have started a blog. That honor may belong to Groove Net-

works' Ray Ozzie, whose intermittent blog — he sometimes goes for months without posting anything — nonetheless has been enlightening at times.

He says the blog gives him "a communications channel under my control," where he can say what he wants (within limits, such as keeping trade secrets secret), and he has the ability to post quickly and without limits on length.

"I feel as though there's a conversation — many conversations — going on out there," Ozzie says. "It lets me feel like I'm part of that conversation, and when I get calls and e-mails, there's confirmation that I'm part of the conversation."

My favorite senior-executive blog comes from Internet billionaire Mark Cuban, owner of the NBA's Dallas Mavericks. His "Blog Maverick" attracted instant attention when he launched it in March, and no wonder: He took on sportswriters and offered pungent commentary on sports and investing. It's great stuff.

Corporate lawyers are undoubtedly having miniseizures over their outspoken executives' public statements. But sensible rules for corporate bloggers can prevent public relations or legal problems.

IT needs to understand how blogs work, especially the third-party software most bloggers now use. Security matters. You really don't want a hacker to put words in your CEO's mouth, for example.

I don't think corporate blogging is a fad. The blog brings a human voice to the enterprise. It's not just good marketing. It's good business. **48406**

PIMM FOX

Microsoft Entering a New Phase

GOOGLE'S initial public offering ought to quicken the pulse of even the most hardened investors. With shares expected to trade at $108 to $135, Google could raise enough money to value the company at a whopping $36 billion.

Google won't see that much cash, but if investors snap up the shares — and they are expected to do so — the company will net about $3 billion. Of course, the early venture-capital investors will receive a tidy sum as well.

But there's something contrary in all this.



Microsoft recently announced that it would return a boatload of cash to shareholders, increase its annual dividend and buy back some shares. The move indicates that Microsoft doesn't have a better use for the money, including following a strategy of growing through acquisitions. Yes, after the buyout, Microsoft will still have $20 billion in reserve to play around with, but technology companies are supposed to be investing in the future. What does it tell us when chip maker Intel begins debating what to do with a cash hoard? Intel could give some of the money back to investors and/or buy back some of its shares.

These possibilities make me wonder what technology companies are all about.

I've always thought that investors poured money into technology companies because innovation, research and expansion into new markets take capital. Technology investors placed their bets on growth and capital appreciation.

But that seems to be changing.

Stalwart technology leaders are returning money to their investors because their shares are languishing and because they can't convince their shareholders that the future will be better than today.

Google appears to be an exceptional case right now. The premier search engine company doesn't seem to be having any problems raising cash.

Meanwhile, Microsoft has said it intends to sell *Slate*, its online magazine. It has failed to match Google in the search engine business, and it has taken hits from Apple's iPod in the world of music downloads.

The truth is, Microsoft makes money the old-fashioned way: with recurring cash streams that businesses are forced to cough up because just about everyone uses the company's operating system, which comes bundled with most PCs. In other words, it isn't innovation that drives Microsoft's future; it's an ability to make good, old-fashioned, hardball business decisions.

Indeed, you could say that Microsoft is merely reacting to changes in accounting procedures, since it has cut back on granting employees stock options that would cost the company lots of money. Because Microsoft's share price hasn't budged much over the past 12 months, those employees who do own shares (Bill Gates being the biggest shareholder) will reap a tremendous reward when the company pays a special dividend, increases the annual payout and buys back shares.

But that leaves technology investors wondering where they ought to place their bets in the future.

There's nothing wrong with handing excess cash back to investors. But it makes me think that Microsoft's days as a leader are coming to an end. **48418**

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READERS' LETTERS

Don't Concede the Desktop to Microsoft

IT'S TRUE that converting a company to open-source applications is difficult; the cost of reinstallation and retraining is hard to justify ("Open-Source Apps Losing Desktop Battle With Microsoft," QuickLink 47772). Therefore, we can't expect quick adoption of open-source desktops in the corporate world. But Mark Hall neglected to mention two places where open-source applications will gain traction. The first is new companies. Start-ups don't have existing infrastructure to worry about, and they are typically very price-sensitive, so the zero cost of open-source software will appeal to them. Once a few start-ups grow up into large companies, there will be a base of experienced advocates for open-source desktop applications.

The second is the nonprofit world. Nonprofits typically have an abundance of volunteer labor (including people available to install new applications) but a shortage of cash to buy software. Purchased Microsoft software isn't open-source software's competition for nonprofits' business; they generally don't have the cash to buy the stuff. The competition is *pirated* Microsoft software. Recent Microsoft antipirating efforts will actually accelerate open-source adoption for this group.

Mark J. Dulcey
Dorchester, Mass.,
mark@buttery.org

OPEN-SOURCE is nowhere to be found on the desktop currently, it's true, but that is only part of the total picture. Companies made the switch to Microsoft applications for the same reason that every company bought IBM products in an earlier time: You can't be blamed for buying products from the big supplier. Companies and organizations that *do* use products from alternative sources may have secret advantages like not being plagued by worms and viruses aimed at the "big" product, but if the alternative product has a bug, it's easier to blame the IT manager. Since the managers aren't rewarded for reducing overall risks, they reduce their private risks. And still too many in upper management take pride in not knowing anything useful about IT, so for them the decision is easy.

Frank Clarijs
Project manager,
Mechelen, Belgium,
frank.clarijs@riscall.be

I GUESS you don't pay attention to events overseas. The Munich municipal government is converting to open-source desktop applications, and the French government is evaluating a complete conversion of all government desktop applications to save money. China is aggressively pushing open-source desktop applications.

The real issue with desktop apps is not so much total cost of ownership as it is frustration with the upgrade treadmill that Microsoft forces users to follow.

Also, as users and IT departments lose trust in Microsoft over its continual security failures, they are beginning to seriously think about abandoning the monoculture of Microsoft applications.

Eddie Jones
Application developer,
Montgomery, Ala.

A VAX Alternative

FOR those seeking a VAX alternative other than Charon-VAX, I strongly recommend giving the open-source SIMH VAX emulator a try ("VAX Users See the Writing on the Wall," QuickLink 47934). The SIMH VAX emulator can be compiled and run on both Windows and Linux with ease. Benefits include a free emulator that can be run on a Linux PC, with full functionality.

Andrew Robert
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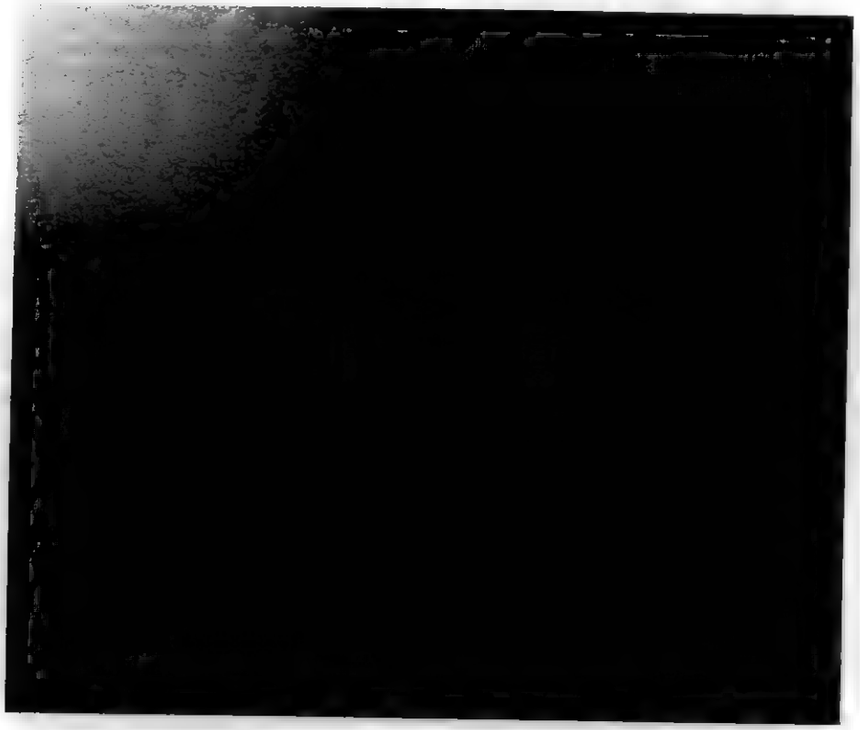
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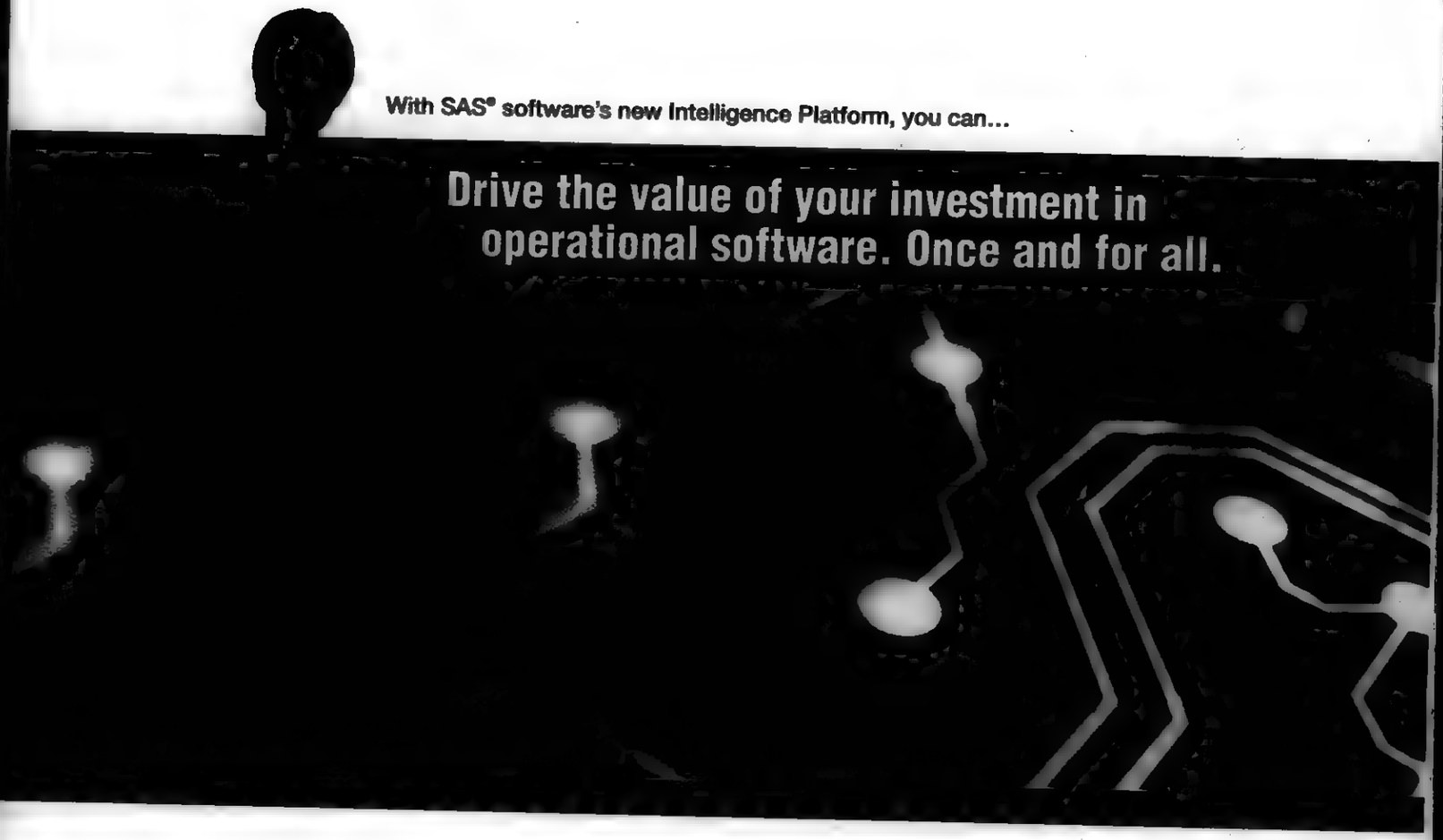
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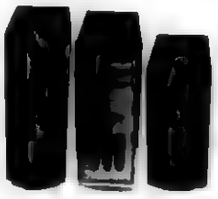
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EMERGING TECHNOLOGIES
Ultrawideband: A Better Bluetooth
UWB offers huge bandwidth over short distances without wires, but regulatory hurdles and a fierce standards battle could slow its introduction. Page 22



QUICKSTUDY
Form Factor
Form factor refers to the overall dimensions and component layout of a device — in other words, its physical size and packaging. The term covers technical specs and/or general-purpose descriptors for hardware components. Page 24

SECURITY MANAGER'S JOURNAL
Singing the TLS Protocol Blues
Roger Foix runs into one stumbling block after another when he tries to secure e-mail at a client's company using the Transport Layer Security protocol. Page 26

Covering THE Waterfront

Information technology is playing a bigger role in protecting the nation's ports, but many projects have yet to fully roll out. BY LINDA ROSENCRANCE

SHIPPING PORTS are gateways to international and domestic trade in the U.S., but they are also tempting targets for terrorists. U.S. ports and waterways handle more than 2 billion tons of domestic and import/export cargo annually, a volume that's expected to triple by 2020, according to the American Association of Port Authorities in Alexandria, Va.

Before the Sept. 11 terrorist attacks, officials at U.S. ports focused on moving cargo from one place to another as cost-effectively as possible. Now those officials are just as concerned with protecting ports and meeting federal and international mandates for increased security. As a result, information technology is playing a bigger role in keeping ports safe.

In June, Homeland Security Secretary Tom Ridge said that most seaports would comply with the July 1 deadline for security under the International Ship and Port Facility Security Code and the Maritime Transportation Security Act (MTSA), which requires ports and vessels to control access, monitor activity and screen personnel, baggage, cargo and vehicles.

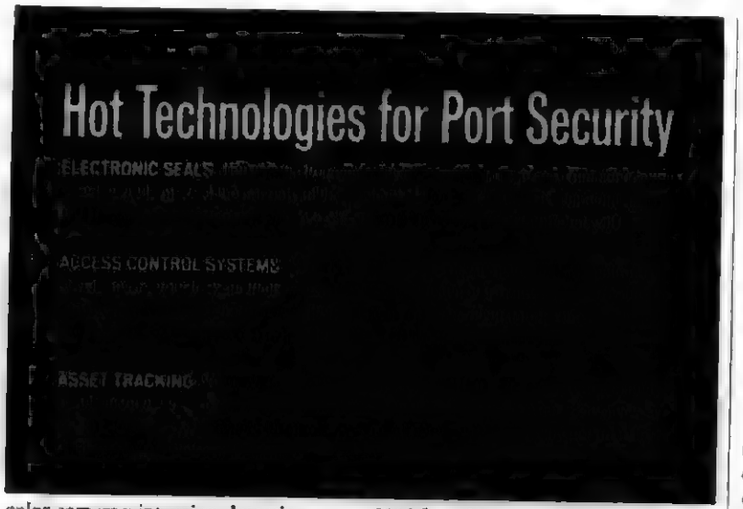
Yet while all U.S. ports are trying to improve security, for most it's still a work in progress, and the role IT plays varies widely. Here's how six ports are using IT to address security.

■ CORPUS CHRISTI

The Port of Corpus Christi in Texas is implementing a security plan to protect 27 miles of waterfront property. As part of the first phase, it's installing 36 surveillance cameras, including thermal cameras, infrared cameras and



MICHAEL BARTALOS



color cameras; intrusion-detection and motion-detection technology; plus fencing, sensors and an access control system.

These systems will be linked by a fiber-based network, and the information they collect will be sent to a security command center, says Gustavo Espinosa, the port's manager of information systems. Omaha-based Adesta LLC has been awarded a $2.9 million contract — part of $13.2 million in federal grants made to the port — to provide and integrate the systems, he says.

That project includes the purchase of alert-notification software from VistaScape Security Systems Corp. The Atlanta-based vendor's Security Data Management System automates threat detection through real-time analysis of video generated by surveillance cameras. SDMS analyzes images to detect security violations and alerts security personnel of abnormal movements or objects. The software, built on Microsoft Corp.'s .Net architecture and open standards, also provides data and security sensor integration.

Using VistaScape's software and hardware, the port will integrate all the video cameras, Espinosa says. "We can display one view or a hundred views. We have two consoles, and each one could select any camera view it wants to see," he says.

Espinosa tapped Tideland Maritime Systems, a Houston-based division of marine navigation aids supplier Tideland Signal Corp., for its Vessel Traffic Information System. The VTIS consists of camera surveillance, two radar tracking systems, an automated identification system and a ship-to-shore microwave communications link.

The port will use the Vessel Traffic Management and Information Systems 5060 from Norcontrol IT AS in Horten, Norway, to collect, integrate, assess and display data from a variety of sensors to provide a comprehensive view of vessel traffic.

"For the VTIS, we are going to use a combination of T1, wireless and fiber to transmit the radars and video imaging to the security center," Espinosa says. "We are also planning to install checkpoints throughout the Corpus Christi ship channel to receive the signal from vessels and transmit it to the security center and harbor master's office."

But the VTIS and security system are independent of each other, so the port is trying to find a way to integrate the two, he says.

■ NORTH CAROLINA

The North Carolina State Ports Authority, which manages the seaports in Wilmington and Morehead City, is moving forward on major security upgrades, says Doug Campen, security director for the port authority. Campen is planning to deploy IP-based video surveillance cameras and motion-detection technologies, as well as an ID card system that will be compatible with the Transportation Worker Identification Credential (TWIC) system. That Transportation Security Administration (TSA) pilot program aims to create a uniform identification credential for all transportation workers who require unescorted access to federally regulated transportation facilities.

The port authority also hired an engineering firm to design an integrated security system, Campen says. "Now, we don't have any ID systems or any surveillance systems or RFID tags. And that's good, because we can start fresh," Campen says. "A lot of seaports I've talked to are trying to integrate the old with the new, and they're having problems."

■ NEW YORK

Bethann Rooney, manager of port security for the Port Authority of New York and New Jersey, says her agency is focused on the physical security of the port.

As part of a federally funded pilot program called Operation Safe Commerce, Rooney says, the port authority is working with private industry to identify supply chain vulnerabilities and develop improved methods and technologies to ensure the security of cargo entering and leaving the U.S.

Under the program, the agency is testing various technologies, including electronic seals that secure container doors and detect and report tampering, as well as RFID tags that can determine whether a container has been tampered with, Rooney says.

■ SEATTLE

The Port of Seattle, which is also participating in Operation Safe Commerce, has instituted an access control system at its headquarters using ID badging technology from Goddard Technology Corp. in Greenville, S.C., an access control system from Johnson Controls Inc. in Milwaukee and smart card printers from Fargo Electronics Inc. in Minneapolis.

Employees' fingerprint images are recorded and encoded on smart card identity badges, and readers at secured entrances compare the encoded fingerprint image on an employee's smart card to the fingerprint placed on the reader.

As a landlord port, the Port of Seattle leases out terminals to private companies that operate them, says Jim Sherill, director of seaport security at the agency. The Coast Guard, which is responsible for ensuring that ports comply with the MTSA, requires terminals to have access control systems and surveillance monitoring systems, and progress is being made in that area, he says.

The seaport, which to date has received $10 million in grants from the TSA, also uses browser-based software from Seattle-based Vigilos Inc. to record and manage surveillance camera data. The integrated system can automatically notify the port and allow officials to view video via the Internet.

■ OAKLAND

The Port of Oakland in California has installed an automated pedestrian access control system that includes turnstile gates and an ID card reader system that checks the identity of people entering the port, says Ray Boyle, general manager of maritime operations and designated port security officer. The system is designed to comply with the TSA's specifications for access control and the implementation of TWIC smart cards, he says.

■ SAN DIEGO

The Port of San Diego is in the process of completing its Operations Center. A central command and control center, the operations center will merge data from local and federal monitoring and surveillance systems and be monitored around the clock. All stakeholders located within the port will have real-time access to the information, according to San Diego Harbor Police Capt. Jessica Cummins, who is responsible for homeland security at the port.

Uncommon Standards

Because security varies widely among ports and there is no federal mandate detailing the type of security systems ports should implement, members of the National Safe Waterways and Seaports Alliance in Alcoa, Tenn., are concerned that many ports don't really know what they need to do, or how to do it. They also worry that ports don't test the systems they do install thoroughly enough.

The group believes that more federal oversight is needed. "The government is going to have to set higher goals and objectives, but the ports themselves and port associations can get together and refine the system a lot better to meet not only their security needs, but their operational needs," says the organization's chief operating officer, John Widdenburg.

Jay Grant, director of the Washington-based Port Security Council of America, says his group's main focus is funding, but members are also concerned about technology issues.

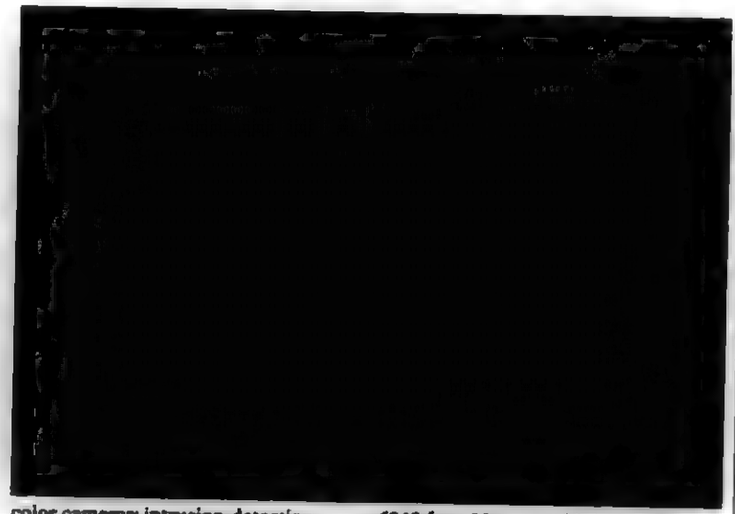
"We're working to make sure that we move forward in that direction," he says. "With the MTSA going into effect, we certainly have increased the manpower and the fences and the cameras, but technology is a process that's going to take some time." **48054**

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The port authority also hired an engineering firm to design an integrated security system, Campen says. "Now, we don't have any ID systems or any surveillance systems or RFID tags. And that's good, because we can start fresh," Campen says. "A lot of seaports I've talked to are trying to integrate the old with the new, and they're having problems."

■ NEW YORK

Bethann Rooney, manager of port security for the Port Authority of New York and New Jersey, says her agency is focused on the physical security of the port.

As part of a federally funded pilot program called Operation Safe Commerce, Rooney says, the port authority is working with private industry to identify supply chain vulnerabilities and develop improved methods and technologies to ensure the security of cargo entering and leaving the U.S.

Under the program, the agency is testing various technologies, including electronic seals that secure container doors and detect and report tampering, as well as RFID tags that can determine whether a container has been tampered with, Rooney says.

■ SEATTLE

The Port of Seattle, which is also participating in Operation Safe Commerce, has instituted an access control system at its headquarters using ID badging technology from Goddard Technology Corp. in Greenville, S.C., an access control system from Johnson Controls Inc. in Milwaukee and smart card printers from Fargo Electronics Inc. in Minneapolis.

Employees' fingerprint images are recorded and encoded on smart card identity badges, and readers at secured entrances compare the encoded fingerprint image on an employee's smart card to the fingerprint placed on the reader.

As a landlord port, the Port of Seattle leases out terminals to private companies that operate them, says Jim Sherill, director of seaport security at the agency. The Coast Guard, which is responsible for ensuring that ports comply with the MTSA, requires terminals to have access control systems and surveillance monitoring systems, and progress is being made in that area, he says.

The seaport, which to date has received $10 million in grants from the TSA, also uses browser-based software from Seattle-based Vigilos Inc. to record and manage surveillance camera data. The integrated system can automatically notify the port and allow officials to view video via the Internet.

■ OAKLAND

The Port of Oakland in California has installed an automated pedestrian access control system that includes turnstile gates and an ID card reader system that checks the identity of people entering the port, says Ray Boyle, general manager of maritime operations and designated port security officer. The system is designed to comply with the TSA's specifications for access control and the implementation of TWIC smart cards, he says.

■ SAN DIEGO

The Port of San Diego is in the process of completing its Operations Center. A central command and control center, the operations center will merge data from local and federal monitoring and surveillance systems and be monitored around the clock. All stakeholders located within the port will have real-time access to the information, according to San Diego Harbor Police Capt. Jessica Cummins, who is responsible for homeland security at the port.

Uncommon Standards

Because security varies widely among ports and there is no federal mandate detailing the type of security systems ports should implement, members of the National Safe Waterways and Seaports Alliance in Alcoa, Tenn., are concerned that many ports don't really know what they need to do, or how to do it. They also worry that ports don't test the systems they do install thoroughly enough.

The group believes that more federal oversight is needed. "The government is going to have to set higher goals and objectives, but the ports themselves and port associations can get together and refine the system a lot better to meet not only their security needs, but their operational needs," says the organization's chief operating officer, John Widdenburg.

Jay Grant, director of the Washington-based Port Security Council of America, says his group's main focus is funding, but members are also concerned about technology issues.

"We're working to make sure that we move forward in that direction," he says. "With the MTSA going into effect, we certainly have increased the manpower and the fences and the cameras, but technology is a process that's going to take some time." **49054**

MORE ONLINE

Protecting IT: Here's how port authorities protect their own IT systems from attack: **QuickLink 49190**

Security Rules: New laws that mandate security are driving ports to adopt new technologies:
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8:15am to 8:45am	**Rebuilding the IT Foundation** Maryfran Johnson, Editor in Chief, Computerworld
8:45am to 9:15am	**Consolidation and the Data Center: Boosting Business Performance and Application Availability** Richard Villars, Vice President, Storage Systems Research, IDC
9:15am to 9:45am	**Consolidation Strategies for a New Media World** Andrè Mendes, Chief Technology Integration Officer, PBS
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Perspectives from Oppenheimer Funds** Tim Gerlach, Manager, Telecommunications, Oppenheimer Funds
10:45am to 11:15am	**Customer Challenges and Solutions: Real-Life Scenarios Connecting Data Centers Over Distance** Steve Adolph, CTO, Enterprise Solutions Group, CIENA
11:15am to noon	**Panel: Overcoming Management Barriers — Making the Case for Consolidation** Panel Moderator: Julia King, National Correspondent, Computerworld Panelists: Paul Bergamo, Chief Technology Officer, Liberty Mutual; Stephen Monn, Chief Information Officer, TAC Worldwide Companies; Fred Pond, Director of Information Services, The Schnitzer Group of Companies
Noon	Program Concludes

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Maryfran Johnson
Editor in Chief, Computerworld



Andrè Mendes
Chief Technology Integration Officer, PBS



Steve Adolph
CTO, Enterprise Solutions Group, CIENA



Richard Villars
Vice President, Storage Systems, IDC



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National Correspondent, Computerworld



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Ultrawideband: A Better Bluetooth

Outlook: The wireless personal-area network technology is more than 100 times faster than Bluetooth, but business applications are still a long way off. **By Matt Hamblen**

EMERGING TECHNOLOGIES

ULTRAWIDEBAND wireless technology has been called "Bluetooth on steroids." Like Bluetooth, its personal-area network (PAN) cousin, UWB is designed to replace cables with short-range, wireless connections, but it offers the much higher bandwidth needed to support multimedia data streams at very low power levels. And because UWB can communicate both relative distance and position, it can be used for tracking equipment, containers or other objects.

In a recent technology demonstration, Freescale Semiconductor Inc. in Tempe, Ariz., showed a UWB device that transmitted at a data rate of 110Mbit/sec. at a range of up to 10 meters. That bandwidth — 100 times faster than Bluetooth and twice the capacity of the fastest Wi-Fi networks — is enough to pump three concurrent video streams over a single UWB connection. Vendors are promising UWB products that support speeds up to 1Gbit/sec.

Waiting for UWB

While the prospect of 100Mbit/sec. data transfers is exciting, UWB is probably three or more years away from widespread adoption, especially for business use, according to chip makers and analysts. Government regulators outside the U.S. haven't approved the use of UWB, and standards bodies are arguing over the final specification.

Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., predicts that the first products with UWB chips, designed for home theater applications, will debut next year. Mass adoption of the technology won't come until 2007, he says.

Business applications, when they come, will center on UWB as a replacement for the Universal Serial Bus standard, says Ken Dulaney, an analyst at Gartner Inc. in Stamford, Conn. UWB could be used to easily connect several laptops to a single projector to handle video or slide presentations, or it could be used to back up large files quickly, he says. Eventually, workers could carry a portable storage device equipped with a system image and UWB connectivity. Users would be able to sit down at any workstation, connect via UWB and start working.

"It's very, very significant technology, and UWB is a guaranteed win," adds Mathias, noting that 50 companies are making UWB chips, including heavyweights like Intel Corp. But vendors have yet to agree on a standard. Intel is backing one camp, while another industry giant, Motorola Inc. (through its Freescale subsidiary), is backing the other.

UWB Standards Face Off

Multiband OFDM

The Multiband OFDM Alliance's specification gets its name from the fact that it divides UWB's 7,500-MHz-wide frequency range between 3.1 GHz and 10.6 GHz into smaller, 528-MHz segments. A mandatory mode supported by all MBOA devices uses three bands below 5 GHz.

Orthogonal Frequency Division Multiplexing transmits data in 312.5 nanosecond time slots, alternating among three frequency bands. Spreading information across multiple bands allows the technology to be very efficient, offering high bandwidth at low power levels, according to Srinivasa Somayazulu, a senior staff researcher at Intel.

DS-UWB

The UWB Forum's DS-UWB technology transmits data at a rate exceeding 1 billion pulses per second and spreads the transmissions across the widest possible frequency band. Forum members are also promoting acceptance of what's called the Common Signal Mode, which works as a kind of traffic cop among the different UWB standards, says Freescale's Martin Rofheart.

Ultrawideband: A Better Bluetooth

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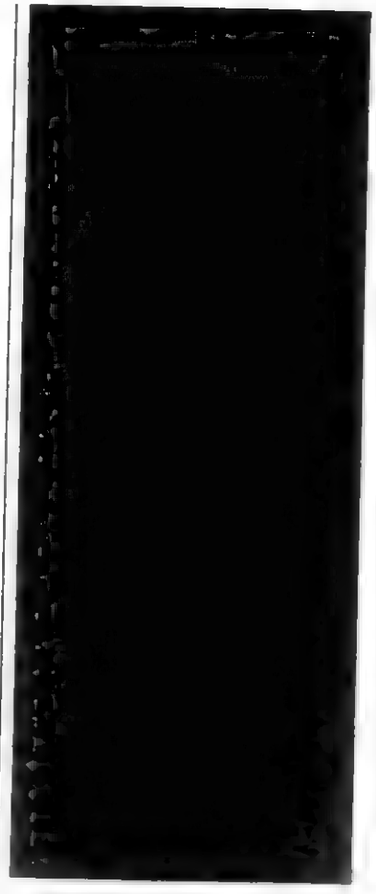
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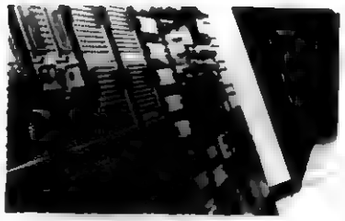
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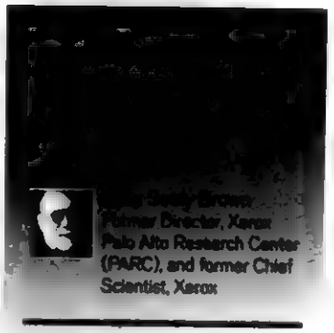
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Conference At-a-Glance *(subject to change)*

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MONDAY, OCTOBER 25

9:00am to 9:30am — Breakfast

9:30am to 10:25am

INDUSTRY PRIMER TRACK
Addressing High Density Cooling of Storage Networking Equipment at the Facility Level
Donald Beaty, Founder & President, DLB Associates

INDUSTRY PRIMER TRACK
Storage Basics and Trends
Dennis Martin, Senior Analyst, and Greg Schulz, Senior Analyst, Evaluator Group

CAREER DEVELOPMENT TRACK
Power Statements, Questions and Answers Techniques
Howard Goldstein, Founder Howard Goldstein Associates, Inc

10:35am to 11:30am

Role of Server Blades and Virtualization in Next Generation Data Center
Arun Taneja, Founder and Consulting Analyst, Taneja Group

Why Tape Continues to Make the Grade
Richard Harada, President, Tape Technology Council

11:30am to 1:00pm — Luncheon

Afternoon

SNIA Tutorial Sessions
1:00pm to 6:40pm

- Data Lifecycle
- Virtualization & Securing Your Storage
- Focus on Networking Your Storage
- Focus on Storage
- SAN Management
- Voice of the User

SNIA

IDC Briefing Session
1:00pm to 5:00pm

IDC

In this fast-paced session IDC's top storage analysts will examine companies' growing interest in deploying tiered storage solutions and assess its impact on storage components, systems, networks, management and services.

IT Executive Golf Outing
1:00pm to approximately 6:00pm

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The pre-conference golf outing at the Ritz-Carlton Golf Club located adjacent to the JW Marriott Grande Lakes Resort is complimentary (a $125 value) for registered IT end users. (Other participants, including sponsors and vendor representatives may play on an "as available" basis and are responsible for all applicable golf outing expenses.)



To secure your spot, contact Michael Meleedy at 1-508-820-8529.

7:00pm to 9:00pm — Welcome Reception

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TUESDAY, OCTOBER 26 *General Sessions Begin*

7:15am to 8:15am — Breakfast

8:30am to 9:15am — **Don Tapscott, Renowned Bestselling Author of *The Naked Corporation, Growing Up Digital* and *Paradigm Shift***

9:15am to 9:45am — **The Future of Knowledge Management**
John Halamka, MD, CIO, CareGroup Health System and Harvard Medical School

9:45am to 10:15am — **Kevin Rollins, President & COO, Dell**

10:30am to 11:00am — **Keith Glennan, VP & CIO, Northrop Grumman IT**

11:00am to 11:30am — **Shinjiro Iwata, CEO, Hitachi Data Systems**

11:30am to noon — **Industry Presidents' Roundtable and Market Outlook**

12:15pm to 1:30pm — CONCURRENT LUNCHEON SESSIONS

General Networking Luncheon
On the JW Lawn

Concurrent Luncheon Session
Steve Duplessie, Founder & Senior Analyst, Enterprise Storage Group

Concurrent Luncheon Session
Richard Snedier, InterUnity Group

1:30pm to 2:00pm — **David Cohen, VP, Technology Architecture Group, Merrill Lynch**

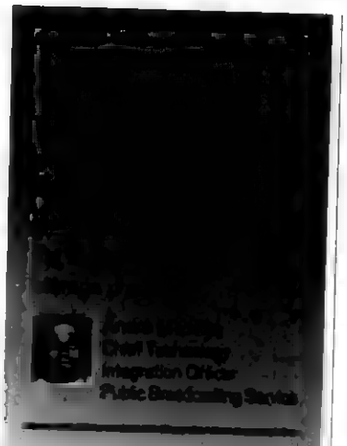
2:00pm to 2:30pm — **Greg Reyes, Chairman & CEO, Brocade Communications Systems**

2:30pm to 3:00pm — **Rod Mueller, Manager of Technology and Infrastructure, International Paper**

3:00pm to 3:45pm — **CTO Insights Panel**
Moderator: Jon William Toigo, Founder, Toigo Partners International

4:00pm to 5:30pm — CONCURRENT SESSIONS

5:30pm to 8:30pm — Expo with Dinner / Interoperability & Solutions Demo Open — 5:30pm to 8:30pm



"... SNW is a great venue for peer discussion ... an opportunity to provide feedback to vendors on what users need from them ... I sat down with my key vendors and shared information ..."

John Greer
Director, IT Infrastructure
Pacific Gas & Electric

WEDNESDAY, OCTOBER 27

7:15am to 8:15am — Breakfast

8:15am to 8:30am — **Opening Remarks**

8:30am to 9:15am — **Nick Carr, former Executive Editor of the Harvard Business Review and author of *Does IT Matter?***

9:15am to 9:45am — **End User Case Study**

9:45am to 10:15am — **Industry Leader Presentation**

10:30am to 11:00am — **Michael Prince, CIO, Burlington Coat Factory**

11:00am to 11:30am — **Peter van Oppen, Chairman & CEO, ADIC**

11:30am to 12:15pm — **Panel: End Users Speak Out**

12:15pm to 1:45pm — Expo & Luncheon

1:45pm to 2:15pm — **End User Case Study**

2:15pm to 2:45pm — **Industry Leader Presentation**

2:45pm to 3:30pm — **Analyst Roundtable Panel**
Moderator: Jon William Toigo, Founder, Toigo Partners International

3:45pm to 5:15pm — CONCURRENT SESSIONS

5:15pm to 7:15pm — Expo and Reception

7:30pm to 9:00pm — Gala Evening: Dinner and Entertainment

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THURSDAY, OCTOBER 28

7:30am to 8:30am — Breakfast

8:30am to Noon — CONCURRENT TECHNICAL | BUSINESS TUTORIALS

Noon — Conference Concludes



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- ❑ Other

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UWB faces serious regulatory hurdles as well, "so it's hard for it to move forward," Mathias says. The U.S. is the only country to approve spectrum for use by UWB radios. Regulators worry that UWB will interfere with a range of other wireless devices that operate in the same spectrum, including cell phones, says Steven Wood, a strategy planner at Intel.

Opposition by foreign chip makers and foreign governments might be lessening, however, says Gary Anderson, a delegate in the International Telecommunications Union (ITU). He says tests shown recently to regulators from the European Union demonstrated that interference is not a problem.

> UWB is here to stay, and within the next six months we'll see a great warming in the international community for UWB.
>
> GARY ANDERSON

"UWB is here to stay, and within the next six months we'll see a great warming in the international community for UWB," says Anderson, who is CEO of Boston-based Uraxs Communications Inc., a developer of UWB devices. The ITU is moving toward a UWB mandate that should be ready in less than a year, he adds.

Standards Deadlock

Unfortunately, at the Institute of Electrical and Electronics Engineers Inc., the matter of reaching a UWB standard is still "politically deadlocked," according to Wood and others.

The IEEE study group for the 802.15.3a PAN draft standard is at a stalemate as the two vendor groups push competing specifications. Intel is aligned with the 140-member Multiband OFDM Alliance (MBOA), which advocates the Orthogonal Frequency Division Multiplexing (OFDM) standard, while Freescale and the 30-member UWB Forum are pushing for Direct Sequence UWB (DS-UWB) technology. UWB won't progress until the two sides reach a compromise — something neither appears ready to do.

Martin Rofheart, director of UWB operations at Freescale, says DS-UWB has a "two-year time-to-market advantage" over MBOA approaches. Freescale has demonstrated a chip set called XtremeSpectrum, which it expects to appear in home wireless digital video applications this fall, he says. Freescale says the chip will support speeds of up to 1Gbit/sec. over 2 meters and will be available by the end of next year.

Intel's Wood says Rofheart's claim of a two-year lead time over MBOA is "ludicrous." Intel and other MBOA vendors will "make it a real contest" for DS-UWB vendors, and the MBOA has nearly five times as many vendors as the UWB Forum, he added.

Mathias says he wouldn't want to choose which approach is better or which will win out. "It's still early, but the amount of innovation by all the companies involved is indicative of the great potential UWB holds," he says.

If UWB doesn't catch on, other technologies in the fast-moving wireless arena could take the lead. For example, a nascent Wi-Fi wireless LAN standard, IEEE 802.11n, is expected to offer bandwidth of 200Mbit/sec. Some analysts say it's possible that by the time UWB products arrive, 802.11n devices may be available, providing higher throughput than first-generation UWB devices.

Although the technology most likely would require more power than UWB, one research firm predicts that it will leap ahead of UWB for home use. That might slow UWB's momentum for business use as well — but don't count on it.

While some vendors are already touting 802.11n compliance, that's "a clearly misleading claim," according to Gartner's Dulaney, who categorizes the standard as "embryonic."

Ultimately, the success of UWB will also depend on its cost. That's still an unknown, although chip vendors predict that volume prices will eventually drop to about $5 — the same as was predicted for Bluetooth. Yet the promise of Bluetooth as a universal cable replacement didn't come to pass because the benefits of adding the technology weren't seen as compelling enough to justify the incremental cost for low-end peripheral devices such as keyboards, mice and even printers. With its higher bandwidth, UWB may offer a more compelling reason to adopt wireless PANs in the enterprise — and eclipse Bluetooth in the process.

"Bluetooth is a loser," Mathias says. The Bluetooth Special Interest Group claims that the industry is shipping 2 million chips per week, but "who uses it?" he asks. "With UWB, the economic potential is so great that it's hard to imagine it won't move forward." QuickLink 48080

UWB RESOURCES

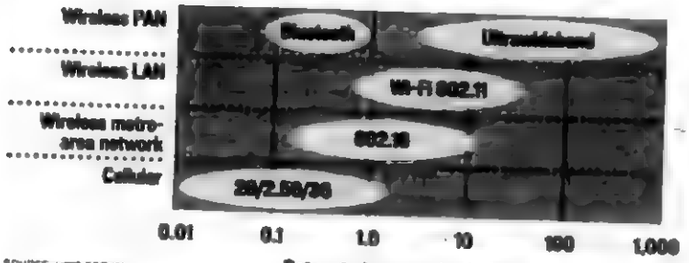
For more information on UWB technology, go online:

QuickLink 48082
www.computerworld.com

Ultrawideband vs. Bluetooth



Where Ultrawideband Fits



SOURCE: UWB FORUM

Taking a UWB Test Drive

UWB is getting an early workplace test drive in the new Siebel Center for Computer Science at the University of Illinois at Urbana-Champaign College of Engineering. The building, which opened April 30, will have UWB sensors installed in one wing by August, following tests for interference, says professor Roy Campbell.

UWB sensors and tags from Ubisense Ltd. in Cambridge, England, will be used to identify the location of the teachers and students who wear them. Special software will pinpoint each individual's location in the wing.

The university is also working on a research project called Gaia, with funding from the National Science Foundation, to design a middleware operating system to manage resources used by workers in the wing.

Campbell says several ideas for applications of UWB have been floated. One would involve developing a way to make a document readable when a user has it in a certain location but leave it encrypted when the document is read elsewhere.

Another would tailor an office to a particular individual automatically, giving him access to certain files or applications. In that case, the Ubisense tag could trigger an automatic sequence of system authorizations, and a video camera could verify that the user wearing the tag was indeed the right person.

"In the medical area, there are all sorts of applications for UWB, including how to make sure patients aren't left in the corridor," Campbell says. But ultimately, he adds, UWB's success will depend on "how cheap you can make the technology."

– Matt Hamblen

Form Factor

QUICK STUDY

DEFINITION

Form factor refers to the overall dimensions and component layout of a device — in other words, its physical size and packaging. The term covers technical specifications and/or general-purpose descriptors for different hardware components.

BY RUSSELL KAY

WHEN we refer to the size of a computer or component, we might be talking about its capacity, speed or connectors. Or we could be talking about its dimensions — how much physical space it occupies on the desktop, inside the PC box, in a server rack or in a briefcase. We apply the term *form factor* to the latter interpretation, to describe size and packaging.

Like much computer terminology, *form factor* began as technical shorthand but later was adopted as a marketing term as well. Thus, in many cases, form factor refers to a strict, technological definition while in others it is a vague and nonstandard promotional term.

Here, we offer a quick rundown of common form factors (highlighted in italics) for various types of products.

Disk Drives

For disk storage, form factor is pretty much synonymous with the diameter of the disk platter. Nowadays, the standard form factor for optical drives is *5.25 in.* (in a 1.75-in.-thick package that used to be called *half-height* but is now the standard), and for desktop hard drives it's *3.5 in.* (but starting to move to *2.5 in.*). For notebook computers, for many years the standard form factor has been a 2.5-in. drive, but small notebooks are moving to smaller drives — *1.8 in.*, *1.0 in.* and now even *0.85 in.* Drives for notebooks are also characterized by their thickness or height, usually *17*, *12.5* or *9mm*.

Flash Memory/ Disk Drives

Memory cards used in notebook computers, digital cameras, handheld devices, music players and other portable devices are described based on their capacity, in megabytes, and their configuration: In order of decreasing physical size, these form factors include *PCMCIA* (also *PC Card* and *CardBus*); *Compact Flash Type III* and the thinner *Type II*; *Memory Stick* and *Memory Stick Pro*; *SmartMedia*; the physically identical *MMC (Multimedia Card)* and *SD (Secure Digital) Card*; the *Mini-SD*; and the newest, *XD-Picture Card*. (To keep the record straight, most of these form factors are also used for I/O or other nonmemory devices.)

None of those form factors, of course, includes the more recent wave of "keychain" flash memory cards that plug directly into a USB port. Curiously, no single name or form factor descriptor has emerged for these USB devices.

Desktop PC Enclosures

How big (and what shape?) is the box that holds your PC? Besides referring to the type of motherboard(s) a case is designed to accept, we also describe the case as a *tower* (sometimes *full tower*, with the biggest capacity for multiple disk drives), *midtower* or *minitower* (same basic shape, but shorter); *microtower* (smaller still, usually capable of handling only a single floppy drive and optical drive); the superflat *pizza box*; and finally the *all-in-one* (combining monitor, storage and electronics in a single package).

A somewhat confusing term these days is *small form factor* (sometimes abbreviated *SFF*), which usually refers to a small, near-cube-shaped box that may require proprietary components, best exemplified by Shuttle Computer Inc. computers or the Aria case from Antec Inc. Small form factor is also used to describe the smallest enclosures in a given maker's line, regardless of shape.

Server Racks

Servers, routers and many other back-office IT devices are designed to mount in steel racks that are 19 in. wide. In this case, *form factor* describes the height of a component in multiples of *U* (or 1.75 in.). Thus we might have a 1U server, a 2U patch panel or a 6U housing for server blades. The standard rack is 42U high.

Portable Computers

For notebooks, we talk about *desktop replacement* (meaning big, heavy and relatively cheap), *multimedia* (bigger, heavier, not cheap), *thin and light* (topping out at about 1 in. thick and no more than 4 to 5 lbs.), and *ultrathin* or *ultralight* (under 4 lbs., sometimes under 3). Then there's the Tablet PC, Microsoft Corp.'s spec for ink-enabled touchscreen computers that includes two form factors: the simpler *slate* (no attached keyboard, and designed to be attached to a docking station) and the heavier but more versatile *convertible*, with an integrated keyboard.

For handheld PCs (HPC being another Microsoft spec) and PDAs, no clear set of form factors has emerged, although some smart phones with PDA capability (such as PalmOne Inc.'s Treo 600) are now described as having a *small PDA form factor*.

CPUs

For microprocessors, form factor generally refers to the physical interface between the CPU and the motherboard. We speak of generic form factors or technologies, such as *FC-PGA* (flip chip pin grid array), where chips are turned upside down and attached using a matrix of solder balls instead of wires. The layout or contact mechanism might be further characterized as *PPGA* (plastic pin grid array), *TCP* (tape carrier package) or *CPGA* (ceramic pin grid array).

Another type of CPU form factor is the name of the attachment mechanism, such as *Socket 478* (the numeral refers to the number of contact points), *Slot 1* or *Slot A*.

Memory Chips

For dynamic RAM chips, the most common form factor is the 168-pin *dual inline memory module*, or *DIMM*, where RAM chips are located on both sides of a small circuit board that plugs into a designated socket on the motherboard. These are too large for many notebook computers, however, which use a smaller type of module called *SODIMM*, or *Small Outline DIMM*, with either 72 or 144 pins. **48285**

Kay is a Computerworld contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.

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For information about motherboard form factors, visit our Web site:

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PC Cases



1. **File server** (20.6 in. high, 10 drive bays) 2. **Super midtower** (20.3 in. high, 10 drive bays) 3. **Super minitower** (16.75 in. high, nine drive bays) 4. **Minitower** (16.6 in. high, eight drive bays) 5. **Desktop** (5.25 in. high, seven drive bays) 6. **Ultraslim minitower** (or mini desktop: 12.75 in. high or 3.6 in. high, three drive bays) 7. **MicroATX cube** (7.9 in. high, four drive bays).

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V

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Singing the TLS Protocol Blues

Deploying secure e-mail using transport layer security turns out to be more problematic than it looks. By Roger Foix

THIS WEEK I'm dealing with secure e-mail, and in particular the Transport Layer Security (TLS) protocol.

The financial services company for which I'm consulting is setting up secure e-mail links with several customers to protect messages containing sensitive financial data. The traditional approach to e-mail security is to use a desktop encryption product that's compliant with one of the two common standards: S/MIME or OpenPGP. These are ideal if you have a small, tech-savvy user base, but as you scale up, you start to encounter problems around usability, certificate management, per-user license costs and so on.

SECURITY MANAGER'S JOURNAL

TLS 101

My employers are taking a different approach: They're sending their e-mail using TLS, which is essentially the latest incarnation of the Secure Sockets Layer protocol.

You can use TLS to open secure channels between e-mail servers. Once two e-mail servers start talking TLS to each other, they can then pass all their normal e-mail traffic over that secure channel. *Voilà!* Every message between those two companies is automatically encrypted and decrypted without any effort on the part of the end user. And because TLS support is built into most e-mail gateway software, there's usually no extra cost to use it. You can see why my client likes it.

As with any encryption protocol, however, the devil is in the details, and the details of TLS have been bedeviling me for quite some time now. One problem is that TLS secures only the link between the two e-mail servers. It provides no protection after the message has reached the destination server, so your confidential e-mails are still unprotected on another company's server.

My client is setting up secure links to its customers, so we have the luxury of just adding caveats to our contracts to mitigate that risk. But several of our customers are questioning how they will know that their messages are still secure after reaching us. None of them has found a good answer yet, but a few have spent a lot of money on auditors and security reviews to convince themselves of our security.

Then there's the issue of digital certificates: Like any good encryption protocol, TLS uses them to prove the identity of the sender and the receiver. In our case, each e-mail server uses a digital certificate to authenticate itself to the other e-mail server. The problem is that most certificates are designed for SSL connections on Web servers, which make up the bulk of the market. Web servers tend to use only server authentication: When you connect to the server, it gives you its certificate to prove that you've come to the right Web server. Few servers bother to ask clients to prove their identity by presenting their own digital certificate, since most users have never bothered to obtain a digital certificate. So, while client authentication is an option in SSL, it's rarely used.

> **If a TLS client reconfigures its e-mail servers and the TLS link stops working, your e-mail will be sent unencrypted.**

Not so with TLS. Client authentication is an important part of e-mail security. If someone's sending you an e-mail that looks like it's from the CEO at your biggest client, you want to know that it really is coming from the CEO, not a hacker who knows how to forge e-mail addresses. When you're buying certificates for your new TLS-enabled e-mail servers, check that your certificate authority provides certificates that support client authentication. Most seem not to, at least not by default.

Tackling Enforcement

Then we hit the enforcement issue. You can set your e-mail servers to one of two modes: opportunistic TLS, where the servers try to negotiate a TLS connection with other servers but resort to unencrypted e-mail if they can't; or enforced TLS, where your e-mail servers use only TLS and refuse to talk to another company's e-mail servers if they don't support the protocol.

Opportunistic TLS is simpler to do, but if a client suddenly reconfigures its e-mail servers (as happened to us three times last week) and the TLS link stops working, then all of your confidential e-mails will be sent unencrypted over the Internet. Oh, and unless you've set up some custom reporting, you'll never know about it.

If you go for enforced TLS, on the other hand, then the same changes mean that e-mail suddenly stops flowing to and from your client.

After resolving those problems, we hit on e-mail routing issues. Routing is based on the use of mail exchange (MX) records, which specify the e-mail servers that should be used for a particular domain. When you send an e-mail to president@whitehouse.gov, your server looks up the MX record for whitehouse.gov and sends your message to the server mailhub-wh2.whitehouse.gov. TLS uses the same mechanisms, so there should be no problems.

Then we came across a client of my firm who's still using old e-mail servers that don't support TLS. Instead, the company had set up a dedicated, unlisted e-mail server for TLS connections. Another client had backup servers listed in its MX records that don't support TLS.

In those cases, you have to stop using MX lookups and start specifying which servers to use for which domain. That task is easy enough, but it takes time to manage. However, if a company changes its e-mail systems, it also changes its MX records, but you won't notice because you're not using MX lookups any more. In that case, e-mail stops.

Soon I'll be incorporating an outsourced antivirus service into the TLS architecture. I know a fellow consultant who's working on exactly that and looking quite stressed. Given what I've been through so far, I think I'd better go buy him a beer and find out what I'm letting myself in for.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Roger Foix," whose name and employer have been disguised for obvious reasons. Contact him at roger.foix@hushmail.com, or join the discussion in our forum: **QuickLink a1590**

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SECURITY LOG

TLS Resources

...offers an introduction to the topic. TISAbeelit's TLS page is excellent, as is...

...The Internet Mail Consortium's S/MIME and OpenPGP pages offer a very good overview of those encryption protocols.

...This page, created by the IETF's Network Working Group, describes the HTTP over TLS protocol.

...The MX Lookup Utility, available for download at www.

...record-looking, a tool for working with MX records.

–Roger Foix

NetFormation Adds nFX Tool

NetFormation Inc. has released software that's designed to allow administrators to enforce security policy compliance at network endpoints. The Edison, N.J.-based company's nFX Policy Reporting tool notifies administrators when a user or machine accessing a network has outdated antivirus code or unpatched operating systems or otherwise violates security policies.

Tripwire Updates Socks Approvals

Portland, Ore.-based Tripwire Inc. has shipped changes and upgrades to its software that let administrators identify new intended or unintended changes to server configurations and configuration, and other security compromises. New features in Tripwire for Servers 4.3 and Tripwire Manager 4.3 let users approve changes for...

...deployment. Available...

...found on the security front at the...

BRIEFS

Verbatim Rolls Out New Storage Media

Verbatim Corp. has introduced a new set of 5.25-in. Ultra Density Optical write-once and rewritable media. The storage devices are designed to provide reliable, long-term storage, according to the Charlotte, N.C.-based company. Verbatim's 30GB, dual-sided UDO media, which support UDO drives and optical jukeboxes from Hewlett-Packard Co. and Plasmon Corp., will be available this month starting at $80.

New IM, E-mail Management Tools

DYS Analytics Inc. added the ability to log and archive instant messages to its Control 4.2 collaboration management application. The Wellesley, Mass.-based company said it also added broader e-mail trending-analysis tools to its E-mail Control product. The updated applications, which are available for Microsoft Exchange and IBM Lotus collaboration products, are available now and start at $25,000.

IT Monitoring Software Debuts

Adlex Inc. announced the availability of ITvisibility. The software measures IT service levels experienced by users of applications around the clock, taking note of IT infrastructure, networks and application performance, according to the Marlboro, Mass.-based company. Pricing wasn't disclosed.

Web Tools Project Announced

The Eclipse Foundation in Anaheim, Calif., and the ObjectWeb consortium in Saint Isaiier Cedex, France, announced the launch of the Eclipse Web Tools Platform Project. Bjorn Freeman-Benson, a research scientist at the University of Washington in Seattle, will lead the project.

PAUL A. STRASSMANN

Depend on Microsoft?

WE ARE ALL dependent on Microsoft. One way of demonstrating that is to imagine a devious attack in which one of the company's frequent updates was rigged to destroy Microsoft software everywhere. The information economy would collapse. Millions of workers would be instantly deprived of their capacity to function. The economic damage would far surpass the stock market valuation of Microsoft shares.



Early in July, CEO Steve Ballmer sent out a memo to each of Microsoft's 57,000 employees stating that the company will slash annual costs by $1 billion following a sharp rise in spending over the past three years. Those of us who have bought information technologies from RCA, GE, Honeywell or Amdahl are rather sensitive about such announcements. After serving as Xerox's CIO through the ups and downs of that stellar firm, I am particularly touchy about them. Are they harbingers of decline, or are they reassertions of vigor?

One way to judge a company's viability is to check out trends. From 1999, when Microsoft's price per share peaked, through 2003, when its latest financial report was published, several of Microsoft's costs grew faster than its revenue: Overhead costs grew by 15%, the cost of goods by 34% and employment by 12%. Meanwhile, growth in profits was 37% lower than revenue growth. Actually, that lag in profits is worse than it appears because 15% of the revenue was from investment income and not from sales of software. The numbers confirm that Ballmer was right to institute massive cost reductions.

There is another way to check Microsoft's performance. The Economic Value Added reflects the enormous accumulation of cash that belongs to shareholders but awaits profitable investment. From the shareholders' standpoint, the EVA is equal to profit minus payment for shareholder equity at the shareholder's valuation of the worth of investments in Microsoft. If the EVA is negative while there is ample cash, it suggests that management has stopped innovating. Well, the EVA numbers (in millions of dollars) tell that story: It was $1,225 in 1999, -$1,788 in 2000, -$2,794 in 2001, -$176 in 2002 and -$998 in 2003. Altogether, these indicators don't tell a pretty story.

As a remedy, Microsoft has just decided to unload most of its cash as a way of improving its EVA. That's a sure sign that the company is unable to find sufficiently attractive opportunities to create added value for its customers.

We shouldn't be pleased with this analysis. Microsoft has been a leader in asserting the U.S.'s global primacy in IT. Microsoft has provided the de facto standards that have made it possible for a significant share of hardware and software to become interoperable.

If Microsoft wobbles (as IBM did in the early 1980s), we will all incur heavy costs in migrating to other vendors. The cost of replacing Microsoft-embedded systems will rise as the company tries — by every legally permissible means — to reinforce the dependency on its "monoculture" (see QuickLink a4830).

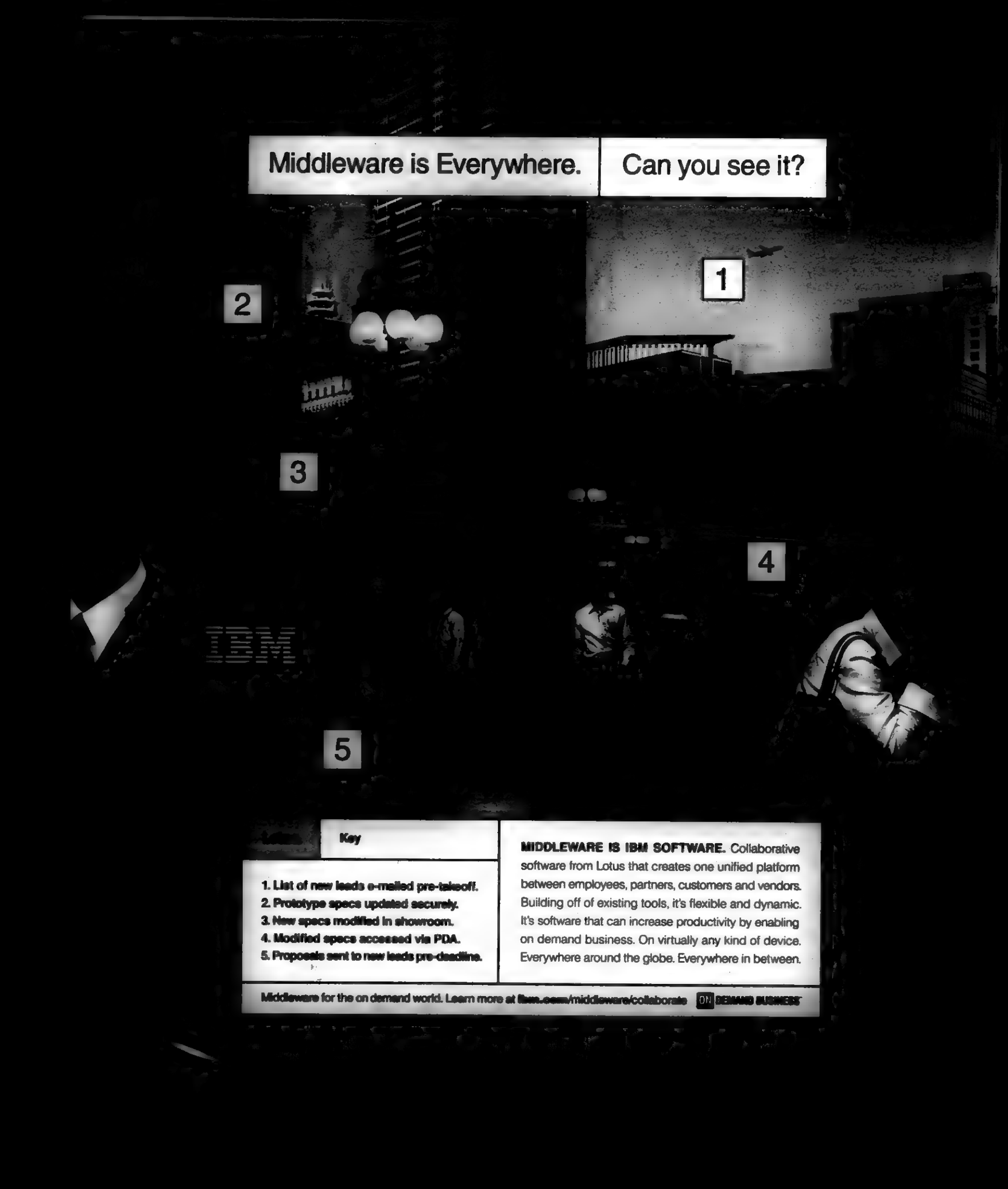
What to do? I'm not ready to give up Word and Excel. I would struggle to function as an author and researcher if I did. However, the steady stream of security and program updates upsets me. I have made 53 updates for the Windows XP operating system in less than a year. To that I must add patches for Internet Explorer (five in the past 60 days) and several for Word. Every time I make any change, my Windows registry and program-integrity checks show errors that require me to rerun diagnostic routines and take elaborate security and backup precautions. I can only imagine what the systems operators at big organizations must suffer making patches to Exchange servers and other Microsoft software.

Confucius said, "Do not enter a house if you do not know how to exit." That's good advice for anyone who is tempted to install systems from which it would be costly to migrate. In the short run, continuing with an all-Microsoft environment will always be the most attractive option. Nevertheless, users should avoid using software components that are so tightly coupled that any future migration could require wrecking much of the systems architecture. Explore all options to avoid the monoculture perils.

I have been successfully using a non-Microsoft e-mail package for decades, and I have avoided much grief because intruders couldn't readily find my address book. I have just switched happily from Explorer to the perfectly functional Mozilla browser. That is just one easy way to preserve diversity while minimizing risk. When you re-examine your architecture policies, you might want to add a diversity advocate to your staff to examine what it would cost you to migrate from Microsoft in case you must do so. ID 48469

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4
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2. Prototype specs updated securely.
3. New specs modified in showroom.
4. Modified specs accessed via PDA.
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Middleware for the on demand world. Learn more at ibm.com/middleware/collaborate
ON DEMAND BUSINESS

Career Watch
How to attract and retain women in IT; where and where not to recruit top talent; and when CIOs talk, do CFOs listen? **Page 33**



Think Tank
Why call centers need to be prepared for the camera-phone generation; ups and downs in IT services spending; and how the IT economy is "stuck in first gear." **Page 32**



OPINION
Questions Trump Answers
IT is full of answer people, but Paul Glen says good answers can get you only so far. At some point, you need to start coming up with great questions. **Page 34**

Roll Your Own

DESPITE THE PROLIFERATION OF GOOD OFF-THE-SHELF SOFTWARE, SOME SHOPS STILL PREFER TO BUILD IT THEMSELVES. HERE'S WHY.
BY GARY H. ANTHES

AT A NATIONAL SALES MEETING, the president of Reliant Pharmaceuticals Inc. rose to ask if there were any questions. "Throw anything at me," he said to the salespeople assembled. Someone immediately asked, "When are we getting automated?"

"Never," the president answered. "I want you out selling our products to physicians, not playing with computers."

Everyone in the room cheered.

"They didn't want sales force automation," explains Reliant's CIO, Ron Calderone, because they didn't want to have to carry a laptop or a PDA or some other handheld data-entry device that such systems typically require.

Nevertheless, Liberty Corner, N.J.-based Reliant needed a system to keep track of the activities of its growing sales force. Although there were many commercial packages available, user resistance led the company to develop its own sales force automation, or SFA, system, one that eliminated the data entry device in favor of simple telephone input to a speech-recognition front end. "Oddly enough, they didn't view that as SFA," Calderone says.

Accommodating the special needs of users is just one reason why companies continue to develop their own applications. IT shops are bucking the trend toward off-the-shelf applications and are opting to use custom-developed systems in the following situations:

- A package falls short in one or two crucial respects and is bloated with unneeded features.
- Companies can develop their own system more cheaply, especially when they have deep subject-matter expertise.
- An application is of strategic importance, and



ISABELLE CARDINAL

the company wants to control every aspect of it.

- The vendor is too slow or is unwilling to adapt its package to changing user needs.
- The package doesn't integrate well with existing systems or with the company's IT infrastructure.
- Support and maintenance costs are too high.

Simple and Easy

It wasn't user considerations alone that drove Reliant's roll-your-own strategy, Calderone says. He estimates that a commercial SFA package would have cost the company $4 million to $6 million for hardware, software, customization, help desk, telecommunications and training. "I have eliminated a number of these costs," he says. "For example, I have no need for a help desk because the system is so easy and simple — it's really just people answering questions over the phone." He says his SFA system cost less than 15% of the amount he would have spent on a full commercial package, albeit with fewer features.

Cardinal Health Inc. in Dublin, Ohio, also developed its own SFA tools — Web-based applications written in Visual Basic. Because the company had a long history of working with these kinds of tools, it knew exactly what it wanted and saw in-house development as low-risk and low-cost. In addition, says Rich Gius, CIO in Medical Products and Services, ongoing maintenance and support costs for a commercial product would have been far greater.

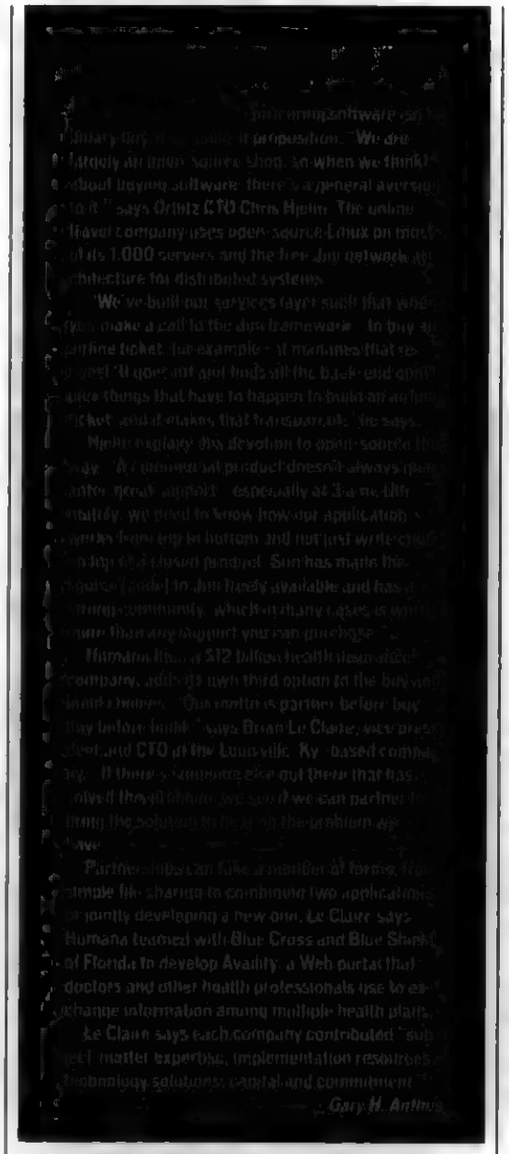
Explains Gius, "Our homegrown tool integrates directly with our common data warehouse, but a tool from the outside would have required a replication of our data warehouse into their own table[s], so the integration cost, the data management and cleansing costs would have been significant."

Gius says that the build-vs.-buy decision should be made on a case-by-case basis but that more complicated applications generally should be purchased. "In the case of a warehouse management system, we would prefer to build on the collective knowledge of vendors and benefit from their software that reflects the sum of all their other customers' needs," he says. "And I'd never build an ERP or an inventory control system or an order fulfillment system. There's enough competition in the marketplace now that I'd be comfortable we could get a reasonable price."

Subjective evaluation criteria should be supplemented with more rigorous financial analyses, says Gius. Cardinal evaluates projects based on a number of metrics, including return on investment and discounted cash flow [QuickLink 46832]. "It's evolved into more of an economic value-added model to take into account the weighted cost of capital," he adds.

It All Depends

IT executives generally say it makes little sense to develop your own commodity, or utility, system, such as payroll or general ledger. But one company's utility can be another's strategic asset. Choice Homes Inc., a $750 million house-builder in Arlington, Texas, chose to develop its own suite of accounting systems — general ledger, accounts payable and accounts receivable — even though many mature commercial choices are available. It was the only way to get the extremely flexible reporting necessary to satisfy the needs of autonomous, remote construction managers, says CIO Andrew Brimberry.



"I actually believe that our general ledger does give us a competitive advantage, because we can close our books at the end of the month in two days and at the end of the year in four days," Brimberry says. "So we know very quickly what money we are making and where we need to adapt."

It's even possible, he says, to look at profit and loss data in the middle of the month at various levels, all the way down to a single house under construction — something he says commercial packages can't match.

Another bit of conventional wisdom that Brimberry rejects is the notion that by buying software, IT shops can leave the unpleasant support and maintenance chores to the vendor. He says he spends more time fixing his payroll and human resources systems — the only applications he hasn't developed internally — than any others. "Their standards of development aren't as high as [ours]," he explains.

Indeed, for some companies, the ongoing system costs and maintenance issues are more important than the initial procurement costs. Chris Hjelm, chief technology officer at Chicago-based online travel company Orbitz LLC, developed a contract management system in-house for the bargain-basement price of $50,000, and he says that supporting it requires just a quarter of one person's time. Because the system is simpler than comparable commercial packages, and because it's better integrated with other Orbitz systems, it's easier to maintain, he says.

And, Hjelm says, for a fast-changing online company like Orbitz, software vendors are just too slow. "Their timelines tend to be measured in six-month to one-year increments at best, but when we do software innovation for our commercial Web site, we do it in two-week increments."

Competitive Advantage

Reinsurance Group of America Inc. in Chesterfield, Mo., developed its own "enterprise administration system" that manages customer data, contracts and policies, calculates premiums and performs other back-office functions. Azam Mirza, vice president of global software, says he would have had to buy six to eight commercial packages to do all of those things.

But an even more important consideration, Mirza says, was that by rolling its own $35 million system, Reinsurance Group was able to include international functions such as currency conversions and multiple languages. "That's a huge competitive advantage for us," he says. "Everybody in the reinsurance industry is trying to build a global administration system, but they are two to five years behind us."

Mirza rejected the option of working with a software vendor to add global functions to an existing product. "We didn't want to end up with a commercial package that others could buy that we helped build," he says. "It would have been a custom system for us, and then a package for all of our competitors."

VisionQuest National Ltd., which provides intervention services for at-risk youth and has offices in Pennsylvania and Arizona, installed an ERP package but found that its billing module couldn't handle the complex contracts that VisionQuest had with its customers. So it hired consultants to help build a billing module compatible with the rest of the ERP package, says Greg Seyk, CIO and vice president for IT.

"They tried to force-fit us into the [package], using a variety of creative approaches, and we just couldn't get it to work," Seyk says. The consultants finally wrote the billing system from scratch, and contract programmers developed a custom child-tracking system as well. Both efforts proved difficult. "We went through two sets of consultants before our third set finally finished the child-tracking system," Seyk says.

Seyk offers this advice to those who decide to develop systems using contract developers: "Qualifying consultants is a huge, huge task. You can get references and do reasonable due diligence, but when the rubber meets the road, the consultants may not have the skills to do the custom programming." **47884**

AN ONGOING DEBATE

The debate over buying off-the-shelf software or building your own is IT's version of "Tastes great!" "Less filling!" Read about both points of view:

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PRUDENT Pruning

Cutting back your systems can keep your IT environment vital and responsive. By Alan S. Horowitz

IT SYSTEMS GROW LIKE KUDZU. It's "almost an inevitable fact of IT," says Tony Iams, an analyst at D.H. Brown Associates Inc., a technology research firm in Port Chester, N.Y. And once built or bought, systems tend to stay around by default. "Administrators are afraid of getting rid of things," says Randall Palm, director of IT at IT trade association CompTIA. "We've all learned the hard way not to unplug a server we think isn't being used."

But smart CIOs know that unchecked growth can lead to duplication and sluggish performance, while prudent pruning can keep an IT environment vital and responsive. Here are 12 telltale signs that it's pruning time:

1 Your system limits you. If old applications keep you from re-engineering your business processes to keep ahead of the competition, it's time to prune, says David Sommer, vice president of e-commerce at Oakbrook Terrace, Ill.-based CompTIA. He tells of one company whose wide variety of systems made it too inflexible to interface with its customers for business-to-business e-commerce. That convinced the IT group to start snipping.

2 The technology has seen better days. "The application may be great, but the technology is dying," says Art Data, vice president of IT at International Truck and Engine Corp. in Warrenville, Ill. Sure, everyone loves the old word processor, but if it runs only on DOS, move on.

3 Duplicate systems serve no purpose. "How many image processing systems do I have? Why is that?" asks Data. If your company has lots of autonomous business units, duplication is justifiable, but generally, duplicate systems should be deleted.

4 Applications are underused. Look for applications in your portfolio that are occupying space but not being used, says Byron Miller, an analyst at Forrester Research Inc. in Cambridge, Mass. Also, ask, "How much is it being used?" says Eric Goldfarb, CIO and executive vice president at PRG-Schultz International Inc., a recovery auditing company in Atlanta. You might find that changes in business processes have made some functions or applications obsolete.

5 Users only think they need it. Trust users, but verify. Goldfarb once worked at a company that generated 1,200 reports. Asked which were really needed, users vouched for virtually all of them. So Goldfarb took away access to all the reports and waited for users to complain. Mostly, they didn't, and he trimmed 1,200 reports to 100.

6 You can't upgrade. "Systems that are too complex to upgrade generally fall out of favor," says Iams. If you have some systems you can't get up to speed, pull out the shears.

7 You're forced to upgrade. Tom Pratt used to try to keep old systems running for as long as possible, but he found they would invariably fail at critical times, forcing him to upgrade even though he would have preferred to replace them. Now Pratt, an IT manager at Coastal Transportation Inc., a common carrier in Seattle, has stopped trying to keep struggling systems alive. He prunes them and buys something new.

8 The vendor doesn't support the system. "A good indication that it's time to retire a system is when the components are no longer supported by the vendors who produce them," notes John Montgomery, chief technology officer at Embarcadero Systems Corp. in Oakland, Calif., which provides software for seaports.

9 The system is misaligned. If the old system just doesn't fit with re-engineered business processes, it's time to prune, says Sommer.

10 The cost of ownership is too high. The ongoing costs of a "bargain" system can be more than they're worth. "Most companies look at what [an application] cost initially," says John Parkinson, chief technologist for the Americas region of Capgemini, a consulting and systems integration firm. "The cost of owning should be based on the cost of keeping [the system] running."

11 The system is incorrigible. Have a three-year plan, and get rid of the systems that are least cost-effective and most difficult to integrate into that plan, says CompTIA's Palm.

12 You've added a new system. Establish a strategy that requires taking away a system for each one you add, says Parkinson. "After a couple of cycles of this, you can really start attacking" the kudzu growth, he says. "It really works." **ID 48003**

Horowitz is a freelance business and technology writer in Salt Lake City. Contact him at alan@ahorowitz.com.

Pruning Tips

ThinkTank

Camera Phones Become an IT Issue



have been a huge success – IDC estimates that more than 600 million will be in use by 2007 – because people can easily send and receive snapshots.

What does this have to do with corporate IT? Plenty, according to an article in Accenture Ltd.'s online journal *Outlook: Point of View*. Researchers Andrew Fano and Anatole Gershman at Accenture Technology Labs say that as people grow comfortable using camera phones, they'll begin to use them to interact with businesses. So customer contact centers will need to be able to handle incoming instant photos.

"Instead of trying to describe an object using words, consumers will send snapshots," the authors say, which will give a service agent a better idea of the customer's needs. A customer can send a picture of the environment in which the product will be used, such as a yard, room, office or workshop, which can help the service agent sell the right products. A series of photos (or a short video) could even capture how a customer is using or assembling a product, so the agent could correct or train the customer on the proper procedure. Consumers could also use camera phones to document damage or repairs.

But managing this influx of images will require "a substantial redesign of customer service processes and systems," the researchers predict. – *Mitch Betts*

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I'm not sure about the appropriateness of the title *Information Nation*, but this is an eye-opening book about the legal issues of information and e-mail management. Did you know that a voice-mail message from a federal regulator could be a vital record that should be preserved? Did you know that an instant message about a business contract might need to be retained for legal purposes? Before your eyes glaze over at the word *legal*, consider that allegations of records destruction, mismanagement and falsification have brought down huge corporations like Enron and Andersen. And that's why we have Section 802 of the Sarbanes-Oxley Act, which states: "Whoever knowingly alters, destroys, mutilates, conceals, covers up, falsifies or makes a false entry in any record . . . with the intent to . . . obstruct [a federal investigation] . . . shall be fined, imprisoned not more than 20 years, or both."

Suddenly, records management seems important!

This book is a practical guide — full of checklists and sample policies — to help keep your company out of hot water. And that seems like something a chief *information* officer ought to do.

— *Mitch Betts*

Too Many Chiefs?

Chief financial officers are fine. So are chief legal officers and chief administrative officers. But some companies are going too far by adding more CXOs to the organizational chart, says David Silverstein, president and CEO of Breakthrough Management Group Inc. in Longmont, Colo. He draws the line at the trend toward having a chief risk officer and a chief ethics officer. Those roles should be squarely on the shoulders of the CEO, Silverstein says, because delegating them to another chief sends bad signals to employees and shareholders.

What about the CIO? Silverstein says the IT chief is here to stay and will become even more important as the CIO evolves to become the "systems architect of the business" and the "master of information flows." **46239**

Data Decay

Here's why you need a data cleansing effort. On a typical morning between 9 and 11 o'clock:

- 7% firms will move
- 7% businesses will change their phone numbers
- 3% companies will change their names
- businesses will shut down
- firms will file a bankruptcy petition
- company will change ownership

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The IT Economy

■ IT spending is "stuck in first gear," according to a report by The Goldman Sachs Group Inc. in New York. After months of steadily more optimistic reports, a June survey of 100 CIOs shows that their capital spending forecasts for 2004 have flattened out at 2.3% growth. The analysts note that there's a widening gap between the CIOs' spending plans and Wall Street's consensus 9.5% revenue growth forecast for IT vendors – a sign that Wall Street may be too optimistic about the tech recovery. The top spending priority in the June survey was security software, unchanged from the April survey. CIOs seem to be "content with what is currently on their plate, reminding us that there's not yet a new 'must have' technology that is meaningfully changing the 'to do' list," the report concludes.

Ups and Downs

Which IT services providers are gaining or losing a share of your IT spending dollars?

GAINING

- IBM
- Cognizant Technology Solutions Corp.
- Wipro Ltd.
- Tata Consultancy Services

LOSING

- Accenture Ltd.
- Electronic Data Systems Corp.
- Computer Sciences Corp.

Base: 100 IT managers at Fortune 1,000 companies
SOURCE: THE GOLDMAN SACHS GROUP INC., NEW YORK, MAY 2004

Security Plans

Which types of network security products do you plan to buy in the next 12 months?

Antivirus	60%
Firewall	47%
Monitoring	45%
Intrusion detection	38%
Identity management	24%
Biometrics	11%

Base: 100 network security professionals at U.S. businesses with more than 100 employees; multiple responses allowed
SOURCE: BASE INFORMATION INC., REDMOND, WASH., MAY 2004

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Career Watch

NUMBERS WORTH NOTING

Four out of 10 companies expect to increase hiring between now and the end of the year, according to a June 2004 survey of 104 member companies conducted by the National Association for Business Economics.

Six out of 10 CEOs say their companies don't account for workforce aging in their long-term business plans, according to the Society for Human Resource Management.

The fastest-growing segment of the workforce is the 55-to-64-year-old segment, according to the U.S. Bureau of Labor Statistics. The number of workers between 35 and 44 years old is declining by 10% annually.

The 25-to-34-year-old segment of workers is growing at 8% annually, according to the Bureau of Labor Statistics.

Q&A



Linda Beck

TITLE: Executive vice president, operations

COMPANY: EarthLink Inc., Atlanta

WHAT SHE DOES: Over the course of her 20-year career in IT, Linda Beck, who started out as a computer programmer and now holds the top-ranking IT post at EarthLink, has been an avid mentor to other women in IT careers. Women, she says, make natural and standout managers in technology organizations because of their much-practiced communication and people skills. Prior to joining EarthLink, Beck managed engineering and technology organizations at Sybase Inc., GTE Corp. and Amdahl Corp.

Statistics show that women are less attracted than men to IT careers. Why is that? When choosing a major in college, a lot of women look just at the entry-level positions [available after graduation]. They don't see past software engineering and coding and sitting at a computer all day to the more interesting IT roles, such as project manager, where you interact with people.

How can CIOs and IT recruiters attract more women to IT careers? By changing the nature of entry-level jobs. A lot of companies post programmer and network engineer positions as entry-level jobs and assume that all management opportunities will grow out of these jobs. If you think more creatively about how you put together career paths, you can come up with different entry points, like associate project manager, and other roles that are more appealing to women at the entry level.

Are you saying that women prefer IT roles that involve more communication and interaction? That was certainly the way I felt. I started out in a programming role where I wasn't interacting with anyone or anything but a computer. I didn't enjoy that. I liked it much better when I moved on to more coordination- and integration-oriented roles. I think women do a better job in a lot of the technology management roles because those roles require good communication, mediation and facilitation skills, and lots of women do all of these things all of their lives in their families.

What's your advice to women who are looking to move up in their IT careers? Don't have really rigid expectations about how your career path should progress. Migrate toward the things you're good at and volunteer to do them. I volunteered for jobs nobody else wanted, like integration jobs, and I moved up from there. I found it pretty easy to move up because there is such a shortage of people in very technical positions who want to manage and are good at managing. There's also a confidence thing. Women, in their communication style, tend not to take credit for things. In IT, a lot of times you're the only woman in the room and you have to be confident in what you're saying and not be intimidated. **48230**

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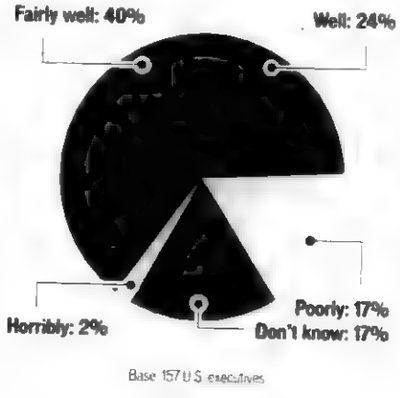
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Base: 157 U.S. executives

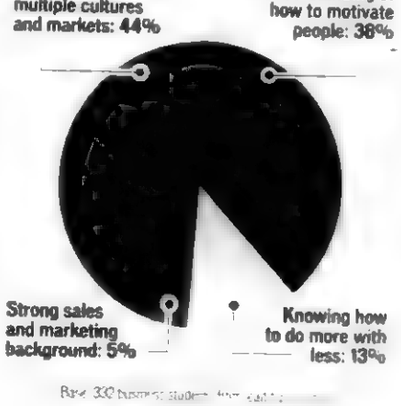
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BRAIN FOOD FOR IT EXECUTIVES

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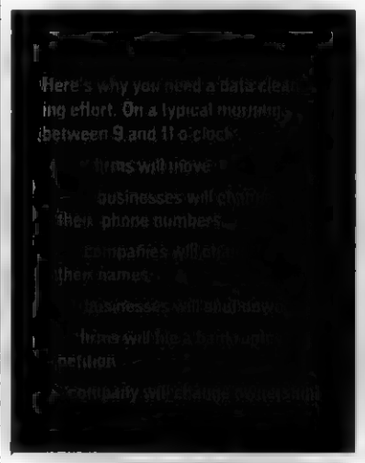
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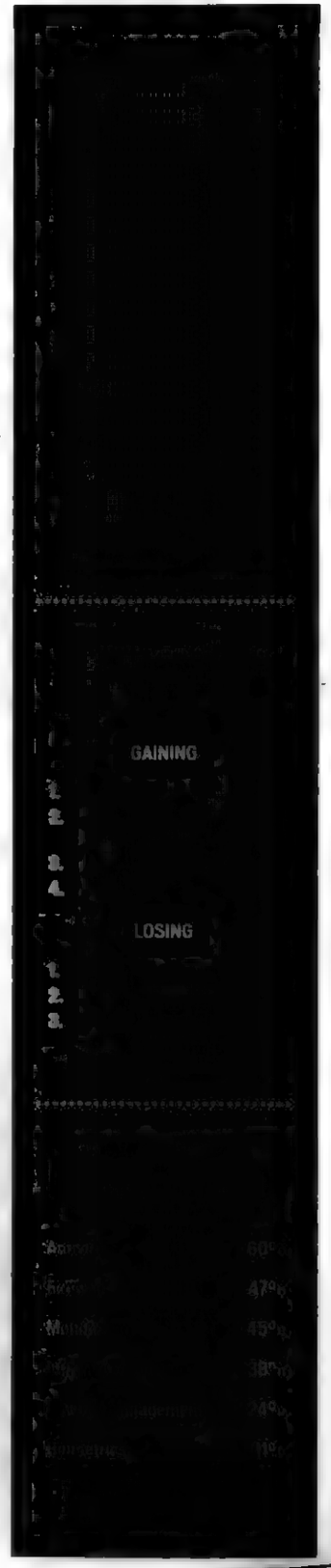
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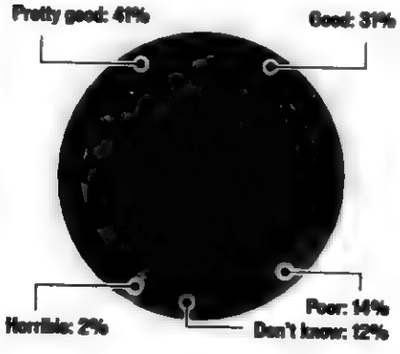
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CIOs and CFOs: Can We Talk?

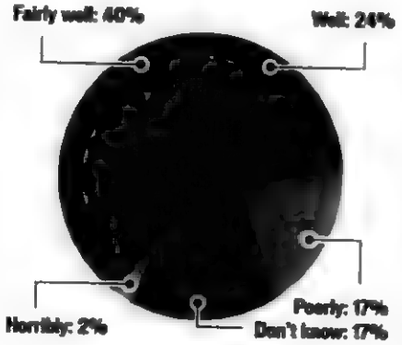
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Base: 157 U.S. executives

SOURCE: CUTTER CONSORTIUM, ARLINGTON, MASS., JULY 2004

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Base: 332 business students from leading colleges

SOURCE: CLARKE CONSULTING, SOUTH SAN FRANCISCO, MAY 2004

INK USED IN THE ORIGINAL MAY AFFECT THE QUALITY OF REPRODUCTION EDITION

EXEC TRACK

St. John Joins 3Com Board

JULIE ST. JOHN has joined 3Com Corp.'s board of directors. She will also serve on the company's audit and finance committee. St. John is currently executive vice president and CIO for the Enterprise Systems and Operations division at Washington-based Fannie Mae. Marlboro, Mass.-based 3Com makes voice and data networking products.

CA Names Kern CIO, Senior VP

KEVIN KERN has been named senior vice president and CIO at software maker Computer Associates International Inc. in Islandia, N.Y. Kern is responsible for CA's global IT, including systems and applications, data centers, internal help desks and desktop support. He previously served as vice president for managed services design and delivery at Hewlett-Packard Co. and before that was CIO for Compaq Computer Corp.'s Europe, Middle East and Africa organization.

Rainmaker Taps Schork to Lead IT

LARRY W. SCHORK has joined Rainmaker Systems Inc. as vice president of technology. Previously, Schork was vice president and general manager of IT at Loudcloud Inc. and CIO at Metricom Inc. and Rational Software Corp. Scotts Valley, Calif.-based Rainmaker provides outsourced sales and marketing services.

Vetrano to Head Cosi IT Operation

JOE VETRANO will join Cosi Inc., a New York-based restaurant chain, as vice president for IT. He will be responsible for aligning Cosi's IT infrastructure with its growth plans for both corporate and restaurant systems. Previously, he served as CIO at S.C. Johnson & Son Inc.

PAUL GLEN

Questions Trump Answers

INFORMATION TECHNOLOGY people tend to be answer people. When users, managers, family members or even random people from the Internet have questions, we're right there with the answers, because we're always the smart people.



One of the first things we learn in school is that being smart means having the answers. The teacher asks the class a question, and the smart kids reach for the sky. But just having a hand in the air isn't enough. To become known as the smartest of the smart, you've got to get that hand up faster than anyone else. It's the original arms race. (We all know how popular this made us.)

And that lesson gets reinforced throughout life. The questions keep coming, and we are rewarded for answering correctly. There are quizzes, exams, word problems, standardized achievement tests, PSATs, SATs, GMATs and job interviews — each one reinforcing the notion that being smart means answering correctly.

Eventually, we enter the workforce, and when the boss asks, we answer. Our peers query, and we reply. The better our responses, the better our raises, the more impressive our titles and the more sincere the admiration of our peers.

But as often happens, those things that we do to get ahead eventually fail to serve us well. What makes us successful at one level limits our progress at the next. So it is with questions. At some point, just answering them is insufficient to make collective projects successful and individual careers soar. This happens for a couple of key reasons.

As we move higher in the organization, we begin to grapple with questions that have no correct answers. Being smart isn't enough. It becomes more important to evaluate the validity of competing responses than to find a correct one.

But beyond that, it's even more important to find the right questions than it is to find the best answers. Great answers to unimportant questions are still unimportant.

Successful groups grapple with important questions, not trivial ones. IT projects and organizations are very sensitive to the quality of the questions that are asked. If the questions you examine are even slightly less important than the ones you should be considering, your results may be dramatically poorer than you might expect.

Many IT projects remind me of one of my favorite scenes from the old Pink Panther movies that starred Peter Sellers as the bumbling Inspector Clouseau. At one point in *The Pink Panther Strikes Again*, Clouseau sees a small dog and asks the nearby hotel clerk, "Does your dog bite?"

"No," replies the clerk.

Clouseau bends down to pet the pooch and is immediately bitten by the snarling mutt. Clearly upset, he turns to the clerk and exclaims, "I thought you said your dog did not bite!"

"That is not my dog," the clerk replies dryly. Accurate responses to the wrong questions often lead us astray.

Every project begins with a series of unanswered questions. So how do you know if you're doing a good job with yours? Here are a few of my rules:

1. Prioritize your questions. Not every question requires or deserves a response. Ask and grapple with the most important ones first. Good risk management demands that you handle the most threatening things first, and fundamental questions are usually more important than nitpicky, detailed ones.

2. *Why* questions should precede *what*, *how*, *who* and *when* questions. If you look at your priority list of open questions and most of the top ones start with words other than *why*, you may be starting at the wrong place. Never assume that you know why a project is important. Way too many projects deliver great technical solutions to low-priority problems just because someone requested it and no one asked why.

3. If your questions come with multiple-choice answers, make sure you have included a complete array of choices. One of the most powerful ways to control a conversation and limit creativity is to pose multiple-choice questions with constrained responses. When we see a menu, we naturally assume that it includes all possible choices. Rarely is that true.

If you want to further your career and make your organization more successful, start thinking more about asking good questions rather than offering great answers. Your influence will expand, and you can demonstrate something more important than smarts. You can display wisdom.

ID 48052

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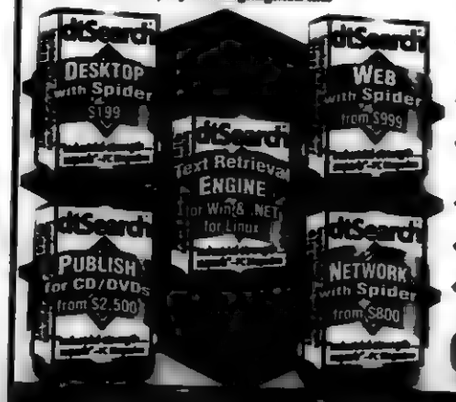
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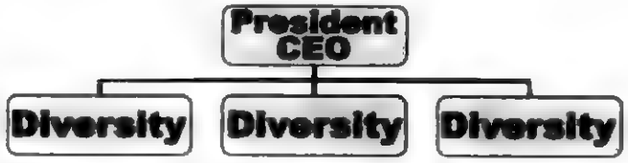
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Advertising Supplement

IT Careers: Best Companies for Blacks in Technology

This is the first in a two-part series about organizations chosen for the Black Data Processing Association's Best Companies for Blacks in Technology Survey. The top-ranked company will be named this week during the BDPA's national convention. IT Careers will continue the discussion on Sept. 13 with Best Companies and vision of the future – for the workforce and technology profession.



Black Data Processing Association reports that there are 300,000 African Americans in the technology profession. Knowing where black technology professionals are succeeding and why is one of the BDPA's top goals.

Milt Haynes, former BDPA national president and chairman of this year's awards program, says the organization examines statistical data for hiring, retention, professional and leadership development, and promotions of African-Americans when identifying the top companies. Selected for 2004 and announced this week at BDPA's national convention are Allstate, Blackwell Consulting, Delta Technology (a division of Delta Air Lines), HSBC Technology and Services (formerly Household International), Marriott and Merck.

In its second year, Haynes said the survey was more thorough and competitive than a year ago. "The companies have taken the time to dig deep and provide thorough information," he says. "The major challenges remain the same – building the number of African Americans in senior management ranks and supplier diversity."

"Companies now have a bogey – they know where the bar is. We have people in place to share best practices with companies who are serious about making improvements."

The Best Companies share some common approaches to creating an environment that supports professional development and growth. Common efforts include affinity groups or networks, mentoring and coaching, and continuous learning in technology, leadership and business. "Diversity is not an event," says George Hall, senior vice president of Information Resources Human Resources at Marriott. The IR group headcount has dropped by 14% in the tough economy for the hospitality industry; at the same time, minority representation actually increased by 5%.

Marriott along with other companies operating globally noted the diversity that exists throughout their operations – numbers of countries where located, number of languages being spoken and ethnicity represented. The effort involves ensuring opportunity for black employees, but also for all employees. "Blackwell looks diverse," says Pamela Blackwell, president and chief operating officer at Blackwell Consulting. "We want Blackwell to be the best for people in general."

As with Blackwell Consulting, HSBC focuses on being a place where people get ahead by doing good work. "We're an organization where you can prove yourself," says Mike Woodward, vice president of human resources.

Alonzo Howell, director of revenue pipeline for Delta Technology, says the biggest change in the past five years for his organization is the number of African Americans who are in senior positions – managers, directors and vice presidents. "We've seen tremendous growth at that level," he says, pointing to Shirley Bridges, the senior vice president for operations, as an example.

At Allstate, Dr. Robin R. Richmond, assistant vice president for protection technology, says one of the most important initiatives undertaken by the insuror in being a Best Company is to work closely with its BDPA chapter to bring technology to the community – allowing BDPA members to develop leadership and influence skills that can then be used in their own careers. Now, the company is looking at its data and future goals – including leadership development for an organization that is comprised of 60% women and 29% minorities.

For more information about IT Careers advertising, please contact:
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SENIOR WEB DEVELOPMENT ANALYST

ADT Security Services, Inc. has an opening in Boca Raton, Florida for a Senior Web Development Analyst.

Analyze business procedures and problems to develop specifications and convert them to programmable form for electronic data processing. Confer with organizational units involved to determine specific web output requirements. Study existing data systems to evaluate effectiveness and develop new, or modify current, web systems to improve production workflow.

Must possess at least a bachelor's or its equivalent in Computer Science or a related field, and relevant work experience. Experience must include Oracle, SQL and WebSphere Administration.

Resume and/or cover letter must reflect each requirement above and specify reference code SWDA/ZHS or it will be rejected.

Forward resume to Theresa Melis, ADT Security Services, Inc., One Town Center Road, Boca Raton, FL 33486.

Software Engineer (with Bachelors and 3 years experience) - Williamsport, PA. Job entails and requires experience in design, development and implementation of applications using Oracle, SQL Server, Visual Basic, VBA, ASP, ActiveX, WinFIOL, and STS on IOG20 (Ericsson AXE). Relocation within USA possible. Attractive compensation package. Send resume to Supriya Palayekar, Palayekar Companies, Inc., 1959 East Third Street, Williamsport, PA 17701.



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Intellambda Systems, Inc. an optical networking company, seeks Engineering Managers for Fremont, CA location. Send resume to Recruiting, Intellambda Systems, Inc., 46417 Landing Parkway, Fremont, CA 94538.

IT PROFESSIONALS

Manager

(Glen Mills, Pennsylvania and other locations throughout the U.S.). Oversee the design and implementation of custom, technology enabled business solutions. Function as integrators between business needs and technology solutions. Develop creative analyses to diagnose client issues. Actively participate in complex proposal development and sales presentations. Provide consulting services for implementation, testing, development, maintenance and enhancement of software packages and applications. Manage Enterprise Application Integration (EAI) projects involving integration of Siebel Customer Relationship Management (CRM), SAP and Oracle Enterprise Resource Planning (ERP), and legacy applications using middleware products such as Tibco and Vitria. Delegate tasks to team members and ensure timely delivery and quality of the tasks. Review the performance of team members, as well as train and mentor them. Prepare technical design and architecture specifications using System Analysis and Design, Object Oriented Design and EAI design. Test and deploy strategy of the integration of middleware components. Manage the design and testing of custom integration solutions on Unix and Windows platforms using Java, C++, C, SQL, and databases such as Oracle and Informix. Create project plan and manage the delivery schedule of projects.

The wage offered is $101,000 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The position requires a Bachelor's degree or equivalent in Computer Science, Business Admin, Engineering (any type), Math, Information Systems + 5 years of experience in the job offered or 5 years of experience as a Sr. Consultant, Consultant, Systems Analyst, or Software Engineer. Related experience must include a minimum of six months of experience in Enterprise Resource Planning (ERP), Enterprise Application Integration (EAI), Oracle, C++, C, JAVA, Informix, UNIX, Windows platforms, Systems Analysis and Design, Object Oriented Design, and SQL.

Please send your resume, referencing Job Order Number **WEB438697** to the: PA Careerlink, FLC Unit, 235 W Chelten Avenue, Philadelphia, PA 19144. EOE.

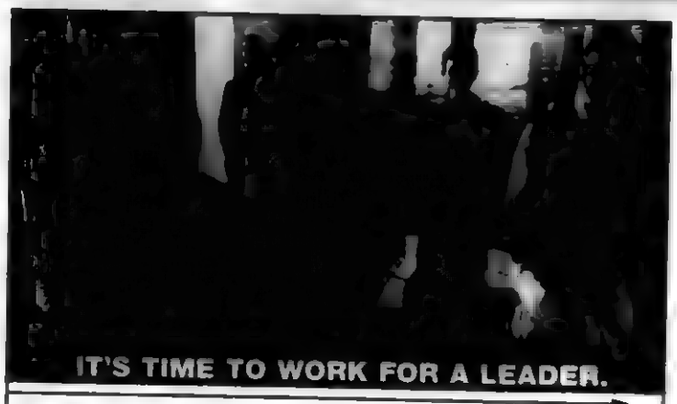


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IT PROFESSIONALS
Manager

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Science

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MEDICAL

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Systems Management Professional, Miramar FL. Responsible for change management support regarding software changes to Mainframe, Internet and Distributed Change Platforms. Coordinate and manage changes for applications for the global billing process. Utilize working knowledge of Mainframes, Distributed, and Web Platforms and provide global support for change management implementation and support. Provide leadership assistance and train junior analysts. Utilize DB2, Jobscan, Jobtrac, and JCL language. Bachelor's Degree or equivalent in Information Technology or Computer Science and one (1) year of experience in the job offered or one (1) year of experience in the related occupations of Systems Manager or Analyst. Employer will accept five (5) years of experience in the IT field as meeting the degree requirement. $63,647.15 per year. 40 hours per week, 8:30 am-5:00 pm. Please send resumes to Job Order number FL-2532368, Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869.

Senior Software Developer - For cardiovascular/diabetes information management systems. Send resume to Lumedx, 3655 131st Ave. SE, Bellevue, WA 98006. EOE.

PeopleSoft Oracle Database Admin (Aurora, CO): Will support of the PeopleSoft ("PS") Financials/HRMS appl dbs. Installing software, supporting dbs operations, and tivlp'g/maintaining complex dbs for optimum efficiency, performance and tuning. Manage data backups, and recovery processes. Create/maintain PS app servers, process Scheduler server and Web servers on NT and Unix servers. Install/support administration of Oracle 9i/8i and MS SQL Server 2000 dbs on UNIX, Net/Apps SAN and Windows 2000. Install/configure PS 8.x (HRMS, Financial) Unicode/Non-Unicode portal app. Cobol compilers, Crystal reports, SQR, Tuxedo, Weblogic, Apache and Internet Architecture for North America and Asia, Respons. for the performance/tuning of Tuxedo App Servers, Weblogic and setup, configuration of App Server for Failover, Load balancing, and Stress Testing. Duties include, performance, tuning and maint. of production/development/testing of SQL Server and Oracle dbs for various appl's (PS, Yardi, Touch Paper, XRT, etc.) and patches/fixes to PS and Oracle dbs. Dvlp dbs backup recovery strategies. Develop UNIX shell scripts for dbs backup/recovery strategies. Install/config Oracle Management Server. Work w/ developers to tune SQR's, TSQL, PL/SQL modules and SQL queries. Dvlp packages, procedures, functions and triggers. Perform Data Modeling using Oracle designer, Erwin tools. Ensure documentation of PS domains and Oracle dbs. M - F, 8 - 5PM, $67,900/yr. Min. Req'ts. Bachelor's degree, or equiv, in Business, Mathematics, Comp Sci or a related field. 6 yrs exp in the position offered or 6 yrs exp in the related occupation of PeopleSoft Oracle Progr/Sys Analyst. Ref: JC. Pls forward credentials to: HR, Prologis Management Inc., 14100 E. 35th Place, Aurora, CO 80011-1818. EOE. MFDV.

Programmer-Analyst II for West Des Moines, IA to plan/engry/ze/design/develop/test/document computer programs, apply knowledge of programming techniques and comp systems; evaluate user request for new/modified programs, consult w/users to ID current operating procedures, clarify program objectives, enter program codes into comp system, analyze/review/alter program to increase operating efficiency. Must have Bachelor's degree or equ and 3 mon in job/job related exp. Exp. must include work w/web appl dev and testing, GUI design & implementation, Fireworks, Homesite, Dreamweaver, HTML, JavaScript, CSS, J2EE, JSP, Servlet, JDBC, Java WSAD 5.0, WAS 5.0, SQL, DB2, XML, XSLT, MVC, Struts 1.0.2 and 1.1, OO A&D, Design Patterns, UML. Please submit an application or resume indicating the specific position title and job# IG-Z. Mail or fax resume with salary requirements to our Central office at: Attn: Human Resources Job # IG-Z, West Des Moines, IA. Fax 515-453-8118.

Programmer Analyst for Tallahassee, FL. Bachelors or equivalent degree in CS/ENG/MIS, 2 years experience in the offered or related field. 2 Yrs experience to include IBM Mainframe, VSAM, JCL, COBOL, EASYTRIEVE. Please forward resumes to Workforce Program Support, PO Box 10869, Tallahassee, FL 32302-0869.

Senior Business Systems Analyst to analyze various components of a business remittance process system to improve the performance and productivity related to the automated processing of checks and other forms of receipts through a Bulllsto lockbox or similar secured repository. Modifies software to adapt system for automated check reading on a NCR 7780 environment, processing of suspense checks in a TMS Image environment, and automated customer account debits or credits resulting from rejection of checks or incorrect recording of check amount by development of ICR/Bar Code recognition parameters and image recognition enhancement. Develops appropriate data interface with IBM mainframe and coordinates system to transmit data and problem check resolution processes to appropriate business units. Uses Delphi 5.0, Pervasive SQL, Mitek Quick Strokes, Mitek Doctus and other system tools to increase character recognition, image exporting, and interfacing of DP 500/1150, IBM/L, and SC80H transports as scanning/document image. Job Location: Schaumburg, IL. Requires Bachelor's Degree in Computer Science or Computer Science and Engineering and two years direct experience. Send resumes only, no calls, to Cathy Hoch, Human Resources Officer, HSBC Bank USA/Household International, Inc., Attn: International Human Resources, One HSBC Center, 25/F, Buffalo, NY 14203.

Sr. Customer Support Consultant

Under limited supervision, facilitates implmt. of SAP R/3 sw suite of business processes & its CO and solution by provg apprt to customrs at DB migration, pre-launch testing & go-live phases of R/3 implt projs. Provs expert consltng to assist customrs w/ costing processes, models, bnkmk anlys & tech appl perf tuning, in/face w/ R/3 dev to integrty existing svcs & products, mentor & train members; teach R/3 courses to trainees & consltnts & prep train matls. Uses expert knwldge of R/3 Basis system & SEM md, 50% trvl to client sites. Job Loc: Newtown Sqr, PA. Req. MS in CS, BAdmn or rel fld + 2 yrs in svr support. Empl will accept BS in same acad flds + 2 addl yrs exp in user suppt & bus process dsgn for R/3 impl for customrs of fin bus process in lieu of req'd MS. 40 Hrs/wk, $54,652/yr. Submit resume addressing spec reqs w/ad copy to PA CareerLink, FLC Unit, RE WEB 432993, 235 W. Chelten Ave., Phil, PA 19144. EMP PD AD. Proof of auth to wrk in U.S. req'd if hired. EOE.

Sr. Systems Analyst (Aurora, CO) Maintain existing HR/Benefits/Payroll systems running on PeopleSoft in an Oracle environment. Dvlp new applications, interfaces and reports, as necessary. Upgrade existing systems as Appl is upgraded by PeopleSoft to keep existing system in support by vendor. Prep gap analysis, impact analyses, design, writing functional and tech analysis document and coding of the software. Work closely w/users to solve functional and tech problems. Ensure proper documentation of procedures, monitor outcomes, and demonstrate support for ProLogis' strategic goals thru flexibility and appropriate flow of info. Responsible for A/P & Travel Expense modules. M-F, 8-5pm, $85,000/yr. Min Req'ts. Bachelor's degree or equiv in Comp Sci or Comp Eng'g & 4 yrs exp in position offered or 4 yrs exp in related occupation of Sys Admin/ Progr Analyst. Ref: JC. Pls forward credentials to: HR, Prologis Management Inc., 14100 E. 35th Place, Aurora, CO 80011-1818. EOE. MFDV.

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Software engineer to design, develop and test computer programs for business applications, analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in PowerBuilder, StarTeam, Oracle, PFC, C++, Forte and Citrix. Requirements: Bachelor's Degree, educational or functional (3 years experience=1 year college) equivalent, in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of PowerBuilder, StarTeam, Oracle, PFC, C++, Forte and Citrix. Salary $72,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Fayette County CareerLink, Attn: Career Link Program Supervisor, 135 Waylan Smith Drive, Uniontown, PA 15401, Job No. WEB440282.

Software engineer to design, develop and test computer programs for business applications, analyze software requirements to determine feasibility of design, direct software system testing procedures using expertise in ASP.NET, C#, XML/XSL, SOAP, Oracle, BizTalk and ADO. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of ASP.NET, C#, XML/XSL, SOAP, Oracle, BizTalk and ADO. Salary: $75,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: BECS/CareerLink Program Supervisor, Indiana County CareerLink, 300 Indian Springs Road, Indiana, PA 15701, Job No. WEB438578.

SENIOR SOFTWARE ENGINEER to design, develop and document web-based application software using Informix 4GL/SQL, HTML and Java Script on UNIX platform. Parse text file using UNIX Shell and awk. Require B.S. degree in Computer Science, an Engineering discipline, or a closely related field with five years of experience in the job offered or as a Systems Analyst or Programmer. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resumes to: Sundeep Chaudhry, Elite Solutions, Inc., 1670 Reserve Way, Suite 203, Decatur, GA 30033. Attn: Job RN.

Software Engineer(with Masters degree and 1 year experience or Bachelors degree and 5 years experience) - West Des Moines, IA. Job entails and requires experience in Analyze, design, development and implementation of applications using C++, Java, J2EE, UML, Oracle, SQL Server, Unix and Windows. Attractive compensation package. Send resumes to Attn: HR, Telcessence Inc, 1001 Office Park Road, Suite 107, West Des Moines, IA 50265. or via email at recruiter@telcessence.com

SOFTWARE ENGINEER to design, develop, implement and maintain application software for the medical and insurance industry in a three-tier and web-based environment using object-oriented programming with Java On-ecia, MS SQL, Cold Fusion, Visual Basic, FoxPro, XML/XSL, HTML, CSS, Java Script, IIS and BEA WebLogic on Windows and UNIX platforms. Require B.S. degree in Computer Science/Engineering, or a closely related field with 5 yrs of exp in the job offered or as a Programmer/Analyst or Programmer. Competitive salary offered. Send resume to: CTO, Bridium, 1800 Emery St. NW, Suite 200, Atlanta, GA 30318. Attn: Job SA.

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test, configure, customize, implement and upgrade ERP, client/server and web-based applications using PeopleSoft HCM (HRMS), PeopleSoft SCM, PeopleSoft Financials, PeopleTools, PeopleCode, Application Designer, Application Engine, Component Interface, PIA, Workflow, Interface, SQR, VB, Java, Crystal Reports, PS/Query, PS/n Vision and Oracle on UNIX and Windows NT platforms. Require: B.S. degree in Computer Science/Engineering, or a closely related field with 2 yrs of exp in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Sundeep Chaudhry, Elite Solutions, Inc., 1670 Reserve Way, Ste 203, Decatur, GA 30033; Attn: Job UV.

SOFTWARE ENGINEER (WEB BASED APPLICATIONS) - R'sch, dsgn, & dev. web based comp. apps. Req'd: BS in CS, Ele. Eng'g, or rel'd fld.; 3 yrs. exp. in job/Web Dlvpr.; or rel'd tech. Job; exp. w/ ATG Dynamo, J2EE, EJB, JavaScript, & XML. Resumes: Kaplan, Inc. 886 7th Ave., NY, NY 10106. Attn: P. Torres.

APPLICATIONS PROGRAMMER/ANALYST to analyze, design, develop, implement and maintain application software for the property and casualty insurance industry in a three-tier and web-based environment using Java, Visual Basic, C++, ASP, Crystal Reports, MS SQL Server, PL/SQL and XML/XSL on Windows and UNIX platforms. Require: B.S. degree in Computer Science/Engineering, or a closely related field with 2 yrs of exp in the job offered or as a Software Engineer. Competitive salary offered. Send resume to: CTO, Bridium, 1900 Emery St. NW, Suite 200, Atlanta, GA 30318. Attn: Job AS.



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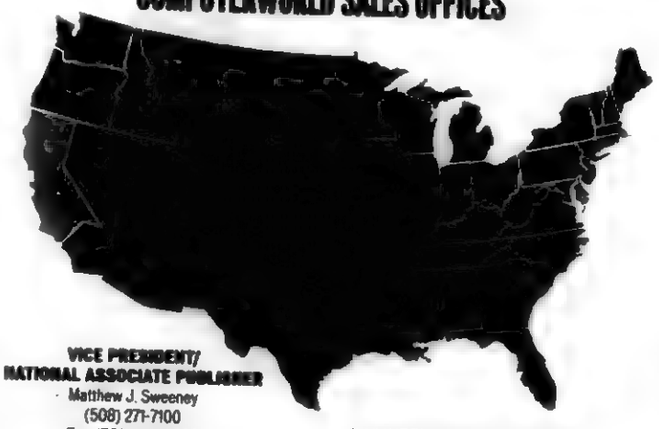
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Dean, Other Dems Sound Off on E-voting Security

BY PAUL ROBERTS
BOSTON

FORMER Vermont governor and onetime presidential hopeful Howard Dean joined fellow Democrats at their party's national convention here last week to spotlight the need for secure voting systems that can be audited.

Dean joined Rep. Rush Holt (D-N.J.) and others at a news conference to draw attention to a plank in the Democratic Party's 2004 platform that calls for voting systems to be "accessible, independently auditable, accurate and secure." The Democrats took the occasion to excoriate Republicans in Congress and state governments who have blocked legislation mandating a paper trail for votes cast using electronic voting machines.



says unsecure e-voting systems could undermine democracy in the U.S.

"We can spend millions on security; surely we can do just as much to safeguard the central piece of representative government — the voting process," Holt said.

Dean said he initially heard about security problems with e-voting machines while running for the Democratic nomination and dismissed the complaints as coming from "conspiracy whackos." A closer look convinced Dean of the seriousness of the issues, which he said threaten to undermine democracy in the U.S. if left unaddressed.

"If people don't think votes count, the first thing they'll do is stop voting. And when people stop voting, elected officials will stop caring about [them]," he said.

In perhaps the most impassioned presentation, Rep. Marcy Kaptur (D-Ohio) railed against resistance within Ohio's Republican-dominated state government and at the federal level to address the issue of voting security. She said that the Bush administration has underfunded or ignored key elements of the Help Americans Vote Act of 2002, which set aside almost $4 billion for states to replace outdated voting machines.

In addition, many state elections officials misunderstood the provisions of that law and rushed to buy expensive e-voting machines pushed by vendors like Diebold Inc. before concerns about security could be addressed, she argued.

Under Pressure

Mercer County, N.J., Executive Brian Hughes seconded many of Kaptur's points, saying that his county faced tremendous pressure from e-voting vendor Sequoia Voting Systems in Oakland, Calif., to purchase systems by the end of 2003. He noted that the county still hasn't received updates to the systems to produce voter-verifiable paper receipts, which the county agreed to pay for.

"[Sequoia] had local lobbyists working for them, and they were offering us hundreds of thousands of dollars in discounts to close by the end of 2003," he said.

To confront vote-tallying problems, Kaptur said, Democrats in Ohio are preparing teams of legal and technology experts. They will act as "circuit riders" on Election Day to monitor voting and document reports of problems with voting or electronic voting machines, she said. 48518

Roberts writes for the IDG News Service.

MORE E-VOTING INFO

Visit the e-voting special coverage page on our Web site QuickLink 48760

The focus of the e-voting debate shifts to reliability and accessibility.

QuickLink 48477
www.computerworld.com

Continued from page 1

DNC Security

tial security incidents, reports from the U.S. Secret Service and state law enforcement agencies and live video feeds from police helicopters and fixed cameras positioned around the city.

Peter Judge, a spokesman for the EOC, said representatives from more than 30 state and local agencies have been staffing the center around the clock since July 25. "We're able to handle and manage any DNC-related emergencies that cascade beyond downtown Boston," said Judge. "We're like the '411' for community emergency managers."

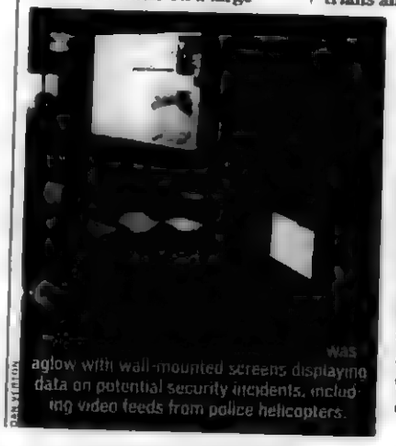
The convention marked the first time that the EOC included a representative from the Northeast Disaster Recovery Information X-Change (NEDRIX), a private-sector organization of more than 1,000 security and disaster recovery officials from businesses of all sizes throughout the Boston metropolitan area.

Companies can now report disturbances or security threats directly to the EOC, which can immediately dispatch the appropriate manpower to deal with the situation, said Chris Glebus, head of the public/private sector coordination committee of NEDRIX.

"Preparing for the convention has almost been like preparing for a mini-Y2k," said Glebus. "There's been six months of heavy preparation under way in the private sector, and we're still working on data protocols."

NEDRIX has rolled out a Web-enabled tool called EnvoyProfiles that allows corporate security executives to send and receive alerts and collaborate online, rather than having to rely on e-mail. And the EOC has deployed its own Web-enabled command-and-control application known as Web-EOC. The Web-EOC screen last week displayed reports of suspicious packages and rowdy protesters.

Johanna Meyer, the center's geographic information system manager, took reports streaming in through the Web-EOC application and plotted event locations on a large-screen map display powered by a 3TB image archive that officials have been building for the past six months. Protesters and march organizers who gathered on the streets of Boston were unaware that state police helicopters were feeding live digital video to the EOC. Their actions, and those of thousands of pedestrians and highway commuters, were captured by a multitude of fixed cameras that were linked to the EOC specifically for convention security operations.



was aglow with wall-mounted screens displaying data on potential security incidents, including video feeds from police helicopters.

"Behind every data layer is a full attribute table that has everything from facility ID number, map coordinates and locations of windows and exits that we can use to assist first responders," said Meyer.

Likewise, all of Boston's area hospitals have been linked into the EOC through a new application that got its first real test during the convention. Twice a day, hospitals automatically reported their status to the EOC.

And according to Nancy Ridley, the Massachusetts Department of Public Health's liaison to the EOC, "anything that can be counted" at area hospitals is monitored.

"This has been very helpful in our ability to tell in real time where we have surge capacity for medical emergencies," said Ridley. "We can tell how many ventilators a facility has or how much Cipro they have in stock and control the flow of ambulances."

EOC officials were clearly pleased with the performance of the systems. "The beauty of this," said David Martineau, the EOC's deputy operations chief, "is that it's usable technology — not technology for its own sake." 48523

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BPA ABM

FRANK HAYES ▪ FRANKLY SPEAKING

E-mail Answers

I ASKED, YOU ANSWERED. A few weeks ago, I wrote about Tom Whittington, CIO for California's Contra Costa County, where a glitch in an e-mail address book sent hundreds of messages with confidential information to a company in Sweden over a two-year period [QuickLink 48030]. I asked what he — and the rest of us — can do to keep something like that from happening again. Readers responded with far too many good ideas to print in this space. Here's a sampling:

■ "We do not send sensitive data in e-mails. Instead, we save data in restricted-access folders on an internal server and send a link to the file in the e-mail. If the recipient of the e-mail is authorized to receive sensitive e-mails, he will already have the credentials required to access the folder."

■ "Some companies block all outbound attachments except to whitelisted organizations. It allows e-mail traffic, just not attachments."

■ "What Contra Costa County could have done was monitor all their outgoing mail with a program that scanned for keywords. They could have then embedded keywords in their Word and Excel documents that contained personal information."

■ "The easiest solution may be to tag nonsensitive e-mail at the source and disallow e-mail directed outside the private network that does not carry the requisite tag."

■ "1) Never send sensitive data via e-mail. 2) When you break Rule 1, encrypt the data. Any other system is broken by design, is it not?"

■ "What if Mr. Whittington established a policy and infrastructure to support the encryption/decryption in electronic communications? If someone sends sensitive data that is not encrypted and it gets misdirected, you now have a policy to deal with the event."

■ "Financial data and private employee information should never be sent through public e-mail without being encrypted. You can write procedures to automate the process in Perl on both Windows and Unix platforms, and you can probably do it in VBScript on Windows. The platform isn't the issue; it's a matter of thinking through a process instead of clicking through it."

■ "The financial information and personal information should have been sent as an attachment that was created in an application that can password-protect the information."

■ "The e-mail address architecture should have been set up differently. If the two-letter department abbreviations in e-mail addresses are eliminated, there is a smaller chance of e-mail being sent to an unintended recipient."

■ "If there's a technological solution, I'd be surprised. If I were Whittington, I'd be investigating why all the Swedish e-mails warning about the problem were ignored. Looks to me like a cultural issue: lots of employees thinking it's someone else's problem."

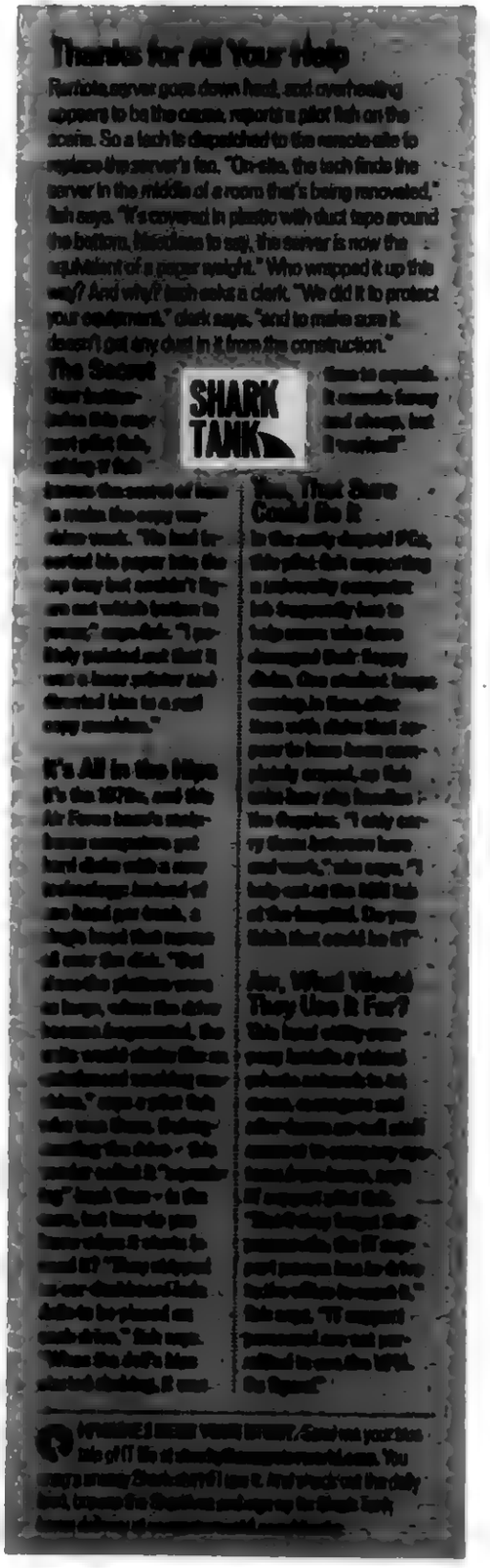
■ "All e-mails sent to addresses not on a whitelist could have a footer appended with an e-mail address and/or hyperlink for recipients to use if the e-mail was not intended for them. We should make it easy to report the problem to somebody who will actually attend to it."

■ "An outsourced account that I work with had a similar problem. We were sending status reports and various other items 24/7, and we didn't know there was a problem until we got a truckload of tickets with missing reports, files not e-mailed, etc. It turns out that the solution was to use only the server address book and ignore the local copy."

■ "I think the issue is the political environment. When the replies arrived, either the employees didn't know who to notify or they were afraid to say anything, or someone wanted power and control over IT. Unless you have witnessed it, you cannot even begin to comprehend the level of turf fighting that occurs in large governmental agencies, and it's not just with IT."



Thanks to you all for your ideas. They may not solve every e-mail-leak problem — but they give us all a better chance of keeping them from happening. 48488





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2004

LinuxWorld: The idea of Linux on the desktop is no longer a joke.
The NYSE plans to expand computer-based trading to become more competitive.

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Includes several photos of the facility's underground parking garage

Online Data a Gold Mine for Terrorists

IT's high-alert response overlooks corporate sites

BY DAN VERTON AND LUCAS MEARIAN

The widespread availability of sensitive information on corporate Web sites appears to have been largely overlooked by IT and security managers who responded last week to the Department of Homeland Security's warning of a heightened terrorist threat against the financial services sector.

Freely available on the Web, for example, are 3-D models of the exterior and limited portions of the interior of the Citigroup Inc. headquarters building in Manhattan — one of the sites specifically named in the latest terror advisory issued by the DHS. Likewise, details of the Citigroup building's history of structural design weaknesses, including its susceptibility to toppling over in high winds, the construction of its central support column and the fire rating of the materials used in the building, are readily available on the Web.

A Citigroup spokeswoman declined to comment, referring the matter to the building owner, Boston Properties Inc.

Similarly, the Web site of the Chicago Board of Trade includes photographs of the facility's underground parking ga-

ONLINE

Online Data, page 16

'Breakthrough' VoIP Project Breaks Down

BY PATRICK THIBODEAU

In 2001, The Dow Chemical Co. unveiled plans to create a voice-over-IP network that would also provide data and video capabilities. In a chest-thumping announcement, Dow said its converged network would be a "breakthrough solution" that would be "setting the standard for other Fortune 100 companies."

What a difference three years can make. Lead contractor Electronic Data Systems Corp. is now off the project, replaced last week by IBM, which is being tasked with building what Midland, Mich.-based Dow expected to be substantially completed by

Dow, page 16

MORE INSIDE

Still burdened by MCI, EDS strives to remove 'problem contract' from its lexicon

Corporate America Slow to Adopt Biometric Technologies

Growth stalled due to cost, interoperability and reliability issues

BY JAIKUMAR VIJAYAN

Biometric authentication technologies, which were expected to be widely adopted following the Sept. 11 terrorist attacks, are still struggling to gain broad acceptance in corporate America.

Despite the much-touted benefits of technologies such as fingerprint, voice, iris and facial recognition systems, the

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SHOW SOME Initiative!

PAGE 33

Beaten down by budget cuts, IT is at risk of being intimidated into an order-taking role. But Julia King shows how CIOs like Michael H. Hugos (right) of Network Services Co. overcame resistance to their brilliant but unsolicited ideas.



ANDY GOODWIN

NEWSPAPER

Microsoft



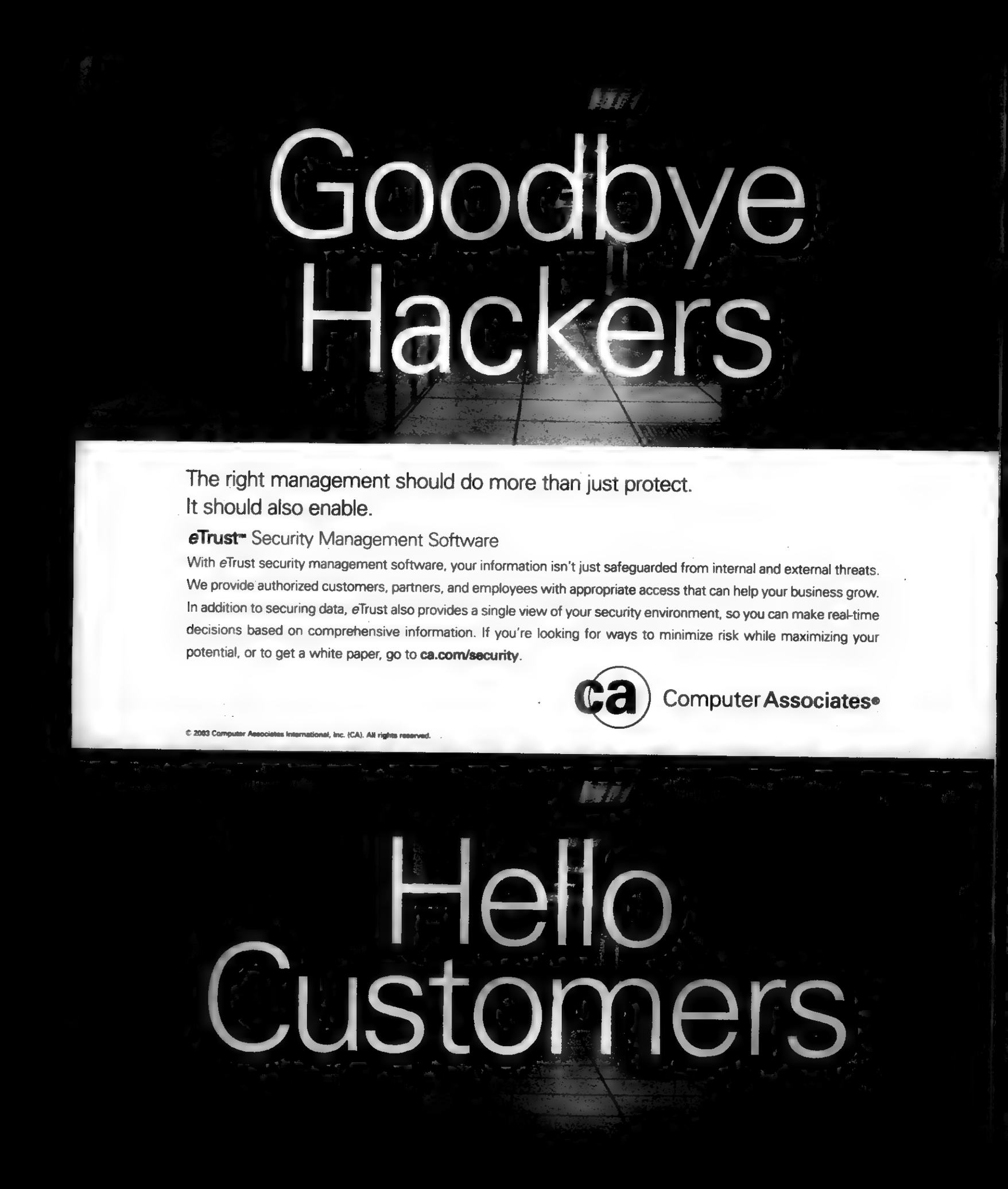
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—Owen Flynn, Chief Technology Officer
Equifax Inc.

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08.09.04



Controlling Content Chaos

In the Technology section: IT managers like Herman Baumann of the American Hospital Association (left) are feeling increased pressure to carefully track and consolidate their organizations' key content, and they're looking to content management software for help. **Page 25**



Cigna Goes Virtual

Also in the Technology section: A simple server consolidation project has grown into much more, as Cigna moves aggressively to new operating systems, 64-bit processors and nascent "virtualization" software from IBM and Microsoft, says CTO Marcus Shipley (left). **Page 23**

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6 **Three HP user groups** will hold their own conferences next year despite the vendor's effort to consolidate.

7 **Linux on the desktop** is no longer a laughing matter, say some attendees of the LinuxWorld Conference & Expo.

8 **The Pentagon** should adopt the private sector's procurement practices for its business systems, says the GAO.

8 **SSA upgrades Baan apps** and converges them with two other ERP lines.

10 **The NYSE plans to expand** its use of computer-based trading to better compete against all-electronic rivals like Nasdaq.

10 **A British bug hunter** says he found 34 flaws in Oracle software, but customers defend the vendor's security record.

12 **Q&A: SCO's CEO claims** his company will win its Linux legal battle — and the hearts and minds of IT managers.

12 **Unisys supports Linux** on high-end Intel-based servers.

14 **EDS hopes to reverse** its fortunes by adopting an "agile enterprise" business strategy. But it's still saddled with the troubled N/MCI contract.

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36 **Q&A: Securing the Corporation.** Four CSOs discuss Internet vulnerabilities and back doors that can be created through outsourced application development, among other topics.

37 **Career Watch.** Navigating the move from a purely technical job to the business side of the organization; why fewer students are studying computer science; and the best and worst places to recruit CIOs.

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18 **Maryfran Johnson** says that the "buy vs. build" debate may last forever, but "simple and inexpensive" are the magic words associated with the best in-house application projects.

18 **Michael H. Hugos** describes six skills that are essential for successful project leadership. Among other things, he says, you need to be decisive, know how to communicate and act with energy and focus.

19 **Thornton A. May** has found that IT leaders don't know much about telecom. It's time for them to do their homework, he says.

31 **Daniel J. Weitzner** is touting the transparency revolution in the enterprise. As we collect ever more information, it's becoming easier to just keep it all than to figure out what to delete.

38 **Bart Perkins** laments that vendor consolidation has made objective advice on IT strategy a rarity. But he has tips on how you can still get it.

46 **Frankly Speaking: Frank Hayes** thinks we all should party like it's 1969 as the Arpanet/Internet turns 35.

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So Much Information, So Little Relevance

WEB SITE MANAGEMENT: Early efforts might have come up short, but effective Web site personalization implementations are finally starting to bear fruit, says ChoiceStream's Steve Johnson. QuickLink 48484

Making Lemonade From a Team of 16 Lemons

IT MANAGEMENT: Project manager Bryan K. Beverly assesses a team of 16 misfits and tries to come up with the best way to utilize each one — even Bad Luck Bob and Incompetent Ernie — to get the job done. QuickLink 48486

Control Access to Your Network

SECURITY: Steve Gant, CEO of Trusted Network Technologies, provides five tips for enforcing access control and improving security around critical assets. QuickLink 47271

Planning a Departmental SAN

STORAGE: Emulex's Mike Kane outlines some of the options available for expanding storage capacity. QuickLink 48480

Googling for Security Holes

SECURITY: Malicious hackers can use search engines to parse through a Web site's source code and find openings that are vulnerable to attack. QuickLink 48474

What's a QuickLink?

Throughout each issue of *Computerworld*, you'll see five-digit QuickLink codes pointing to related content on our Web site. Also, at the end of each story, a QuickLink to that story online facilitates sharing it with colleagues. Just enter any of those codes into the QuickLink box, which is at the top of every page on our site.

ONLINE DEPARTMENTS

Breaking News QuickLink x1510

Newsletter Subscriptions QuickLink x4130

Knowledge Centers QuickLink x2570

The Online Store QuickLink x2420

AT DEADLINE

Microsoft Puts SP2 Into Manufacturing

Microsoft Corp. released Windows XP Service Pack 2 to manufacturing on Friday, after postponing the move two days earlier to do more development work on the security-focused update. SP2's overall size is 265MB, but Microsoft said the average download should be about 100MB for XP Professional users who have SP1 and are up to date on patches.

IRS to Cut IT Staff At Processing Sites

The U.S. Internal Revenue Service said it plans to cut 218 of the 278 IT workers at its 10 tax processing centers by next June. The cost-cutting move will affect computer operators, IT specialists and tape library administrators in the agency's high-speed printing division. The use of new technology has increased the level of automation at the processing centers, an IRS spokesman said.

PeopleSoft Wins $50M Mexico Deal

PeopleSoft Inc. said Mexico's income tax agency has awarded it a contract worth more than $50 million over two years, the largest software and services deal in the company's history. PeopleSoft will provide Mexico's Tax Administration Service with its finance and CRM software, plus other products. PeopleSoft said the agency chose it over SAP AG and Oracle Corp.

MCI Loses $71M In Second Quarter

MCI Inc. reported a $71 million net loss for the second quarter, compared with a profit of $8 million in the year-earlier quarter. MCI, which emerged from bankruptcy protection in April, said second-quarter revenue totaled $5.2 billion. "We've made tremendous progress, but we realize we have more work to do," said CEO Michael Capellas.

HP User Groups Forge Ahead With Conferences

Will hold their own events next year despite vendor's effort to consolidate

BY MATT HAMBLEN AND PATRICK THIBODEAU

THREE Hewlett-Packard Co. user groups confirmed last week that they will continue to hold independent user conferences despite HP's drive to consolidate the events into a new technology conference to be held in September 2005.

The three user groups had been invited to collaborate with HP in the unified event, currently being called the HP Technology Forum Expo. A fourth invited user group, Encompass, said last month that it will support the new HP conference [QuickLink 48350].

Last week, Interex, the largest HP user group, with 100,000 members, said its decision to continue to hold its HP World event in 2005 is in the best interests of its membership. "We just believe that being fully independent, yet loyal to our vendor of choice, would be best for everyone involved," said Denys Beauchemin, president of Sunnyvale, Calif.-based Interex.

OpenView Forum International (OVFI), a group of 8,000 HP software users, will proceed with plans to hold its Software Forum conference in Denver in June 2005, officials said. And ITUG, the former Tandem user group, plans to continue holding its ITUG Summit, next scheduled for October in San Jose.

When the HP plan for a new conference surfaced last month, some users viewed it as a competitive challenge to user group conferences, a major source of their revenue. HP said that the idea for a single conference was to "coalesce" the content of the user group events and that it came in response to requests by HP customers for comprehensive information about hardware and software technologies.

Support Questions

But some user group members argued that a conference sponsored by the vendor would be marketing-driven, as well as a threat to the groups' independence. HP has provided funding to the user group conferences, usually through sponsorships. It's unclear whether or how HP's contribution to those events will change.

David Parsons, vice president of HP Americas, said HP "will continue to support our groups" as they hold conferences. "We've not decided the level of support, but clearly there will be some level of support as we go forward, and those relationships [with user groups] are key," Parsons said.

Parsons said the decision of the three user groups to forge ahead with their own conferences will have no bearing on HP's plans for its new technology conference.

OVFI plans to participate in the new HP conference in 2005 and is unsure how that conference will affect its own 2006 plans for Software Forum, said OVFI President Henry Wojcik. OVFI "is a little bit concerned about our future," he said. "In 2006, the success of their 2005 conference dictates what happens to us."

While OVFI and HP "have a friendly relationship . . . that we'd like to continue," Wojcik said, "our membership likes our independence as a group, and our openness."

Beauchemin said that if Interex's participation in the new HP technology event is deemed to be worthwhile by its members, then Interex will be there. "We're open to [involvement with the new event], but our main focus is on HP World," he said. "This is an extremely big decision for us, to continue our show. We took a long time to decide and polled our members."

Parsons said the date, location and formal name of HP's new show will be announced within three weeks. "The big idea is that there will be a deep-dive technical focus on products and solutions and hands-on labs, with a primary focus on technical training [to meet the] needs of customers, partners and HP employees," he said.

Parsons said HP doesn't want to appear to be in competition with the user groups. In meetings with them about holding a unified conference, he said, "I learned there is a lot of passion around the independence of these groups."

ID 48043

User Group Funding

$1.6M	■ Conference registration fees	$1 million
	■ Non-HP exhibitor fees and sponsorships	$600,000
	■ HP contribution as sponsor	$300,000
$7M-$8M	Conference fees, booth rentals, sponsors, magazines/publications, advertising, membership fees	Declined to provide breakout

Independent Events Outlast Comdex, CeBIT

HP WORLD organizers are expecting a 10% increase in attendance over last year at their conference next week, and some other user groups said they're seeing attendance increases at their events as well.

Unlike the organizers of CeBIT America 2005, which was canceled last week [QuickLink 48591], and this year's Comdex, which was canceled in June [QuickLink 47727], the user groups are optimistic about the future, even though they have seen attendance at their events decline in recent years as a result of the economic downturn.

HP World is expecting more than 7,000 people at its Chicago event, said Ronald W. Evans, executive director and CEO of the Interex user group. Evans said he's convinced that focused events are what users want and the days of Comdex-like trade shows are gone.

Bob Boyson, president of Common, a Chicago-based IBM user group, said attendance at its San Antonio conference in May was up 10% to about 2,300.

Kenneth Ebbe, president of Share Inc., an IBM user group that's holding a conference in New York on Aug. 16, said attendance is holding steady from last year, and he expects between 2,000 and 2,200 at the conference. The Chicago-based group turns 50 years old next year.

Ebbe said he's concerned that the recently heightened terrorist alert may have an impact on attendance. But he said he's committed to New York as a conference location, noting that many Share members live in that area.

User groups typically reported larger attendance figures in earlier years. HP World had about 12,000 attendees in 2000, and Boyson said there were as many as 6,000 at an early 1990s Common conference.

– Patrick Thibodeau

IT Managers Eye Desktop Linux, But Migration Challenges Remain

LinuxWorld attendees weigh potential cost savings vs. technology's immaturity

BY TODD R. WEISS
SAN FRANCISCO

The idea of using Linux on corporate desktops was a laughing matter when the open-source operating system began infiltrating data centers a few years ago. But at last week's LinuxWorld Conference & Expo here, many IT staffers said their companies aren't laughing anymore.

That doesn't mean all the potential hitches facing desktop Linux migrations have been eliminated, according to nine attendees and two analysts. Nonetheless, IT managers such as Dan Pritchard said they're eyeing Linux as a possible alternative to Windows on end-user PCs.

Pritchard, director of IT at Foster City, Calif.-based Entelos Inc., said the life sciences company likely will move its 90 users to a desktop release of Linux when its Windows maintenance contract comes up for renewal — provided that the open-source software works better with Research In Motion Ltd.'s BlackBerry mobile devices at that point than it does now.

"Usually where it all falls apart is linking it to [BlackBerries]," Pritchard said. But he added that the cost savings promised by desktop Linux are alluring. "It's the money that will get the executives to sign, given that Microsoft continues to do more and more maintenance [fee] increases," he said.

Burlington Coat Factory Warehouse Corp. runs about 3,000 Linux-based PCs in its corporate offices and its 360 retail stores, said Matt Fahrner, manager of network services at the Burlington, N.J.-based company. The retailer gives its Linux users Sun Microsystems Inc.'s StarOffice applications or the OpenOffice.org software suite instead of Office. "Most of what we need to do, we can do [with those applications]," Fahrner said. "It's not a handicap."

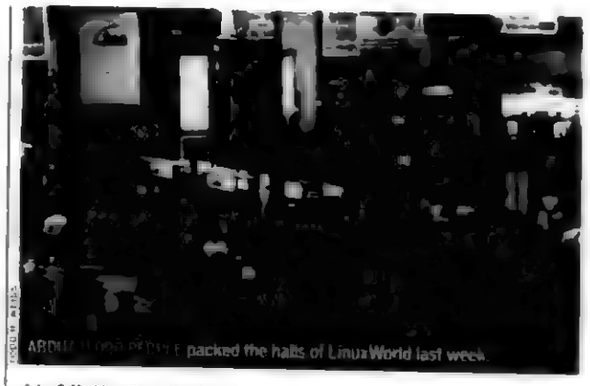
Different Paths

IT managers at two other large companies, who asked not to be identified, voiced differing expectations about the likelihood of deploying Linux on their desktops.

A vice president for IT at a grocery store chain said his company will start using Linux-based servers within the next three months for a pilot project involving in-store customer marketing programs. But the company isn't likely to move to Linux on the desktop because it gets heavily discounted, long-term pricing on Windows and Office from Microsoft Corp., he added.

However, a Linux systems engineer at a bank with more than 100,000 users said that desktop Linux is very much a topic of discussion internally because of its promised cost savings. "In the banking environment, it's always about money," he said. The bank plans to run a desktop Linux pilot project next year.

Desktop Linux news was sparse at the conference. Novell Inc. showed a demo copy of a new desktop release of its SUSE Linux software and said it will announce detailed plans this fall. Hewlett-Packard Co. unveiled a notebook PC that's preloaded with Linux.


ABOUT 11,000 PEOPLE packed the halls of LinuxWorld last week.

During a panel discussion, speakers offered suggestions for companies contemplating migrations to desktop Linux. First, there has to be a solid reason to make the switch, they said. In addition, needed applications must be available on Linux. Driver support and interoperability with systems that run Windows is also important, as is making sure that the IT support team is experienced with Linux, the panelists said.

J. Craig Manning, manager of IT at Cisco Systems Inc., said that one of the biggest challenges to its desktop Linux plans is a lack of support for applications from independent software vendors. He noted that a system Cisco uses to track technical support requests runs well on Windows but not as well on Linux. "That's where we're having a lot of trouble, with the ISVs," Manning said. **48671**

MORE FROM LINUXWORLD

Novell's CTO talks about the company's integration of SUSE Linux and Ximian into its operations:

QuickLink 48616
www.computerworld.com

HP Exec Calls for Fewer Open-Source Licenses

SAN FRANCISCO

The large number of licenses that software vendors are using to release open-source code is becoming a significant issue for developers and IT managers, according to Hewlett-Packard Co.'s top Linux executive.

"A lot of people don't realize that today there are dozens and dozens of open-source licenses," Martin Fink, vice president of Linux at HP, said in a speech at LinuxWorld. Fink added that he had counted a total of 52 different open-source licenses and predicted that the number would likely increase by the end of the conference.

Open-source licenses are approved by the Open Source Initiative (OSI), a nonprofit company that has certified licenses from organizations as diverse as NASA, MIT and Apple Computer Inc.

The issue of whether there are too many licenses has attracted the attention of the OSI board and has the potential to become a serious topic of discussion, said OSI President Eric Raymond. There is "a strong chance" that the organization will become more restrictive in the number of licenses it certifies, though it has not put such a policy in place yet, he said in an e-mail interview.

The majority of OSI-certified licenses are used in a very small number of open-source projects, Raymond added. "All but a dozen of these are vanity licenses, usually [written] by a corporate legal department with too much time on its hands [and] used on exactly one project," he said.

But Fink contended that the number of open-source licenses is already out of hand. "There really is no value, and there is only confusion in having that many licenses," he said.

> **"If everyone sort of opted out of the licensing game, it would make everyone's life a little easier."**
>
> CHRIS HJELM, CTO, ORBITZ

To date, HP hasn't seen the need to create a new license for its own open-source contributions, choosing instead to release its software under existing licenses, Fink said. "I approve on average three to five open-source projects and contributions every single week," he said, directly addressing other vendors at the conference. "If I have never had to create a new license, I have a really hard time understanding why you think you do."

Any confusion brought on by the proliferation of open-source licenses is probably a bigger issue for software vendors than it is for IT managers, said Chris Hjelm, chief technology officer at online travel services firm Orbitz LLC. Vendors need to ensure that the various products they sell don't have incompatible licenses, Hjelm noted.

But he added that the expanding number of licenses does affect companies such as Chicago-based Orbitz, which uses a variety of open-source software. "If everyone sort of opted out of the licensing game, it would make everyone's life a little easier," Hjelm said.

Orbitz is currently using a tool developed by Waltham, Mass.-based Black Duck Software Inc. to audit its internal open-source code. The product, called ProtexIP, lets IT managers track the open-source contributions of their software developers and help ensure that their companies comply with open-source licensing terms. "The promise is that they'll manage this complexity," Hjelm said.

For software vendors toying with the idea of adding to the plethora of open-source licenses, Fink offered some final words of advice in his speech. "If you're out there and you're a vendor and you're planning to create a new license – stop," he said. "Please don't."

– Robert McMillan, IDG News Service

BRIEFS

Microsoft CRM Will Need Fixes for SP2

Microsoft Corp. released patches to help ensure that its CRM applications will work correctly with Windows XP Service Pack 2. The patches are for Version 1.2 of the Microsoft CRM server and the Outlook client version of the vendor's sales force automation software. But manual work-arounds will be needed to address some issues between SP2 and the CRM tools, Microsoft said. It added that Microsoft CRM Version 1.0 won't work with SP2 at all.

Sun Builds Linux Code Into Solaris

Sun Microsystems Inc. is developing software called Janus that's designed to make it easier for users to run Linux applications on Solaris systems built around x86 processors. The new code will run inside the Solaris kernel and support applications written for Red Hat Inc.'s version of Linux, Sun said. Janus is due to be included in Solaris 10, which is scheduled for release by year's end.

SEC May Charge Business Objects

Business Objects SA said it was notified that the U.S. Securities and Exchange Commission's staff plans to recommend a civil action against the business intelligence software vendor for allegedly violating securities laws. The SEC is investigating the Paris-based company's policies for reporting its backlog of unshipped orders, Business Objects said. It vowed to "vigorously" defend itself.

Short Takes

IBM was tapped by the U.S. Army to build a clustered supercomputer that will run SUSE Linux and include more than 2,900 Opteron processors. . . . City officials in MUNICH have put a planned desktop Linux migration on hold due to concerns about conflicts with more than 50 software patents.

Pentagon Urged to Fix Procurement Processes

GAO says Defense Department should copy corporate IT on business systems

BY MARC L. SONGINI

THE U.S. Government Accountability Office (GAO) has issued a call for the Department of Defense to reform its business system procurement policies and align them with corporate project management practices.

In a report that was sent to Congress on July 30, the GAO made 14 recommendations aimed at strengthening the Pentagon's acquisition policies for business systems as well as its controls for ensuring that proper procedures are followed. The GAO warned that if its recommendations aren't heeded, future IT investments by the DOD will be put at risk.

And the financial consequences could be huge, the GAO claimed. Of the $28 billion in IT funding that the Pentagon requested for the government's current fiscal year, $19 billion will go toward operations, maintenance and modernization of business systems as opposed to military command-and-control systems, according to the GAO.

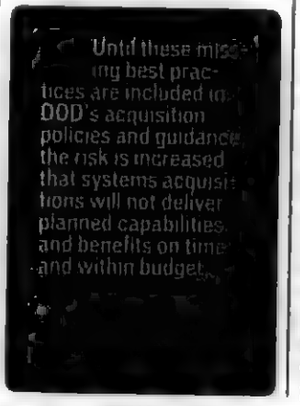
The GAO, then called the General Accounting Office, was asked late last year by the U.S. Senate's subcommittee on military readiness and management support to evaluate the Pentagon's latest procurement guidelines to see if they were consistent with private-sector best practices and included sufficient controls on DOD units.

The GAO report said recent revisions by the DOD do incorporate many procedures followed by corporate users, such as the need to economically justify systems investments and to continually measure projects against financial baselines. But it added that the Pentagon left out other best practices, most notably ones related to rollouts of packaged applications.

DOD officials told the GAO that more best practices will be added by Sept. 30 to the procurement guidelines, which are officially called the 5000 series of documents. But there are no documented plans for doing so, the GAO said, and the required personnel haven't been assigned yet "due to higher-priority needs."

Among the recommendations made by the GAO is a suggestion that the DOD create a formal plan to incorporate missing best practices. The report also calls for the Pentagon to discourage modification of third-party applications and develop plans to evaluate systems integrators based on their ability to install commercial applications.

Another hole involves risk management processes for identifying potential problems and creating plans for dealing with them, the GAO said. Without such oversight capabilities, it's "likely that acquisition risks will become cost, schedule and performance problems," the GAO said.



The DOD didn't respond to requests for comment on the report by *Computerworld*'s publication deadline. In a letter to the GAO that was included in the report, the Pentagon said it agreed with some of the recommendations. But it disagreed or only partially concurred with others.

For example, the GAO's call for a detailed plan for beefing up the business system policies is unnecessary and "inappropriate," the DOD said in its letter, which was signed by Deputy Assistant Secretary of Defense John R. Landon.

Landon also said that the Pentagon doesn't see the need to incorporate risk management processes into the IT procurement guidelines because it already has sufficient processes in place. 48635

SSA Mixes Baan Apps, Two Other ERP Lines

BY MARC L. SONGINI

After a delay of nearly a year, SSA Global Technologies Inc. last week released a Web-based upgrade of its Baan ERP applications and said it also plans to offer the software as a migration platform for users that run two of its other manufacturing application suites.

Chicago-based SSA said the new SSA ERP LN 6.1 software was designed to cater to all of its discrete manufacturing customers, including Baan's installed base and users of the company's ManMan/HP and MK product lines.

The LN suite is the first of two new offerings SSA is developing to converge the various ERP applications it has acquired over the past three years. Early next year, the vendor plans to add SSA ERP LX, which will be aimed at users of its BPCS, PRMS, Prism and Infinium MM/PR applications for process manufacturers.

SSA ERP LN 6.1 includes a Web-based user interface and incorporates Web services technologies that were developed by the former Baan NV, which became a subsidiary of SSA in July 2003.

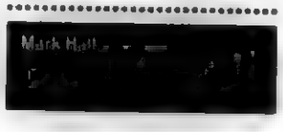
As of last September, Baan had spent about $100 million developing the next generation of its software, code-named Gemini, which was due for release that month. But SSA put shipments on hold because of shortcomings that included a lack of integration with Baan's CRM and logistics applications [QuickLink 41699].

In addition, SSA officials wanted to consolidate similar applications into unified offerings [QuickLink 41671]. They eventually decided to combine Gemini and the converged discrete manufacturing software into a single release, said Cory Eaves, vice president of solutions management and research at SSA.

Eaves added that SSA is also readying migration tool kits to help Baan, ManMan/HP and MK users automate tasks during upgrades to SSA ERP LN.

SSA's convergence moves are welcome news for Marsha Williams, vice president of IT at Sorin Group, a Milan, Italy-based medical products conglomerate. "As users of BPCS, we are eagerly awaiting the convergence of the LN and LX platforms, which will truly create a best-in-class offering," Williams said via e-mail.

The new release shows that SSA wants to be more than a graveyard for its ERP acquisitions, said John Moore, an analyst at ARC Advisory Group Inc. Moore said the migration paths SSA is offering should breathe "new life into what were a series of increasingly moribund solutions." 48636





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(downtime, excess cost, and human errors are not)



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NYSE to Upgrade, Expand E-trading

Plans IT changes to support accelerated shift from manual transaction processes

BY LUCAS MEARIAN

THE NEW YORK Stock Exchange last week announced a plan to expand its use of computer-based trading in an attempt to better compete against all-electronic rivals like Nasdaq Stock Market Inc. and Archipelago Holdings LLC.

The NYSE filed a request with the U.S. Securities and Exchange Commission seeking approval for the proposed change to its operations, which would shift more transactions away from the manual auction system that now dominates the exchange's trading floor.

But the NYSE said that the expansion of its 3-year-old NYSE Direct+ order execution system likely won't start to be phased in for another 12 months or so. In addition to waiting for regulatory approval from the SEC, the exchange noted, its IT staff needs to modify the order-routing software within the Direct+ system.

Analysts who follow IT issues in the financial services industry said they think the NYSE will also have to add more systems and increase its network bandwidth to keep up with the expected increase in electronic trading volumes.

> **"The New York Stock Exchange is bringing its trading system into the modern era."**
>
> WAYNE LEE, SPOKESMAN, NASDAQ

Direct+ offers subsecond trade-processing speeds, said NYSE spokesman Raymond Pellecchia. In comparison, it takes an average of about 14 seconds to complete trades via the exchange's manual approach, in which so-called floor traders take stock order tickets that are given to specialists and then typed into the exchange's systems by another floor trader.

Currently, though, only about 10% of the NYSE's daily trading volume is executed electronically through Direct+, according to Pellecchia. In addition, individual trades are limited to 1,099 shares at a time. Pellecchia declined to say how much of the trading volume is expected to shift to Direct+ after the system expansion work is completed.

The price of upgrading the Direct+ system "is not something we've costed out yet," he added. "But it won't be an obstacle . . . to doing it."



... likely will have less involvement with transactions as the NYSE expands its e-trading capabilities.

Along with making modifications to the Direct+ software to allow an unlimited volume of stocks to be traded electronically, the NYSE plans to give its floor traders new handheld computers that they will be able to use to enter orders directly into the system.

Nasdaq spokesman Wayne Lee said officials at the New York-based stock market don't see the NYSE's initiative as something that will put Nasdaq at a competitive disadvantage. "We just simply think the New York Stock Exchange is bringing its trading system into the modern era," Lee said.

Robert Haggerty, an analyst at TowerGroup in Needham, Mass., said investors have been pushing the NYSE for years to remove its volume caps on electronic trades. But the tradition of writing out trade tickets has been hard to overcome, he added.

"The other reason there was so much resistance is that it does take away the floor broker's ability to interact with the orders and thereby make money off those transactions," Haggerty said. But now the NYSE is "taking a run at Nasdaq," he said. "It's a dogfight."

NYSE CEO John Thain said the exchange will continue to offer trades via floor brokers because they add a "human judgment" to the process. But, he noted, NYSE officials "are seeking to upgrade significantly our use of technology to execute securities transactions." 48654

British Bug Hunter Finds 34 Flaws in Oracle Apps

BY JAIKUMAR VIJAYAN

Oracle Corp.'s ongoing effort to portray itself as a vendor of "unbreakable" technology received a setback last week when a British bug hunter disclosed that he had found 34 security vulnerabilities in the database vendor's products.

The flaws include several that could allow malicious attackers to gain complete administrative control of compromised database servers, claimed David Litchfield, managing director of Surrey, England-based Next Generation Security Software Ltd.

"They include buffer overflows, SQL injection issues and a whole range of other minor issues," said Litchfield. He said that he reported them to Oracle in January and February following his discovery.

"Some of them can be exploited without a user ID and password, while others require them," Litchfield said. He refused to provide further details of the flaws, citing his concern that doing so before patches are distributed could pose a security risk for users.

Some users defended Oracle's security record.

"I'm always very concerned about any flaws," said Howard Muffler, director of enterprise services at Embry-Riddle Aeronautical University in Daytona Beach, Fla. But the university, which licenses a wide range of Oracle products, has had few security issues with them so far, Muffler said. "Oracle has always done a very good job of addressing security flaws and addressing them swiftly," he said.

Oracle is "incredibly quick to respond to any security issue," agreed Rich Niemiec, former president of the International Oracle Users Group and CEO of TUSC, a Chicago-based consultancy. "There will always be issues that arise, given the complexity of the software," but Oracle has been diligent in finding and fixing them, he said.

Spring Flaws

Previous flaws in Oracle products include:

JUNE 2004
Unauthorized access vulnerabilities in Oracle E-Business Suite

JUNE 2004
Security vulnerability in Oracle9i Application and Database Servers

MAY 2004
Security vulnerabilities in Oracle9i Database Server

APRIL 2004
Security vulnerabilities in Oracle Application Server Web Cache

SOURCE: ORACLE CORP.

According to Litchfield, Oracle told him that patches were available to fix the problems a few months ago. But the company appears to be waiting for an updated patching process to become ready before releasing the fixes, he said.

"It is my opinion that they could have run the old patching process up until the time that the new patching procedure was ready. There really is no point in exposing users to unnecessary risks," he said.

Oracle last week confirmed the existence of the flaws but refused to provide any further details. A company spokeswoman said Oracle had fixed the flaws and would issue a security alert "soon."

"Security is a matter we take seriously at Oracle, and while we stand firmly behind the inherent security of our products, we are always working to do better," she said.

News of the latest flaws came about two months after Oracle warned users of a major flaw in its Oracle 11i E-Business Suite and Oracle Applications 11.0 that could let attackers take control of the underlying database.

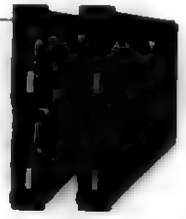
Even so, Oracle's database is by "leaps and bounds" more secure than competing products, said Don Burleson, president of Burleson Consulting in Kittrell, N.C., and author of several books on the security of Oracle products. He said the newly disclosed flaws are unlikely to pose an immediate threat. "Litchfield has made it his life's mission to find flaws in Oracle's technology," Burleson said, adding that most of the flaws are obscure and not easy to find. 48664



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BRIEFS

SAP Expands Its Workforce in India

SAP AG announced plans to increase the number of software developers at its facility in Bangalore, India, to about 1,500 by year's end and to 3,000 by the end of 2006. The SAP Labs India facility now has about 1,100 employees. CEO Henning Kagermann said SAP also plans to team with unidentified Indian IT firms to offer software services in an effort to lower costs for its users.

Apple CEO Jobs Has Cancer Surgery

Apple Computer Inc. CEO Steve Jobs said in an e-mail message to employees that he had a cancerous tumor removed from his pancreas. The cancer was "a very rare form" that won't require chemotherapy or radiation treatments, Jobs wrote, adding that he plans to return to work next month. Timothy Cook, who heads sales at Apple, will run day-to-day operations in Jobs' absence.

AOL Certifies Tools For Corporate IM

America Online Inc. said it has certified integration tool kits from three vendors for building its instant messaging technology into corporate applications. AOL said in February that it was working with IMlogic Inc. and since then has teamed up with FaceTime Communications Inc. and Akonix Inc. The move follows AOL's recent decision to drop its IM gateway software [QuickLink 47884].

Short Takes

COMPUTER ASSOCIATES INTERNATIONAL INC. released its Ingres database under an open-source license and said the next version is due by Sept. 30. . . . The FEDERAL COMMUNICATIONS COMMISSION voted to examine the policies needed to ensure that voice-over-IP service providers comply with wiretapping rules.

McBride Vows SCO Will Win Legal Fight

CEO says no plans for more lawsuits

BY TODD R. WEISS
LAS VEGAS

WHEN The SCO Group Inc. held its SCO Forum 2004 user conference here last week, much of the focus remained on the Unix software vendor's legal battles against IBM and other Linux backers. **Darl McBride**, president and CEO of Lindon, Utah-based SCO, struck a defiant tone during his keynote and in a subsequent interview with *Computerworld*, saying that he expects his company to eventually prevail in court and win over many of its critics. Excerpts from the interview follow.



In your keynote address, you said you believe the IT community will "embrace" SCO's legal position after all the evidence in the IBM case is made public. But IT managers in general have reacted negatively since you sued IBM. Why do you think their view will change? I think that what will happen here is when the truth is on the table and people really understand what happened in the case, there will be a big swing in the public perception about this small company that got clobbered by this big bully. I'm going a year out and saying that between now and then, when the truth gets out in the public filings and people know what we know, people are going to view us in a much more positive light.

Despite the pending cases against IBM as well as Novell, AutoZone and DaimlerChrysler, major IT vendors continue to unveil Linux-based offerings, Unisys being the latest example [see story below]. Are there more lawsuits to come against additional Linux vendors or users? We came out and put our claims in front of the courts. We look forward to getting a resolution to those issues. When those issues are fully resolved, we'll go from there. We've got our hands full right now. From our perspective, we're fine to let the reservoir fill. Later on, we'll worry about the water flowing out the other side. We don't want to be spread too thinly by taking on the rest of the world [now]. It's a long-term game.

Isn't it possible, as some critics have suggested, that IBM could buy SCO in a settlement and close the company down? The notion is that SCO loses either way — that IBM buys us, or we lose in court. We didn't go into this thing to try to go out of business. We're trying to reclaim the business that was improperly taken from us. A settlement to me would be to restore what was taken from us so that we can stay in business.

In June, SCO reported that Unix licensing revenue through its SCOsource division totaled just $11,000 in the quarter that ended April 30 – a 99% drop-off from $8.25 million in the same quarter last year. What happened there? In the day-to-day business, we have some speed bumps that come up from our [intellectual property] issues. In the previous quarter, we had several large licensing deals, but you can't repeat those every quarter. It's not really as brutal as people might expect. **48606**

READ MORE ONLINE

In his keynote speech, McBride said that Unix isn't going away and that SCO remains a product company.
QuickLink 48571
www.computerworld.com

Unisys Offers Linux on High-End Intel Servers

BY PETER SAYER

Unisys Corp. is now supporting Linux on its ES7000 series high-end servers, the company announced last week.

Blue Bell, Pa.-based Unisys already offered Linux on two- or four-way servers based on Intel microprocessors and is now adding support for Linux on a range of multiprocessor machines containing up to 32 Intel 32- or 64-bit processors, it said.

Unisys will offer two distributions of Linux on its ES7000 servers: SUSE, from Novell Inc., and Red Hat, from Red Hat Inc. SUSE Linux will run on up to 32 processors, and Red Hat Linux on up to 16, according to Steve Rawsthorn, Unisys' vice president of sales and marketing for systems and technology in Europe, the Middle East and Africa (EMEA). For support and service, Unisys will provide the main point of contact and handle first-line support, he said.

Rawsthorn stressed that Unisys is in no way turning its back on Microsoft Corp., supplier of the Windows operating systems that previously shipped on all ES7000 models.

"We see this as an incremental revenue opportunity for us with Linux. We don't see it detracting from what we do with Microsoft," Rawsthorn said. The company was prevented from bidding for some contracts because it didn't support Linux, he said.



The Unisys ES7000 Series, Aries 520

Unisys said some organizations are already running Linux on ES7000 machines, including Pennsylvania State University and the Florida Department of Children & Families. These early adopters had "very little" help from Unisys in doing so, Rawsthorn said.

One area where Linux may have a leg up on Microsoft's operating system is in its support for dynamic partitioning. If, for example, an ES7000 machine is running one application in an instance of Linux across 16 processors and another application in a different instance across another block of 16 processors, dynamic partitioning allows processors to be taken away from one application and given to another as the workload changes and while the application continues to run.

ES7000 hardware has been ready for dynamic partitioning for years, but no operating system has been able to make use of it, according to Andy Carter, Unisys server product manager for EMEA. "You won't have that in Windows until Longhorn comes along," he said.

ES7000s with Linux are available now, Unisys said. Officials could not immediately provide pricing. The hardware will cost the same regardless of the operating system, Rawsthorn said, but the cost of the software licenses and service contracts will vary between the Windows and Linux versions. **48628**

Sayer writes for the IDG News Service.

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EDS Plots to Avoid 'Problem Contracts'

Company moves to 'agile enterprise' business strategy

BY DAN VERTON

ELECTRONIC Data Systems Corp. has launched a major overhaul of its business strategy in an effort to remove the term *problem contracts* from its lexicon. But the firm's most important contract, the beleaguered, multibillion-dollar Navy/Marine Corps Intranet (N/MCI), continues to be an anchor tied around the company's neck.

During Plano, Texas-based EDS's latest earnings conference call with analysts, on July 28, CEO Michael Jordan announced an "agile enterprise" business strategy: a network-centric utility computing model based on "best-of-breed alliances."

However, the most critical aspect of the new strategy is a major revamp of EDS's entire services delivery structure, said Jordan. "This will result in significant consolidation of solution centers [and] data centers, and change the way we approach the application development business," he said. "This is how we're going to achieve the next $3 billion in cost savings."

And that part of the company's strategy for economic revival may already be at work supporting the N/MCI contract, a $6.9 billion deal awarded in 2000 that's now valued at $8.8 billion as a result of a two-year extension.

After completing an internal review of N/MCI program management in January, the company put in place "very rigorous contract review processes" focusing closely on "our ability to deliver what we propose in the contract, which we did not do as well in earlier years," said Jordan.

SLA Changes

In addition, EDS recently announced a joint commitment with the Navy to implement commercial service-level agreements by Sept. 1. It is also about to sign a contract performance modification that will allow EDS to bill the Navy for services it is performing but that aren't covered by the contract.

"We recognized the need to make the SLA process more reflective of commercial best practices," said Navy Capt. Chris Christopher, deputy director for future operations and business initiatives. He stressed that the SLAs are being refocused on efficiency and are not being adjusted so they're easier to achieve.

Christopher also confirmed plans to modify the N/MCI contract to add a range of application hosting services, including server management, network management, security services, storage services, and hardware and software support. He added that the change would also enable the Navy to order hosting services from standard packages rather than customizing them for every N/MCI user organization.

EDS has a lot riding on the changes. According to Robert Swan, EDS's chief financial officer, the N/MCI deal "continues to be a drag" on the firm, with a $12 million reported drop in revenue compared with last year due to a decision earlier this year not to defer construction costs related to the contract. In addition, Jordan acknowledged that continued "uncertainty" surrounding the deployment of N/MCI seats at the Navy's Bureau of Medicine and Surgery yielded a $100 million negative cash flow setback this year.



Lorrie Scardino, an analyst who covers EDS and N/MCI at Gartner Inc. in Stamford, Conn., said the changes indicate that the company is moving in the right direction but that challenges remain ahead.

"I don't think that EDS is out of the woods yet by any stretch of the imagination," said Scardino. "The financial issues loom large. Any IT services provider, especially one the size of EDS, has to have stable financials," she said.

The termination last week of what the company called its "other commercial contract" — the troubled deal with The Dow Chemical Co., which EDS declined to identify by name during the July 28 earnings call — is another positive sign, said Scardino (see story, page 1). However, she said EDS faces an uphill battle, since IBM, which took over for EDS on the Dow contract, and Hewlett-Packard Co. are the leaders in the utility, or adaptive, computing market. 48666

IBM, Mayo Clinic Take Next Data Mining Step

DB2-based system contains records on 4.4M patients

BY BOB BREWIN

IBM and the Mayo Clinic last week said they are moving into the second phase of a technology partnership aimed at using a database of patient records to foster what Dr. Nina Schwenk, who heads Mayo's IT operations, calls the Holy Grail of medicine: individualized patient treatment.

IBM and the Mayo Foundation for Medical Education and Research, the formal name for the Rochester, Minn.-based nonprofit health care organization, announced that they were teaming up in early 2002 [QuickLink 28395]. After initially putting the medical records of about 4.4 million patients treated at Mayo's three clinics into a DB2 database, IBM and Mayo have spent the past two years developing and testing a methodology for mining the data.

Now they want to analyze information about patients in new ways and compare individual medical records to data about other patients who have similar disease characteristics and genomic makeups, said Schwenk. IBM and Mayo hope to use the results to fine-tune treatments, she added.

For example, a doctor treating a patient for cancer could use the data mining system to discover the results of treatments given to the last 500 patients who had cancers that were located in the same spot and had identical genetic characteristics.

The individualized care made possible by such information could one day replace current blanket-treatment approaches based on standard medical protocols, according to Schwenk. Instead of treating cancer patients with a common stew of chemotherapy, drugs could be tailored to fit specific cases, she said.

IBM plans to use its Blue Gene supercomputer on the project to do advanced molecular modeling for researching diseases, said Drew Flaada, IBM's director of the partnership with Mayo. He added that Mayo researchers will use Blue Gene to do "deep computing and deep science," including mathematical modeling and a simulation of gene structures to help predict the behavior of diseases.

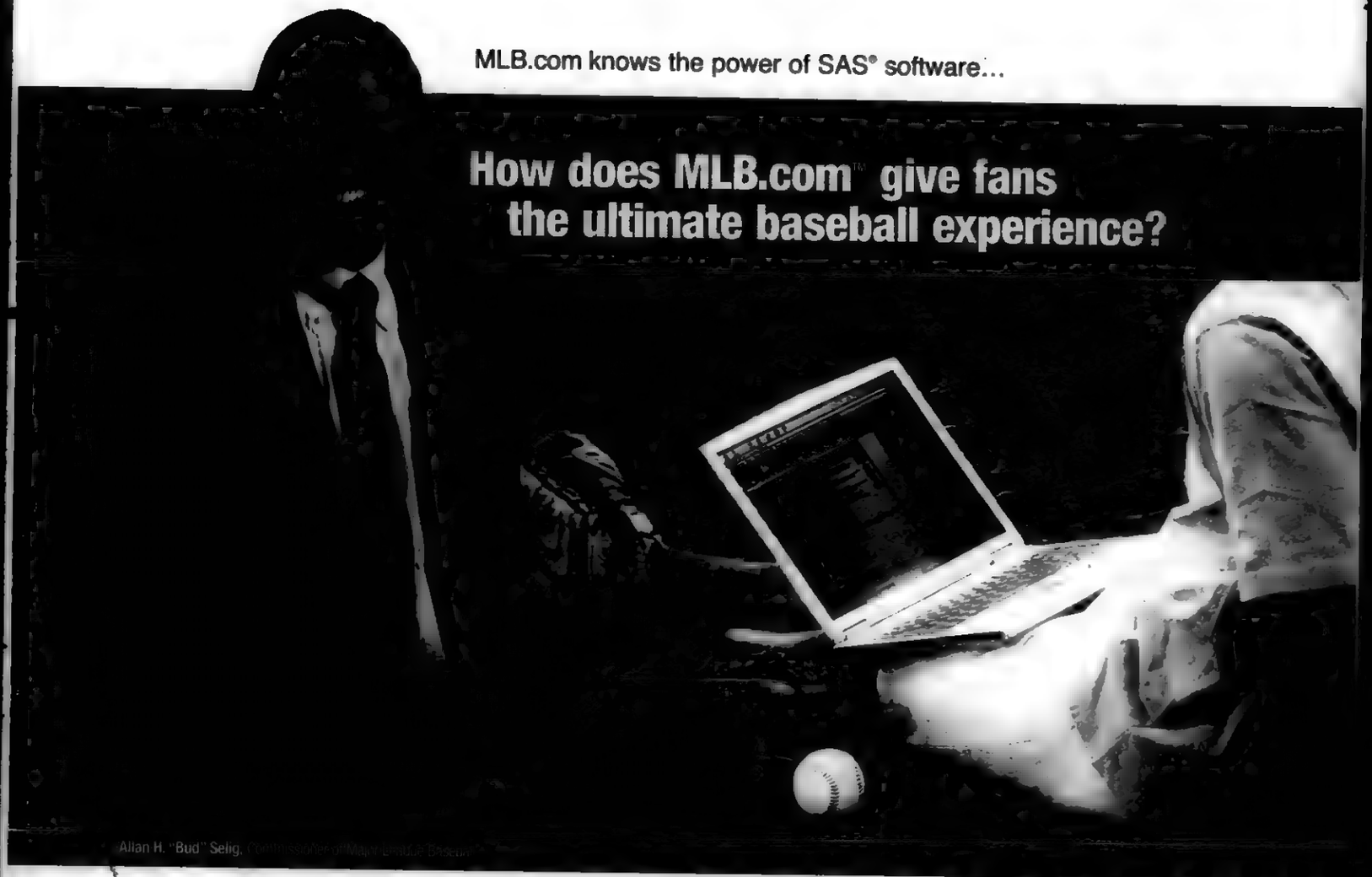


hopes to use data mining results to fine-tune medical treatments

The Blue Gene system, which is located at an IBM facility in Rochester near Mayo's headquarters, has a theoretical computing capacity of 360 trillion floating-point operations per second. IBM and Mayo are doing development work on an IBM p650 Unix server that's owned by the clinic, and they use a higher-end p690 machine as the production system that stores the patient records in DB2. The servers are based on IBM's Power4 processors and run its AIX operating system.

Schwenk wouldn't disclose the investments being made by IBM and Mayo, but she said the amount of funding is "significant — a lot of zeros on both sides." 48666

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Continued from page 1

Online Data

rages, floor plans of office suites, and contact names and phone numbers for the telecommunications service providers that serve the building.

Maria Gemskie, a spokeswoman for the Chicago Board of Trade, said the exchange could not comment publicly about specific security precautions being put in place. But she stressed that "all aspects of security are taken very seriously and we are looking into [our Web content] as well."

But information like that posted on the exchange's Web site can be a gold mine for terrorists, security experts said. A senior intelligence official at the DHS, speaking on condition of anonymity, said the recent capture of al-Qaeda computer expert Muhammad Naeem Noor Khan in Pakistan yielded a computer filled with photographs and floor diagrams of buildings in the U.S. that terrorists may have been planning to attack.

"Not thinking through the security implications of some of the information put online can be a very dangerous mistake," said Amit Yoran, director of the National Cyber Security Division at the DHS. "The Pentagon has looked very closely at this issue, and certainly corporate America should do the same." In fact, Yoran said the situation is serious enough that the DHS may need to look into publishing best-practices guidelines for companies to follow.

Unheeded Warnings

Eric Friedberg, managing director of New York-based security firm Stroz Friedberg LLC, said the warnings about sensitive Web site postings that his company took to the private sector two years ago have "fallen on deaf ears" [QuickLink 27059].

MacDonnell Ulsch, managing director of Janus Risk Management Inc. in Marlboro, Mass., said making this type of information available is inexcusable.

"It may make it easier for contractors and service providers to do their jobs, but the risk may exceed the benefit," said Ulsch. "A well-trained engineer can easily discern the greatest points of vulnerability in a building by analyzing the design. Making this information available is a fundamental mistake with deadly consequences."

According to Ulsch, what companies do or fail to do in response to a threat is a direct result of their understanding of the risk. Consequently, when companies are told to beware of terrorists driving truck bombs into or near their buildings, they deploy concrete barriers, he said.

And that seems to be exactly what has happened in the aftermath of the latest threat-level increase, with most firms focusing on redundancy and recovery while paying very little attention to countersurveillance and information control.

> **"Not thinking through the security implications of some of the information put online can be a very dangerous mistake.**
>
> **AMIT YORAN,** DIRECTOR, NATIONAL CYBER SECURITY DIVISION OF THE DHS

Sylvain Pendaries, CIO at CDC Ixis North America Inc. in Manhattan, said previous terror alerts have loosened the purse strings of executives in his company, enabling him to complete disaster recovery plans. CDC Ixis in February completed an upgrade to its communications network, moving from two T3 lines to a Sonet ring that connects sites in New York and New Jersey at OC48 port speeds.

While an increased focus on disaster recovery is necessary, Yoran said the lack of focus on blocking cybersurveillance activities stems from a disconnect between the terrorist alert system and the role of cybersecurity in homeland defense. "In practical terms, tuning a firewall, changing parameters on antivirus software and advocating more frequent password changes don't really line up with the different threat levels," he said.

Michelle Petrovich, a spokeswoman for Robert Liscouski, assistant secretary for infrastructure protection at the DHS, said that while companies have the right to post whatever information they want, the DHS encourages all companies to add Web site reviews to their list of preventive security measures. **48682**

Continued from page 1

Dow

now: a VoIP network serving its 46,000 employees in 63 countries.

"It was really the pioneer days in 2001," said Jim Slaby, an analyst at The Yankee Group in Boston. Dow "is one of these unfortunate casualties of living out on the edge."

IBM officials said they don't know how much of the prior work will be useful. The company, in its discussions with Dow, focused on setting requirements and not on prior work. "We're not obligated by any previous architecture and design," said Todd Kirtley, general manager of the industrial sector at IBM Global Services.

All Kirtley would say about the prior work was that Dow "did not get the traction they were hoping to get."

IBM's seven-year outsourcing agreement, which it declined to value, covers operation of Dow's global IT infrastructure. That includes supporting servers, desktops and e-mail; providing storage and network bandwidth under a utility pricing model; and building the converged network.

The odds may have been against Dow from the start. Analysts say it was just too far ahead of its time. In 2001, "people didn't understand all the issues" involved in deploying a converged network, said Bob Hafner, an analyst at Gartner Inc. And some core technologies were unavailable. For instance, "we didn't have the tools to do network certification," Hafner said.

A third-party consultant who worked on the DowNET VoIP project, who spoke on condition of anonymity, said the project ran into delays because replacing legacy systems proved to be very difficult, and there were unanticipated problems. For instance, security systems that used analog technology didn't necessarily work on a VoIP network. "There was definitely a lot of poor planning," the consultant said.

Déjà Vu

Statements by David Kepler, vice president of e-business and CIO, Dow Chemical:

JUNE 2001: "Our new technology solution allows employees to bring the connectivity of their offices on the road, as well as connect customers, employees and offices in a more efficient, powerful and global manner."

AUGUST 2004: "Working together, we will leverage information technology to increase productivity, streamline decision-making and connect more conveniently with our customers."

Moving On

EDS, Dow and Cisco Systems Inc. — the main technology provider under the original contract — all declined requests for interviews to discuss the project.

How much was lost by any of those companies is difficult to determine. On July 28 EDS said it had reached an agreement to terminate a commercial contract that it didn't identify and reported a $135 million pretax termination-related charge.

But whatever problems EDS encountered with the Dow project, they apparently haven't affected its outsourcing deal with Bank of America Corp. Indeed, that relationship was recently expanded. EDS and Bank of America are building a converged network that appears to be bigger than Dow's, serving about 180,000 employees.

Last month, EDS signed a $1.1 billion outsourcing deal with the bank, which is an addendum to a 2002 outsourcing agreement valued at $4.5 billion that was intended to integrate FleetBoston's communications infrastructure with Bank of America's. Charlotte, N.C.-based Bank of America announced its merger agreement with FleetBoston last year.

Steven Venezia, managing director of the network computing group and network services at Bank of America, said the bank is thoroughly planning and testing every aspect of the network project.

"I'm confident [because] nothing will forge ahead unless it's proven," said Venezia, noting that the bank has multiple pilots in progress. If all goes according to plan, the bank could have an initial rollout at selected locations next year.

Venezia said EDS has met 97% to 98% of the bank's service delivery requirements. **48668**

Clarification

In the story "Effort Afoot to Address E-voting at Convention" in our July 26 issue, we reported that Aldo Tesi, CEO of Election Systems & Software Inc., contributed $1,200 through the Commercial Federal Bank political action committee. It should be noted that Tesi made the contribution in August 1999, prior to joining ES&S on Nov. 1 of that year.



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MARYFRAN JOHNSON

Roll Your Own Future

NOW HERE'S A REAL CLASSIC on the comeback trail: developing your own applications. Sounds so retro, doesn't it? The kind of thing start-ups do when the CEO doubles as the chief product engineer and surrounds himself with a cabal of MIT grads writing code. So what's going on when large pharmaceutical companies, insurers, hotel chains, health care providers and online powerhouses like travel firm Orbitz are found, in this day and age, productively rolling their own?



Computerworld reporter Gary H. Anthes answered that question last week in his cover story about the many sensible, cost-saving and even surprising reasons why companies build their own applications rather than buying into more packaged software ["Roll Your Own," QuickLink 47884]. What he uncovered flies in the face of conventional wisdom that buying is better than building — a belief assiduously promoted by software vendors of all sizes.

And no wonder. The lifeblood of so many software companies increasingly flows directly from their maintenance and support fees, which have risen to nosebleed levels of 18% to 25% annually to offset the economic drag of lower sales in recent years.

Take Oracle as Exhibit A. When the database maker posted its financial results in mid-June, the single biggest factor cited as offsetting its slow-moving application sales was rapidly growing revenue from those fat fees for software maintenance. That revenue is increasing nearly twice as fast as new license revenue, CEO Larry Ellison said.

But it's not just the high cost of applications and their hefty annual fees that are driving development of homegrown applications. Ranking high as reasons for this approach are dissatisfaction with complacent vendors that don't respond quickly enough to user needs, and dismay over software suites overloaded with features and fiendish complexity. At Reinsurance Group of America, for example, a $35 million global enterprise administration system that was developed in-house not only fueled a competitive leap past the company's rivals but also was vastly preferable to the nightmare alternative of integrating more than a half-dozen commercial packages to provide similar capabilities.

Yet the greatest reason of all to roll your own is the ability to tailor IT to your business, to control the fate of applications too vital to trust to outside developers. It's about enabling (may Nicholas Carr forgive us here) a competitive edge that really *does* matter.

At Reliant Pharmaceuticals, for example, CIO Ron Calderone wisely heeded user resistance to complicated sales force automation tools and built a relatively simple system using speech recognition technology for the field agents. A packaged SFA system would have cost $4 million to $6 million, Calderone reckoned, but he delivered just what his business comrades needed for about 15% of that.

"Simple and inexpensive" are often the magic words associated with the best in-house application projects. We're hearing that mantra more often these days, particularly as open-source software carves inroads at the enterprise level. As Orbitz CTO Chris Hjelm put it in our story, "We are largely an open-source shop, so when we think about buying software, there's a general aversion to it."

The "buy vs. build" debate will no doubt go on forever. But the combination of open-source software with sophisticated development tools and standardized Web services is dramatically changing the face of that argument. When companies go looking for technical creativity, innovation and a competitive edge, they won't be buying that off anybody's shelf but their own. **40820**



MICHAEL H. HUGOS

The Systems Builder as Leader

IN MY COLUMN last month [QuickLink 47673], I defined *systems builder* as a person who is central to the success of any systems development project. This person possesses skills in two main areas: designing systems and leading projects to build systems. I then looked at the five basic skills needed for designing systems. This month, I'll discuss the six practices that are the basis for success in leading projects.

In my years of experience in developing systems and watching others do so, I have found these skills to be the essence of project leadership. The more accomplished the systems builder is in these areas, the higher the success rate.



1. Be an effective communicator and negotiator. The systems builder as designer collaborates with others to create a compelling system vision. The systems builder as leader communicates this vision in a way that attracts people and motivates them to act. This means clearly describing a system's features and benefits to a business and a technical audience and showing how development will progress from vision to reality. Systems builders may not all be great public speakers or have outgoing personalities, but they find ways to use the talents they do have to get the message across and win support.

2. Set high standards and great expectations. People want to participate in projects that they believe will improve their skills and bring them recognition and rewards. So the systems builder sets high standards for performance and helps people to attain them. The systems builder also paints a picture that highlights all the great things the proj-

ect will bring about. As Daniel Burnham, the great Chicago architect, said, "Make no small plans. They have no magic to stir men's blood."

3. Delegate, delegate, delegate. All well-defined projects have a set of objectives or milestones that must be reached in order to finish the project. The systems builder delegates the accomplishment of these objectives to the qualified people who have been attracted to the project. (If no qualified people have been attracted, then stop the project.) Along with delegating responsibility to achieve objectives, the systems builder also works to provide people with the resources they need to do their jobs. In this respect, the systems builder becomes the servant of the people working on the project.

4. Be available. Delegating work does not mean delegating ultimate responsibility for the project. Systems builders stay actively involved. They hold regular, weekly project meetings that are a forum for honest discussions about issues, and they have an open-minded approach to resolving the problems that arise. Systems builders learn that in most cases their people already have or can quickly come up with good answers to problems if they are able to discuss the situation and get the systems builder's thoughts to help them in their own thinking.

5. Be decisive. Key leadership decisions often involve the allocation of resources to achieve project objectives. When a development team runs into an obstacle that demands the reallocation of resources or the redefinition of an objective, the systems builder must get directly involved. The systems builder includes the appropriate people, does the best analysis within the time available, makes decisions and moves on. If the systems builder isn't willing to make the tough decisions when necessary, then no one else will either, and the project will lose momentum and start to drift.

6. Act with energy and focus. As a project progresses, constant effort is required to sell the project and its benefits. The systems builder constantly encourages, cajoles and assists people to keep up the pace of work needed to finish on time and on budget. Leaders lead by example. They lead from the front. The systems builder's presence and demeanor sets the tone for the whole project and is a large part of what keeps people motivated and focused on the work that needs to be done.
47672

THORNTON A. MAY

Telecom: Opportunity, Frustration

WHAT does telecommunications mean to you? For most C-level IT managers, it's the greatest source of short-to-intermediate-term cost reductions, the sector of greatest long-term strategic confusion, their self-acknowledged zone of greatest ignorance and the source of their biggest all-around tactical, day-to-day administrative frustration.

These are the conclusions of a survey and a series of interviews conducted at the most recent CIO Solutions Gallery at Ohio State University's Fisher College of Business.



A frenzy of contract renegotiations is delivering cost reductions that could make even the most frugal CFO almost feel guilty. Those pricing improvements, combined with a trend within companies of standardizing the equipment installed in their networks and consolidating their network services to fewer carriers, is putting many telecom suppliers in a tough situation. As one CIO explained, "Prices are dropping all over the place. I am always re-evaluating my technology stack. I am always squeezing my providers. I am currently of the mind that short contracts are generally in your favor, and negotiating a contract midcontract is a good thing to do."

Meanwhile, a general rethinking of telecommunications is under way and contributing to the strategic confusion. Cable, wireless and fixed-line telephone carriers are rapidly entering one another's businesses. What previously were nondecisions are suddenly up for grabs. Who will provide services to us, and what will they supply? Phones have become much more than phones. Handsets take photos, access the Web, and send and receive e-mail. Some even serve as PDAs. More transition is inevitable, with the arrival of the potentially game-changing technologies of wireless and VoIP. Where should wise IT leaders place their bets?

And then there's the ignorance and frustration that telecom causes. Designing, operating, engineering and troubleshooting very large IP-converged networks is growing more difficult, and the skills needed to do all that are becoming increasingly scarce. IT leaders are the first to admit that they don't possess deep technical skills in the telecommunications area. At the CIO Conference in Pebble Beach, Calif., last month, I asked 140 executives (via an interactive electronic polling system) how they would describe their understanding of telecom: 28% said they had an "excellent" understanding, 53% said "average," and 19% said "poor."

But the responses were very different when I followed up with a more specific inquiry. When asked, "If your board of directors asked you to explain the line-item detail of your monthly telecommunications bill, would you be able to do so?" 29% said, "No worries; let's go have a beer," 32% said they were "a little worried," and 39% said they would be "in a world of hurt." One CTO summed it up this way: "There are no telecommunications vendors today that are doing a great job; they all need to be closely managed. Operational performance leaves much to be desired, and billing performance is even worse."

We are at a pivotal point in the management and deployment of telecommunication services. Future-focused IT leaders would be well advised to spend a little more time with the vendors in this area, do some homework and put together a plan for the future.
48556

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READERS' LETTERS

Ask the Right Questions When Hiring

WHILE I certainly agree with Paul Glen's conclusions in his column "The Wrong Stuff" [QuickLink 47608], I think there is a larger problem than the ones he covered. When we hire people, we ask the wrong questions. We act like game-show hosts, hiring people filled with technical trivia. We need to hire people who know how to use the information they have and find the information they don't. More importantly, we need people who understand that software development is multidisciplinary and who can do whatever it takes, even when the solution is far from programming.

David Douglass
Technologies consultant, Bloomingdale, N.J., david_douglass@ieee.org

THE big questions to consider are: How can a firm hire good people if its screening process is run by people who don't know anything about the skills they are trying to screen? How can you hire good people if your HR screeners are too lazy to read the résumés?

Jerry Masters
Programmer/analyst, Clinton, Miss.

AS someone who has been looking for work for the past three years, I can say that this is the first article I have read that exactly describes the silliness of the hiring process today. Faced with thousands of résumés, how can hiring managers scan them one by one and imagine the potential of every candidate? They can't, so by setting up tight requirements, they hope that they will hear from only a few candidates.

A. Leung
Toronto

Customer Councils Help Govern IT

GREAT article on the IT governance process ["IT Governance Is on the Hot Seat," QuickLink 48025], with sad statistics on those who are still holding out on formalizing their processes. Something your readers might want to consider is the customer council concept. Customer councils are created at the business unit or functional-area level and are like mini IT steering committees. They review the backlog, validate projects and requests, prioritize and are even held accountable for pieces of the process like approval, budget and testing. My company has found much success with such councils.

Carol A. Fawcett
Vice president of IS, Quest Software, Irvine, Calif.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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PUT IT IN THE SERVER ROOM.

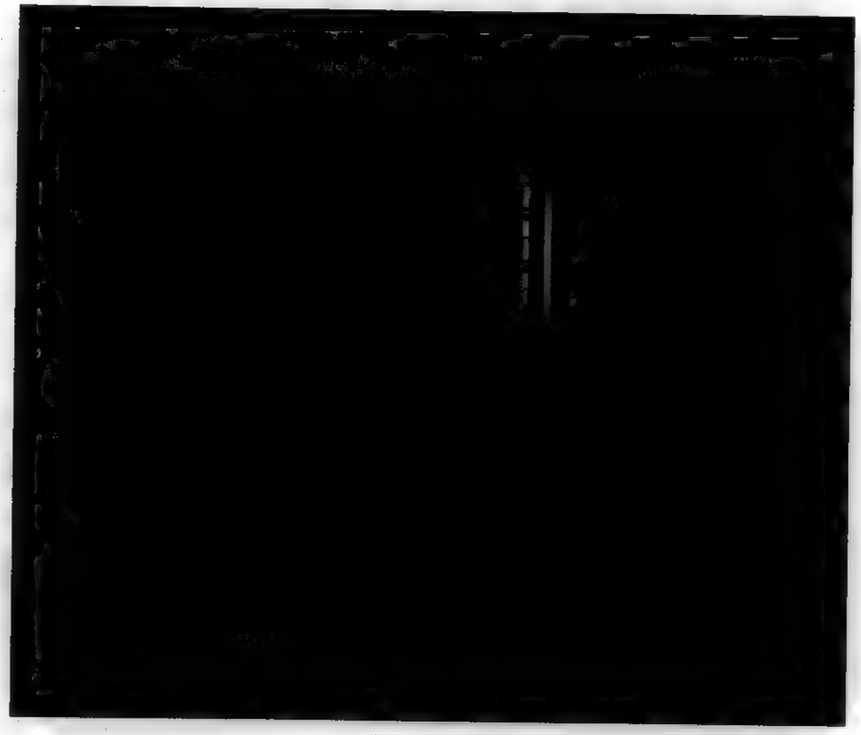
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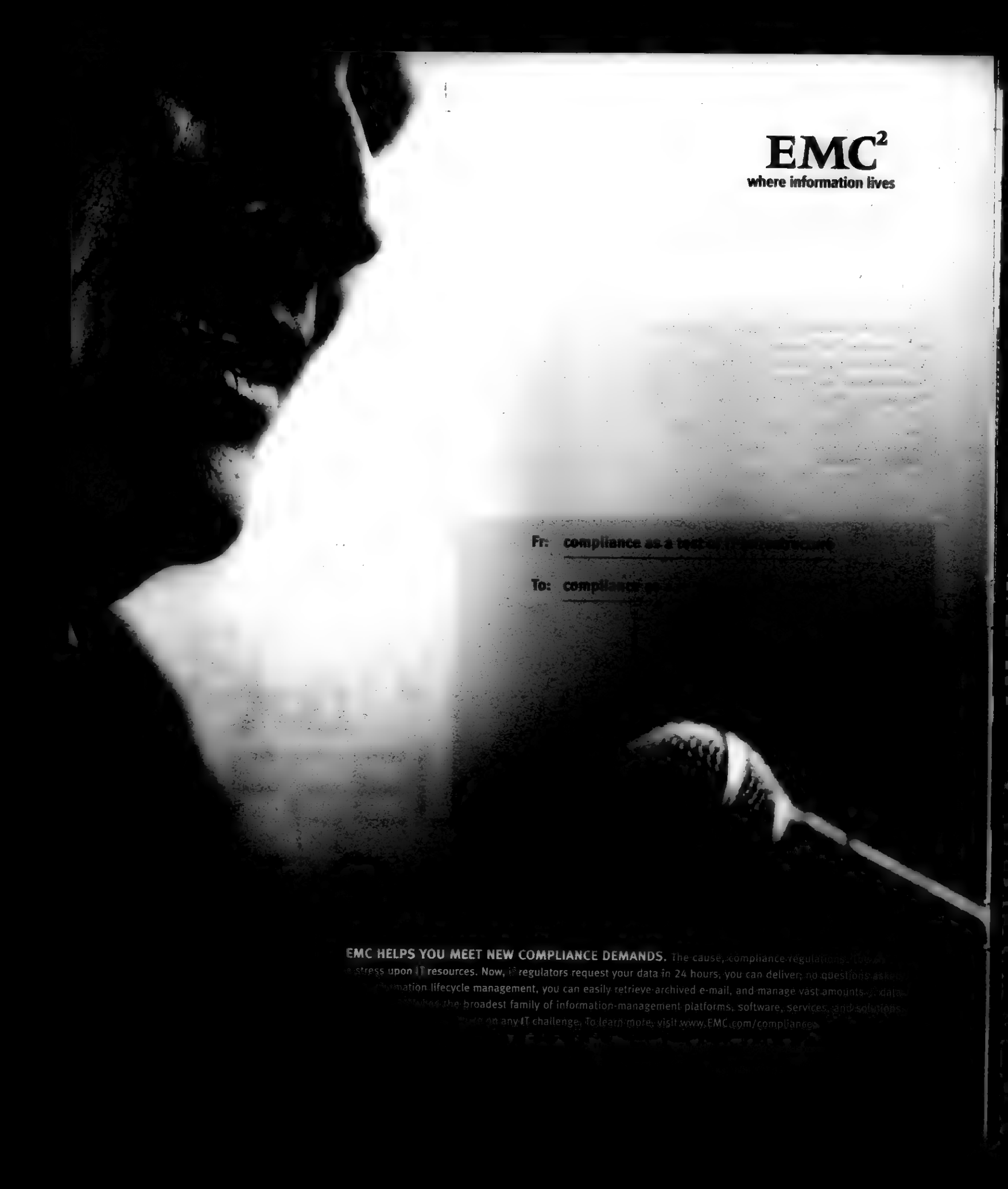


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Controlling Content Chaos
As documents and Web sites multiply at dizzying rates, companies are turning to content management software for help. **Page 25**

SECURITY MANAGER'S JOURNAL
Merger Interrupts Sarb-Ox Project
An acquisition prompts a break for a last-minute security audit but fails to slow Sarbanes-Oxley compliance efforts at Mathias Thurman's company. **Page 30**

FUTURE WATCH
User Interfaces: The Next Generation
A slew of emerging interface technologies promises to enable a wider range of human-computer interaction than is possible today. But don't throw away that mouse and keyboard just yet. **Page 28**

FIELD REPORT

Cigna GOES VIRTUAL

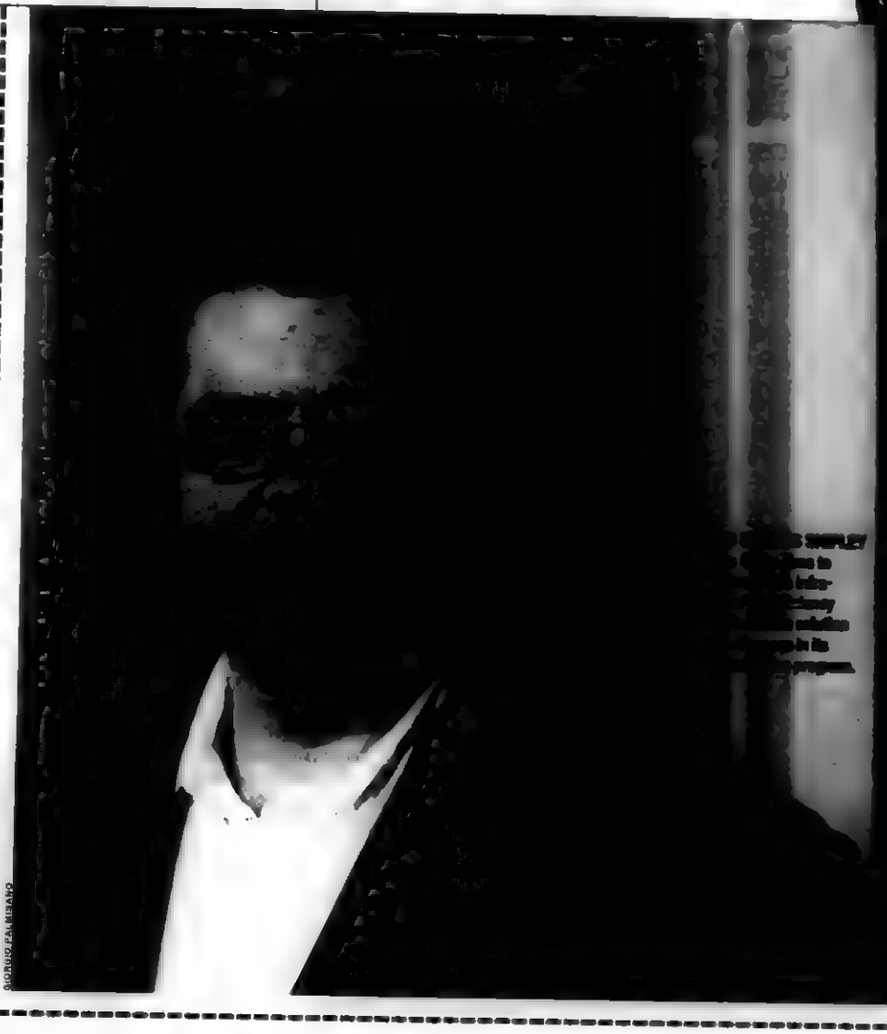
The insurer's cutting-edge virtual server deployment is on track to cut server operating costs by 25%. By Gary H. Anthes

IT WAS OBVIOUS AS 2002 drew to a close that Cigna Corp. would have to cut costs. Sales at the Philadelphia-based health insurance benefits company had risen for the year, to $19 billion, but earnings had plunged from $1 billion a year earlier to a loss of almost $400 million.

For Cigna's IT organization, one area for savings stood out. The company had more than 3,000 servers and was bringing in new ones by the dozen, but server utilization was inefficient. "If you had a new application project, you got your own boxes, bought your own servers and put in your own software," says Cigna Chief Technology Officer Marcus Shipley. "Everything, all the way up the applications stack, was a one-off just for you, and boxes would run at 10% to 15% utilization."

The way to get more out of its servers, Cigna realized, was by virtualizing them — enabling a single server to run multiple operating systems, applications or versions of an application — and by enabling dynamic load balancing of those applications across server farms. Cigna hoped virtualization would reduce the number of its file-and-print, database, application and Web servers by 25%.

But the company's multifaceted virtualization program became much more than a simple server consolidation project. It included aggressive operating system upgrades; moves to new hardware, including 64-bit processors, blade servers and storage-area networks; and, most important, adoption of nascent virtualization software from IBM and Microsoft Corp. "It's based on the 'on-demand' concept of IBM, or concepts of grid computing," says Benjamin Flock, Cigna's vice president for application frameworks and virtualization. "It's the



GIORGIO PALMIGIANO

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separation of the application and the hosting service. So I've got an application, and as long as I have a service level defined and I manage that service level, it should be transparent where it runs," Flock says. Cigna is on track to reach the goal of a 25% reduction in server operating expenses by year's end, and he expects additional savings in subsequent years.

Insurance companies aren't known for pushing the edge of the IT envelope, and until 2003 Cigna was no exception. Then the pressure to cut costs and the tremendous promise of several emerging technologies propelled the company into beta, alpha and even prealpha pilot projects with IBM, Microsoft and Intel Corp. "We tend to be on the trailing side, but now, with these activities, we've been on the leading edge," Flock says.

Microsoft Migration

In 2002, Cigna's systems built around Microsoft products were "in disarray," says Chris Cox, an enterprise architect. "We had two versions of Visual Basic that people were developing with, different versions of data access components, different versions of database technologies. Since everybody had their own machines, they just used what they were accustomed to using. And the production environment had every possible combination."

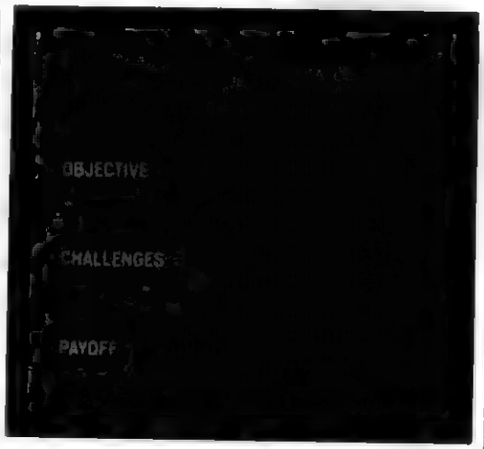
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Windows Server 2003 brings application partitioning and isolation capabilities to the .Net Framework development and management tools, allowing Cigna to run several similar applications concurrently on a single server. Its COM+ feature isolates versions of a component so they can run simultaneously on one server, and it allows Cigna to install multiple applications or versions on the same server without having to upgrade each one and then test it for the new environment. It also enables Web application "pooling," via Internet Information Services 6, for running multiple Web applications independently.

Rather six or more servers might be dedicated to a small application — one each for development, unit testing, system testing, end-user acceptance testing, preproduction and production. With partitioning, many of those functions can be performed on a single server. "Our entire server environment will be built out to Windows Server 2003 by the end of the year. That's a big deal," Flock says.

In a second major thrust, early this year Cigna joined Microsoft's Joint Development Program for Virtual Server 2005. That product takes a software approach to partitioning that, with Windows Server 2003, will let Cigna run multiple instances of the operating system simultaneously on one machine. "It allows us to split the hardware into logical partitions like we do on the mainframe," explains Larry Brandolph, enterprise technical architect at Cigna. "You get a base OS, then Virtual Server on top of that, and three, four or five 'guest machines' on top of that."

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Extending WebSphere

In parallel with its Microsoft migration, Cigna began an aggressive move from IBM's WebSphere Application Server 3 to Version 5. "We decided to go direct to Version 5 because of its clustering and centralized deployment and its better isolation and management of applications in a shared services model," Flock explains.

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Cigna is now using XD in a proof-of-concept test. The company hopes it will provide utilitylike compute cycles on demand so that every server doesn't have to be configured to handle peak loads.

As head of systems testing and quality control, Gerald McDonald is instrumental in proving out the new virtualization concepts at Cigna. But as the owner of 900 servers, he also wears a user hat. Some 300 of his Windows 2000 and Windows NT servers would have to be replaced in the coming year at a "refresh" cost of almost $9 million, he says. Now, with better utilization of his 600 other servers, he will have to buy far fewer replacements. "Up until the virtualization, we've never had any alternative but to replace those machines," McDonald says.

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Now on track to meet its server consolidation goals, Cigna is laying plans for the next big phase, in which it will augment the shared services capabilities in WebSphere 5, Windows Server 2003 and Virtual Server 2005 with new technologies for dynamic provisioning and on-demand computing. Cigna is looking hard at IBM's Tivoli Intelligent Orchestrator (TIO) and Microsoft's Dynamic Systems Initiative (DSI), both of which promise to "virtualize the data center," as Flock puts it. The idea is to make all servers available to all applications, with excess capacity anywhere acting as a buffer against unexpected demand peaks.

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But there are risks for early adopters. "The biggest fear is that as you layer on different virtualization technologies, there are no clear interfaces between them. Management of the physical layer is pretty much figured out, but the virtual layer is still black magic," says Ferengul. "They need to think very carefully about how to do root-cause analysis, change management and so on."

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Shipley offers this advice to someone embarking on a big virtualization project: "Look for integrated product offerings, look for good vendor partnerships, and don't be bashful about giving them your requirements. Definitely don't try to roll it yourself." **48172**

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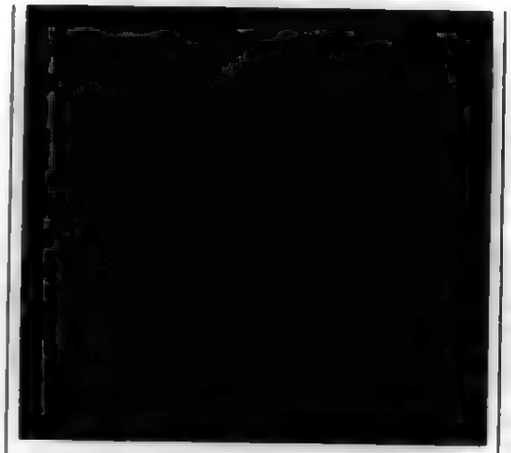
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10:00am to 9:00pm — Registration Open

Afternoon — ANALYST TRACK

1:00pm to 1:45pm — **Process-Centric Business Intelligence Will Improve IT and Business Performance**
Keith Gile, Senior Analyst, Forrester Research

1:45pm to 2:30pm — **Dan Vesset, Research Director, Data Warehousing and Information Access, IDC**

2:45pm to 3:30pm — **Measuring IT's Performance**
Richard Snieder, Partner, Intensity Group

7:00pm to 9:00pm — Welcome Reception

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For details, contact Chris Logar at 1-508-820-8277

TUESDAY, SEPTEMBER 28

7:00am to 8:00am — Breakfast

8:15am to 9:00am — **Opening Keynote Presentation: People and Data: Understanding Customer's Behavior**
Andreas Weigend, former Chief Scientist, Amazon.com, and Professor, Stanford University

9:00am to 9:30am — **End-User Case Study: BI Is Not OLTP - If There Was a Training Program for BI (But There's Not), 10 Things You Need To Know**
Joshua Crandall, Vice President, Information Technology, Morgan Stanley

9:30am to 10:00am — **Industry Leader Presentation: Get Maximum Payback Through Your BI Infrastructure**
Keith Collins, SVP and CTO, SAS and
Irving Tyler, VP and CIO, Quaker Chemical

10:15am to 11:00am — **Industry Leader Presentation**
Dean Hager, Chief Product Officer, Lawson Software

10:45am to 11:30am — **Panel: Business Intelligence Best Practices: Lessons Learned From Implementation**
Panel Moderator: Julia King, National Correspondent, Computerworld
Panelists: Shirley Hughes, Chief Financial Officer and GM, Administrative Services, City of Falls Church (Virginia); Andy George, SVP, Information Technology, Prolifiq; Jon Farrar, Vice President, Predictive Modeling Department, Union Bank of California; Barbara Kindel, Vice President, IS Solution Engineering, Calpine Corporation

For more information and to register, visit www.bi

11:30am to 12:00pm	CONCURRENT END-USER PRESENTATIONS
12:10pm to 1:30pm	Luncheon
1:30pm - 2:00pm	**End-User Case Study: Driving Excellence into Business Intelligence** Greg McM[illegible], Enterprise Business Intelligence and Data Warehousing Manager, Ford Motor Company
2:00pm - 2:30pm	**End-User Case Study** [illegible]
2:30pm - 3:00pm	**Industry Leader Presentation**
3:00pm - 3:30pm	**End-User Case Study: The Role of Enterprise Architecture in Driving Business Intelligence Initiatives** [illegible]
3:45pm - 4:15pm	**End-User Case Study: Optimizing Mortgage Operations and Creating a Competitive Advantage** [illegible]
4:15pm - 4:45pm	**Industry Leader Presentation**
4:45pm - 5:15pm	**End-User Case Study** [illegible]
5:30pm - 8:30pm	Expo with Dinner



Steve Bandrowczak
- SVP and CIO, DHL Express

WEDNESDAY, SEPTEMBER 29

7:00am to 8:00am	Breakfast
7:15am - 8:00am	**Breakfast Session: TCO Starts With The End-User** [illegible]
8:15am - 9:00am	**Opening End-User Case Study** [illegible]
9:00am - 9:30am	**End-User Case Study** Cecilia Claudio, formerly VP, IT & CIO, ZurichFinancial Services, and Executive in Residence, Clearstone Venture Partners
9:30am - 10:00am	**Industry Leader Presentation** Rob Ashe, President and CEO, Cognos
10:15am - 11:00am	**Panel Discussion** Panel Moderator: Dan Vesset, Research Director, Data Warehousing and Information Access, IDC
11:00am to 12:10pm	CONCURRENT END-USER PRESENTATIONS
12:15pm - 1:45pm	Expo with Lunch
1:45pm - 2:15pm	**End-User Case Study: Driving Business Intelligence for Risk Management, Ongoing Quality and Process Improvement** [illegible]
2:15pm - 2:45pm	**End-User Case Study** [illegible]
2:45pm - 3:15pm	**Industry Leader Presentation**
3:30pm - 4:00pm	**End-User Case Study: Analytical Information Processes as Drivers of Business Intelligence Strategy and Architecture** Ralph Martino, Informational Warehouse Manager, JP Morgan Chase Credit Card Services
4:00pm - 4:30pm	**End-User Case Study** Jim Pathman, CIO, Accredited Home Lenders
4:30pm - 5:15pm	**CTO Insights Panel: BI Implementation: Truth and Consequences** Panel Moderator: Thornton May, Futurist and Computerworld Columnist Panelists: Dave Henry, VP of Business Applications, Zones, Inc.; Keith Bearden, former VP of Information, A-dec; Naumar Shaikh, Enterprise Architect, Metavante Corporation
6:00pm - 8:00pm	Gala Evening

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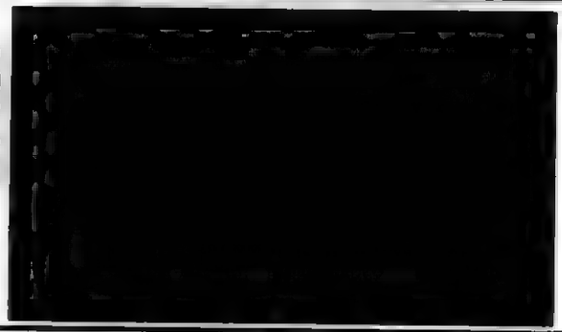
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* IT End-Users are defined as those who are attending Business Intelligence Perspectives with an intent (and an IT spending budget) to potentially buy/lease hardware/software/services, etc. from our conference sponsors and are not themselves an IT vendor. As such, account representatives, business development personnel, analysts, consultants and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Interpretation and enforcement of this policy are at the sole discretion of Computerworld.

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- ❑ Agriculture / Forestry / Fisheries
- ❑ Other

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- ❑ CIO/CTO
- ❑ VP/GM/Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Corporate/Business Staff
- ❑ Other Corporate/Business Manager
- ❑ Consultant (External) or Other

The one item that best describes your involvement in the IT purchase process:
- ❑ Authorize the purchase
- ❑ Approve the budget
- ❑ Initiate the purchase
- ❑ Evaluate / recommend products, brands, vendors
- ❑ Identify / establish the need to purchase
- ❑ All of the above

Number of employees in your entire organization (ALL locations):
- ❑ Over 10,000
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ Less than 500

What is the estimated annual revenue of your entire organization?
- ❑ Over $10 Billion
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ Less than $100 Million

Your organization's annual IT/IS budget for all IT/IS products:
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

What is your organization's primary vendor for [illegible] management solutions?:
- ❑ SAS
- ❑ Cognos
- ❑ Business Objects
- ❑ Oracle
- ❑ Hyperion
- ❑ SAP
- ❑ PeopleSoft
- ❑ MicroStrategy
- ❑ Siebel
- ❑ Information Builders
- ❑ Microsoft
- ❑ Information Builders
- ❑ Other

What is your organization's most critical [illegible] business management this year?:
- ❑ Creating the vision and strategy/ Analyzing ROI
- ❑ Planning, designing, building the BI infrastructure
- ❑ Building / managing the operational information stores
- ❑ Renewal and reporting (BI, ERP, CRM, SCM, eCommerce)
- ❑ Data visualization, production and presentation
- ❑ Managing / enhancing BI applications and infrastructure

IT End-Users, would you like to receive information about playing in the golf outing on Monday, September 27th? ❑ Yes ❑ No

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ANDY GOODWIN
HERMAN BAUMANN

CONTROLLING CONTENT CHAOS

With documents and Web sites multiplying at unprecedented rates and regulatory pressures increasing, companies are looking for help from content management software. **By Sue Hildreth**

In 1995, THE AMERICAN HOSPITAL ASSOCIATION launched a Web site — its first ever — for one of its publications. It proved so popular that another department at the AHA decided to put up a site too. Soon others also wanted to be on the Internet, and five years later, there were a staggering 72 AHA-affiliated Web sites, all running on different hardware and software, all managed by different departments and organizations, and all totally incapable of sharing content with the others.

It was, in short, Web content chaos, a situation that Herman Baumann, the Chicago-based organization's executive director for strategic development, says "was not sustainable from a business perspective."

The solution, it turned out, was a content management system, which the AHA purchased from Interwoven Inc. in Sunnyvale, Calif., in 2002. The product, called TeamSite, has enabled the AHA to consolidate the content from all 72 Web sites into a single Oracle database, thus reducing maintenance costs while still permitting individual webmasters to manage their own content.

Enterprise content management (ECM) software is designed to keep track of documents and records that are stored in a variety of locations and formats (paper, Web pages, PDF files and, increasingly, audio and video media) throughout a company. Interest in ECM systems has intensified as IT managers feel increased pressure both from their own executives and from regulatory agencies to carefully track and consolidate all of the organization's key documents.

For the AHA, not only did the implementation of a content management system help to centralize diverse stores of information, but it has also vastly increased the content available to all AHA organizations. Now each group can contribute content to the public database, and the others may opt to "subscribe" to that content and have it posted automatically to their sites.

"Our operating efficiency [for the sites] has more than tripled," says Baumann.

Jerry Valentine was looking for the same sort of advice when he began considering a content management package for his company, Grange Mutual Casualty Co., a $1 billion vendor of property and casualty insurance in Columbus, Ohio. The company needed a system that could help centralize the disparate types of content used in insurance applications and claims — content that ranged from paper forms to photographs to audio tapes, says Valentine, Grange's project manager for imaging.

"For instance, we get 35,000 bodily injury claims each month, and for each, we take audio statements

Look for vendors that have road maps.

Require ECM vendors to also show a strategy and timeline.

Look for ECM products that "rationalize" functions.

Be careful of vendors that pitch new functionality offered via partnerships.

BEST OF BREED vs. SUITES

Bechtel Group has relied on the Documentum content management platform for the past decade to manage its huge collection of blueprints, material specifications and operating manuals stored in repositories around the world.

So when the company needed to add digital asset management and records management capabilities, Bechtel manager Darrell Delahousaye looked first to Documentum. "We wanted something that would plug in fairly transparently into our existing ECM environment," says Delahousaye.

The same can be said for Britannia Airways Ltd. in London, which bought Open Text's Livelink to streamline documentation used by pilots and crew members. Britannia wanted some basic workflow and document management capabilities, with out-of-the-box integration of all functions. "We wanted something that would integrate as a single package. We knew that meant we might not get best-of-breed class in all functions, but it would save us doing the integration ourselves," explains John Gough, programs manager at Britannia.

However, while platforms offer the comfort and convenience of being able to pick all your content management capabilities from the same vendor and, theoretically, integrate them into the existing system with minimal fuss, there are a couple of potential downsides.

One, says Robert Markham, an analyst at Forrester Research, is that not all of these modules actually work well together; many have been acquired and therefore have a different code base and repository. It takes time for a new acquisition to be integrated into a vendor's platform.

Second, you may be missing out on some great capabilities from a best-of-breed product in a niche market. Paul Szemplinski, president of systems integrator Integrated Document Technologies Inc. in Itasca, Ill., says he believes companies often do better buying best of breed rather than a suite. "Putting all your eggs into one basket is risky. I have concerns about any vendor that claims they can do it all, because I haven't seen that," he says.

But if you need out-of-the-box integration among the components or prefer to deal with a single vendor for all content management needs, then a suite may be your best bet.

– Sue Hildreth

The Emergence of ECM

$3.175B

Projected sales of ECM applications for 2005, according to IDC.

Integration Is Essential

Find the Right Fit

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from both sides. These were stored on cassette tapes in a warehouse. If the case went to court, somebody had to go find the tapes, transcribe them, then put them back," explains Valentine, noting that other departments kept documents on microfiche and microfilm, as well as in good old-fashioned filing cabinets.

Valentine evaluated several products in terms of imaging, workflow, and document and records management capabilities. Grange ultimately purchased the IBM Content Manager application, with an IBM DB2 database, and Input Accel from Captiva Software Corp. in San Diego for scanning documents.

Now audio statements, along with documents such as claims forms and insurance applications, are stored in Content Manager. The system is consolidated in a single data warehouse, with 22 cache servers located at branch offices so that large or frequently used files don't have to go back and forth across the network.

The Emergence of ECM

ECM systems like those selected by the AHA and Grange Mutual combine a variety of niche content management products: those that manage Web content, records, documents, digital assets and images, plus collaboration tools. ECM software aims to provide organizations with a single platform for inputting, storing, searching, editing, tracking, sharing and distributing all forms of content.

ECM has also gotten a boost from recent government regulations such as the Health Insurance Portability and Accountability Act (HIPAA), the USA Patriot Act, the Sarbanes-Oxley Act and a flurry of other less-well-known regulations in individual industries. These regulations include requirements that organizations store documents for specified periods of time; make them available in portable, digital formats; and, in some cases, track employee e-mails that relate to "hot button" legal issues such as Securities and Exchange Commission requirements or employee discrimination. Keeping up with the myriad regulations has driven increasing numbers of IT managers to purchase content management software, which can help automate compliance.



All of this helped push sales of ECM applications — which typically start at $200,000 for an enterprise license — to $2.656 billion last year, with $3.175 billion projected for 2005, according to Joshua Duhl, an analyst at IDC in Framingham, Mass.

Integration Is Essential

What do you need from an ECM system? For starters, integration is important, not only between content management components, but also between databases and other applications. Also, if you plan to use a portal other than the ECM vendor's, "make sure your ECM vendor has a relationship with your portal vendor," advises Robert Markham, an analyst at Forrester Research Inc. in Cambridge, Mass.

When the Houston Independent School District (HISD) evaluated ECM products in early 2002, it looked for one that supported Microsoft Corp.'s SQL Server database and provided adapters to Microsoft Exchange, SAP and PeopleSoft. That's because the HISD wanted to create a portal to give employees access to e-mail, payroll and benefits information and

BEST OF BREED vs. SUITES

to allow students to view grade and attendance data, with all of it residing on back-end applications.

Finding support for PeopleSoft and SAP was easy, but support for SQL Server was less common, says Mark Hill, interim manager of applications for the HISD and a vice president at consulting firm Trendec. "Oracle would've been easier," he says. "It seemed [SQL Server] was a challenge for some of the vendors." The HISD ultimately selected Vignette Corp.'s Vignette v6 product and Enterprise Application Portal.

Find the Right Fit

ECM products offer a range of functions, and users need to match the available features to their needs.

The first step is to determine the functionality you need — records management, document management, digital asset management, e-mail management, collaboration or something else. Also consider vertical-industry expertise. Many products offer capabilities tailored to specific industries and their unique regulatory requirements. Documentum in Pleasanton, Calif., for example, has versions for the health care, financial services, retail and manufacturing industries. Stellent Inc. in Eden Prairie, Minn., offers versions of its software specifically for the insurance, real estate, media and entertainment sectors. Open Text Corp. in Waterloo, Ontario, also has several products for vertical industries, including the automotive, education, energy and telecommunications fields.

Documentum's certification by the U.S. Department of Defense for complying with the 5015.2 standard for records management was important to Bechtel Group Inc., a global engineering firm based in San Francisco. The 5015.2 standard sets functional requirements for records management systems used by government agencies and private companies that do business with the government. For instance, it defines the required system interfaces and search criteria and the minimum records management requirements. For an individual organization to attempt to implement the requirements itself would involve a tremendous amount of work. "Documentum's being on the list of 5015-certified applications means we don't have to worry about it," says Darrell Delahousaye, engineering procurement and construction systems portfolio manager at Bechtel.

Likewise, finding a package that would aid compliance with HIPAA was important to the Surgical Planning Laboratory at Brigham and Women's Hospital in Boston. The lab first considered open-source options, such as Zope, but instead opted for a commercial product from Xythos Software Inc. in San Francisco, which offered the sort of security controls — such as levels of authorization and logging to track who's accessing which files — that HIPAA requires.

"Xythos has a ticket mechanism, so you can allow someone without an account to have limited access to files," says Michael Halle, director of technology development at the lab. Also, because the lab's researchers need to share documents with colleagues inside the hospital and around the world, it needed a product that supported standard technologies — such as a Java application programming interface and the WebDAV network file management protocol.

The AHA's Baumann mostly needed a system that could expand with the organization's needs and had a wide range of features, such as collaboration tools and support for audio clips. Because, as its earlier explosion of Web sites had shown, its members were hungry for new technologies to help them share information. "We knew we were going to grow into new areas, but we didn't know what those areas might be, so we wanted everything to be highly configurable and flexible," says Baumann. "We looked at [the Interwoven ECM system] as something that would go wherever we needed to take it." 48330

Hildreth is a Waltham, Mass.-based freelance journalist. She can be reached at Sue.Hildreth@comcast.net.

ECM RESOURCES

Visit our Web site for a list of vendors that have enterprise content management offerings and the products they sell:

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Timely Tech Titles

They're not typical summer reading, but these books will provide useful information on the job. By Tommy Peterson

BOOK REVIEWS **We occasionally take brief note of books on technology that seem particularly useful because of the timeliness of their subjects and/or the quality of the information presented. These three titles offer comprehensive yet reasonably concise treatments of their topics.**

Enterprise Service Bus, by David Chappell (O'Reilly Media Inc., 2004; 247 pages, paperback, $39.95). Chappell has managed to capture many of the virtues of both a primer and a practical handbook for working professionals in *Enterprise Service Bus*. The author provides a foundation-level introduction to ESB technology, including plenty of context about the nascent ESB market and the state of enterprise application integration in general. Key terms and concepts are highlighted in boxes with headings like "What Are 'Standards,' Exactly?" and "To J2EE, or .Net to Be."

The book also provides enough granular detail, practical advice and case studies to make it worth the time of IT professionals who are already familiar with ESB technology. And for all segments of the audience, Chappell and his editors have done a splendid job in presenting remarkably straightforward and useful diagrams. Readers would be hard-pressed to find a more lucid or helpful book on a technology topic.



Securing Web Services With WS-Security, by Jothy Rosenberg and David Remy (Sams Publishing, 2004; 378 pages, paperback, $39.99). Though this book opens with the assertion that Web services are a "transformational" technology for integrating information, do not fear, gentle reader. Rosenberg and Remy go beyond the hype and live up to their subtitle, "Demystifying WS-Security, WS-Policy, SAML, XML Signature, and XML Encryption."

Securing Web Services With WS-Security breezes through a few basics, but its target audience is readers who are already immersed in the technology — Web services developers and security administrators, along with some CIOs and CTOs.



With users and analysts reporting that security concerns are the biggest barrier to the adoption of Web services by large companies, Rothenberg and Remy have worked to defuse a hot topic. Their approach is practical and methodical, going step by step through complex topics like combining XML encryption with the use of XML signatures. The authors also recognize that IT initiatives can rarely be undertaken in one big gulp, and they suggest incremental strategies for ratcheting up Web services security.

Resilient Storage Networks, by Greg Schulz (Elsevier Digital Press, 2004; 441 pages, paperback, $49.95). Even considering that it's almost 450 pages long, *Resilient Storage Networks* covers an extraordinary amount of ground in surprising detail. Schulz first considers the importance of data availability and then marches through descriptions and assessments of all the major networked storage technologies. After taking a look at storage management tools and security strategies, he concludes with chapters describing the issues involved in creating various sizes and types of storage networks, along with detailed design recommendations.

Schulz presents information in digestible pieces, relying heavily on bulleted lists, short sections within chapters and diagrams that match those in Chappell's book for clarity and cogency. Especially useful are the lists of questions for infrastructure architects or storage managers to ask themselves as they embark on particular projects.



This book is aimed mostly at infrastructure architects and managers, but it's good reading for anyone who wants to learn more about storage technologies. **48632**

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User Interfaces

THE NEXT GENERATION

Keyboards and mice will face competition from motion-sensing, gesture recognition and haptic technologies. **BY JAIKUMAR VIJAYAN**

PDAs and smart phones are great for keeping the road warrior connected to the extended enterprise, but the technologies have always offered only limited data input capabilities, especially for typing-intensive applications.

San Jose-based Canesta Inc. thinks it may have just the thing to address the problem.

The company has developed a prototype technology that lets users of PDAs and similar mobile devices put data into their handheld systems by simply typing on an image of a standard-size keyboard projected onto a desktop or other surface. The "electronic perception" technology captures the user's finger motions via emitted light photons that form 3-D real-time images that are then processed and translated into keystrokes.

FUTURE WATCH

The technology can be integrated into any handheld device and includes a 3-D sensor module, a keyboard-pattern projector and an infrared light source.

Canesta has much more in mind. "Any situation in which a machine or a digital device needs to understand its surroundings is a great application for electronic perception technology," says Jim Spare, a vice president at the company. For example, he says, a future application could be an intelligent car-airbag system that can sense the size and position of an occupant to prevent injury upon deployment.

And Spare says his projection keyboard heralds the way to much more powerful user interfaces that are based on hand gestures. "We'll be able to navigate through databases, especially when you have different sets of data with complex relationships," he says. "You could open up a filing cabinet and pick up a file and sift through it with your fingers, using gestures from your hands as if you were actually picking it out of the file cabinet."

Canesta's technology is part of a growing list of emerging user-interface technologies that are being designed to enable a wider range of human-computer interaction than is possible with traditional mouse- and keyboard-based systems.

Broadly speaking, such technologies are designed to allow computers to accept gestures, motions, speech and facial expressions as data input methods along with the mouse clicks and keystrokes.

Many of these technologies are coming from small companies and are first developed for highly specialized applications. But as the technology matures and costs come down, expect to see it break into broader markets, vendors say.

One example is a gesture recognition system developed for the U.S. Department of Defense by Cybernet Systems Corp. in Ann Arbor, Mich. The technology was developed to facilitate silent troop communication during combat. It allows users to stand in front of a camera-mounted monitor and manipulate images, data and application windows by using specific hand movements from a lexicon of roughly 80 gestures recognized by the system. A San Antonio-based TV station is using a commercial version of the product, called GestureStorm, to control computerized visual effects in its weather reports.

In the future, the technology could be used to enable many new applications, says Charles Cohen, Cybernet's CEO. A drive-up ATM where users could carry out transactions with simple hand gestures instead of leaning out of windows and physically touching buttons is one example, he says. Gesture recognition could be used to control appliances at home — for instance, a TV could turn off automatically if it sensed the viewer in front of it was asleep.

"This technology is not about replacing the keyboard and the mouse but to supplement them," Cohen says. "In 20 years, gesture technologies will be as common as the mouse."

San Jose-based Immersion Corp. makes medical simulators that give users tactile feedback while they're doing surgical simulations. Its LapSim simulator re-creates not just the sights and sounds of the procedure but also how a surgical instrument actually feels in the hands of the surgeon performing the surgery.

"You have many very realistic simulators that don't provide any feedback on how to



cut through soft or hard tissue or what needles might feel like when you are pushing it through skin," says Dean Chang, chief technology officer at Immersion.

Over the next few years, expect to see such tactile feedback, or "haptic," technologies find applications in other areas as well, Chang says. For example, cell phones could generate different vibration signatures to tell users who was calling or if the batteries were low.

Haptics could also enable all-in-one medical simulators that would allow doctors to do incredibly realistic, patient-specific rehearsals of complex surgical procedures before performing them, he says.

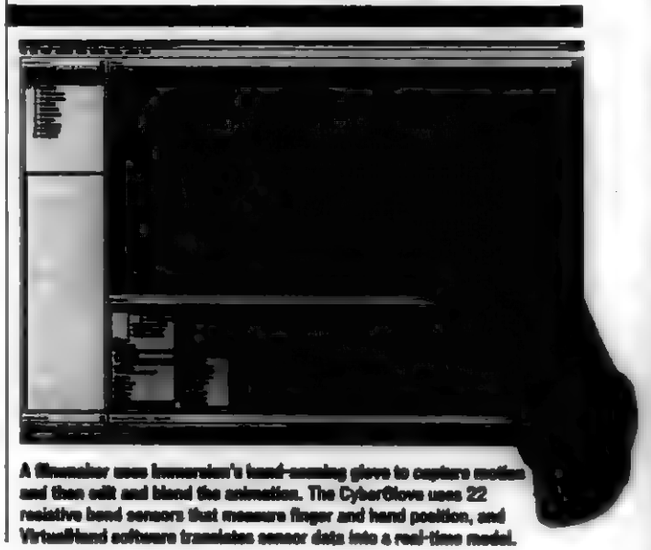
Automobile dashboards present another future opportunity for haptics, Chang says. Touch screens that generate tactile feedback when images of buttons are depressed could allow users to control entertainment and climate systems more efficiently than they can with today's knobs and buttons, he says.

But getting there will take some doing, the vendors acknowledge. In a few cases, the base capabilities already exist but lack of investor interest is holding back further development. "If someone is prepared to give me the funding, I can deliver some of these things in a year's time," Cohen says. Immersion has licensed its haptics technology to a major cell phone manufacturer but expects it will take at least five years before the technology is broadly integrated into the company's products.

In other cases, the technology needs to mature, Cohen says. For gesture-recognition ATMs to become a reality, more work needs to go into making systems that can work well in outdoor environments with highly cluttered backgrounds. Similarly, Chang says, imaging technologies have to mature a great deal more before the ultrarealistic medical simulator can become a reality. **48484**

TRASH TALK

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A filmmaker uses Immersion's hand-sensing glove to capture motion and then edit and blend the animation. The CyberGlove uses 22 resistive bend sensors that measure finger and hand position, and VirtualHand software translates sensor data into a real-time model.

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Merger Interrupts Sarb-Ox Project

A last-minute security audit for a sudden acquisition briefly puts a major push toward Sarbanes-Oxley compliance on hold. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

THE FIRST E-MAIL I got this week was a meeting invite with the subject line "Emergency discussion of merger and acquisition items for recent acquisition." Once again, the company made an acquisition and informed the IT organization only after the deal was signed.

We understand that these deals need to be kept under wraps for legal reasons. The problem is that if we discover an issue that might affect the deal, it's difficult to go back and change the agreement. And dealing with issues related to the acquisition meant we had to temporarily stop working on our Sarbanes-Oxley compliance project.

Griping aside, we took part in the conference call and learned that the acquired firm has fewer than 50 employees, all of whom work in one location, and it does no software development outside the country. This definitely made life a lot easier for me.

The most important order of business was to get the new employees configured so they could access our intranet, use e-mail and sign up for benefits and payroll. From a security perspective, before we provided VPN client software or created a point-to-point VPN tunnel, we had to make sure that we wouldn't be introducing malicious code or activity from their environment into ours. We accomplished this by reviewing desktop configurations, ensuring that they were using antivirus software and conducting a scan of the desktop IP address space.

We had only a few hours to conduct our work, so I prioritized and started on the network scans. I got a listing of their IP address space and used Nessus, a freely available port scanner, to run a scan of the corporate desktop addresses.

The results were of some concern. Most Windows desktops hadn't been patched in almost nine months — an eternity for Windows systems. In addition, several Linux desktops were running vulnerable versions of applications like Secure Shell and Sendmail. And some users were running Telnet, an insecure remote-access utility. Since we were short on time, we gave the company's IT manager our Linux security guidelines and a copy of the assessment report.

For the Windows desktops, we had users install the latest patches and our corporate antivirus software. Our other immediate goal was to identify and take control of critical assets. This included a content versioning system repository containing the company's source code, a workstation housing the company's financials and HR files, and backup tapes, which were being stored at an employee's home.

> **Most Windows desktops hadn't been patched in almost nine months — an eternity for Windows systems.**

In general, the acquisition assessment went well. Other than the desktop environment, I didn't find any glaring security holes or issues. It took about six hours to get all the desktops to a point where we felt comfortable giving them access to our network. But this is just an interim step. In a month or so, all employees in the acquired company will be relocated to our corporate offices, where they'll receive our corporate-standard desktop hardware and software image.

Back to Sarb-Ox

I've received many e-mails regarding the status of our Sarbanes-Oxley Act compliance efforts. I didn't mention the work in my last column simply because I find audits and compliance work boring and didn't have much to report. But now I have an update: We hired one of the Big Four consulting firms to assist us in the preparation work toward our compliance efforts. It's not the firm that will actually audit us later this year, since Sarbanes-Oxley precludes us from using the same firm for both tasks.

The Sarbanes-Oxley guidelines are vague, and we had no experience in-house. So we figured that if we got a big-name consultancy to assist us, things would be done in a way that would be acceptable to the Big Four accounting firm that will be doing the audit.

Having this assistance has helped us tremendously. We've gotten to the point where we've identified our key controls — those areas that management felt were important to ensure the integrity of the IT infrastructure. At the end of the day, management will attest to the effectiveness of the IT controls as they relate to the financial systems — and they will be the ones who could face legal consequences if the audit doesn't go well.

The auditors and a couple of members of our audit and compliance department developed a series of tests that correspond with the key controls. For example, one of the controls is that only database administrators can migrate code to a production Oracle application server. The test for this would be to obtain a list of the database administrators and ensure that only they have the proper permissions to execute the utility, which is used to migrate code and include bug fixes, patches and script changes on the Oracle database servers. This would be accomplished by getting screenshots of the password files and file permissions for certain code-migration utilities.

I've been spending a fair amount of time going through the tests to ensure that they're valid and identifying gaps or errors. So far, we've identified several. For example, in the database code-migration control, we discovered that administrators use a shared account that gives everyone in the administrators group permission to execute the utility that migrates code. Because we can't control or prove who has access to the shared account, this shared account is a gap. That and other problems either need to be fixed or deemed an acceptable risk by management.

Although the database migration issue is an easy fix, others may not be. It will be interesting to see what management wants fixed and what they'll be willing to live with as we go forward.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: QuickLink a1580

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Security Bookshelf

■ *Network Security Hacks*, by Andrew Lockhart; O'Reilly & Associates, 2004.



When I first started thumbing through this title, I thought that it might be one of those compendiums of tricks, tips and tools covered in other network security books. Although there are several areas the author discusses that have been covered elsewhere, Lockhart spends only a few pages on those subjects before moving on. For example, just six pages are devoted to the Nessus remote security scanner.

I was pleasantly surprised to see that the author took time to present some lesser-known but very useful tips. For example, he talks about tools such as Spaf, a real-time monitoring tool for intrusion-detection systems. The book doesn't include a companion CD-ROM containing the tools, but it does offer Web links where you can download them. I also would have liked to see security tips for routers and switches. Nonetheless, this is a great complement to the other titles in O'Reilly's Hacks series.

–Mathias Thurman

Database Security Software Released

Guardium Inc., a Waltham, Mass.-based database security software vendor, announced a set of integrated applications for protecting relational databases. The SQL Guard Security Suite features a module called VisibleGuard that lets companies continuously access and monitor enterprise database security and provides real-time and scheduled reports for auditing security, according to Guardium. The PolicyGuard module is available for developing and enforcing database access rules, while the AuditGuard component audits all database access activities. Each module costs $2,500.

BRIEFS

Axena Ships Sarb-Ox Tool Kit

Axena Inc. is shipping its SOAx Toolkit, software that's designed to provide companies with updates on their internal controls environment to help them satisfy the requirements of the Sarbanes-Oxley Act. The browser-based software supports multiple languages, according to Orlando-based Axena. Pricing starts at $25,000 for 25 seats.

Network Monitoring Software Updated

Network Instruments LLC has announced Observer 10, a network management, analysis and troubleshooting tool for use with remote networks, virtual LANs and wireless networks. With the new version, network monitoring as well as analysis and processing of network data is conducted at the individual probe level, according to the Minneapolis-based company. Pricing for Observer starts at $995.

BEA Upgrades Developers Portal

BEA Systems Inc. is expanding its Dev2dev developer portal site to include technical content from the Java community and O'Reilly Media Inc. CollabNet Inc. is providing the infrastructure to make the site more interactive. The enhanced portal is scheduled to be unveiled in October, BEA said.

Dime-a-Minute Web Conferencing Added

A pay-per-use option is now available for ASAP, an instant-messaging-based Web collaboration application from Convoq Inc. ASAP combines video- and audioconferencing over IP, text chat, screen-sharing and PowerPoint presentations for 10 cents a minute per participant, says Lexington, Mass.-based Convoq. ASAP also allows users to detect the presence of users on other IM systems and invite them to participate in chat sessions.

DANIEL J. WEITZNER

Transparency Is Clearly on the Way

THE PERFECT STORM of transparency is gathering over today's enterprise computing environment. Today we are seeing the gradual demise of stovepipe applications, a rapid decline in the cost of enterprisewide (and Webwide) queries and a stunning proliferation of data from sensor networks inside and outside the enterprise. Add to this the fact that storage costs seem to be approaching zero, and you have the makings of a transparent enterprise.



In a transparent enterprise, we will be able to know more about the disparate data sets that we create, find unexpected connections in previously unconnected pieces of data and see more information about individuals, whether they are customers or employees. Transparency will emerge through business intelligence systems, in buildings whose security systems record and log the identity of anyone in the facility at any given moment, and in collections of telemetry data from various private and public wireless networks that tell us the location of individual devices and their users.

Consider the enterprise data store that not only has detailed sales transactions but also travel expense reports such as rental car records, cell phone billing details, meal receipts and perhaps even electronic toll-booth records. Of course sales managers will be able to determine which sales rep has the most efficient sales-to-expense ratio. But managers may also be able to figure out that an employee exceeded the speed limit because he wrote a sales invoice in Albany, N.Y., just two hours and 10 minutes after leaving Burlington, Vt. Rental car records and MapQuest will confirm that it should take two hours and 18 minutes to drive that distance at the legal speed limit.

If you've got a database integration or business intelligence project that's behind schedule, you're probably skeptical about whether this magic that I've dubbed transparency will ever arrive. Looking past near-term sticking points, we can, however, be confident that it will. We're collecting more and more information, and it's easier to just keep it all than it is to figure out what to delete. Structured data formats such as XML and RDF are making it possible to mine this growing volume of data for new information. Perhaps most important, the systems we build today will one day support queries that we didn't even anticipate.

Changes in the public policy environment are also leading us toward greater transparency. Regulatory requirements such as the Sarbanes-Oxley Act and a California law requiring disclosure of security incidents demand greater systems transparency. Privacy advocates such as science fiction writer David Brin are even calling for increased transparency of surveillance systems to safeguard privacy.

While transparency-producing systems don't require that we plan queries in advance, it behooves us to prepare for the impact of this newfound power. Do we have any idea how work styles will change? Will the ability to discover new relationships in competitively sensitive data create new security risks? Who's in charge of taking advantage of the power of transparency, and who sets the rules for what's acceptable? Do we have privacy policies to deal with the flood of revealing personal location information? Are we evolving social conventions to help people deal with their increased exposure wisely? How do employees feel about all of this? Perhaps the key question is, are we doing the best job of leveraging an increasingly transparent environment to make our enterprises more efficient and productive?

I'll be exploring individual facets of the transparent enterprise in future columns. But why write about this here, in the pages of *Computerworld*? I believe that CIOs and other IT professionals are on the forefront of the transparency revolution, like it or not. You know the great breadth of data available to you, and you see the gradual (sometimes painfully gradual) integration of systems across the enterprise. You're transparency experts already. It's the rest of the world that has to catch up. What's your experience with enterprise transparency? How is your organization adapting? Is it the boon or bane of your existence, or am I just imagining all of this? I look forward to hearing from you. 48574

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8:15am to 8:45am	**Rebuilding the IT Foundation** Maryfran Johnson, Editor in Chief, Computerworld
8:45am to 9:15am	**Consolidation and the Data Center: Boosting Business Performance and Application Availability** Richard Villars, Vice President, Storage Systems Research, IDC
9:15am to 9:45am	**Consolidation Strategies for a New Media World** Andre Mendes, Chief Technology Integration Officer, PBS
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Perspectives from Oppenheimer Funds** Tim Gerlach, Manager, Telecommunications, Oppenheimer Funds
10:45am to 11:15am	**Customer Challenges and Solutions: Real-Life Scenarios Connecting Data Centers Over Distance** Steve Adolph, CTO, Enterprise Solutions Group, CIENA
11:15am to noon	**Panel: Overcoming Management Barriers — Making the Case for Consolidation** Panel Moderator: Julia King, National Correspondent, Computerworld Panelists: Paul Bergamo, Chief Technology Officer, Liberty Mutual; Stephen Morin, Chief Information Officer, TAC Worldwide Companies; Fred Pond, Director of Information Services, The Schnitzer Group of Companies
Noon	Program Concludes

Selected speakers include:



Maryfran Johnson
Editor in Chief, Computerworld



André Mendes
Chief Technology Integration Officer, PBS



Steve Adolph
CTO, Enterprise Solutions Group, CIENA



Richard Villars
Vice President, Storage Systems, IDC



Julia King
National Correspondent, Computerworld

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Q&A

Securing the Corporation

Internet vulnerabilities and back doors that can be created through outsourced application development were just a few of the security issues fielded in a panel discussion with four CSOs. **Page 36**

Career Watch

Navigating the move from a purely technical job to the business side of the organization; the effect of fewer computer science grads entering the workforce; and the best and worst places to recruit CIOs. **Page 37**

IT MENTOR

Listen!

Former IT manager Dick Lefkon says the key to getting better requirements for IT projects is to teach your business analysts to interview users properly. Here's how. **Page 35**



Network Services Co. CIO Michael H. Hugos (center) discusses support of sales vice president Dave Smith (left) before pitching his idea for a collaborative forecasting system to top business executives.

ANDY GOODWIN

SHOW SOME Initiative!

HOW TO WIN SUPPORT FOR YOUR BRILLIANT BUT UNSOLICITED IT IDEAS.

BY JULIA KING

WHEN CIO Michael H. Hugos approached his company's top business executives with an idea for building a collaborative forecasting system for customers, the executives immediately became uneasy and suspicious.

"The finance people were worried I'd commit [them] to a multimillion-dollar project, and the sales people were worried I'd stir up a hornet's nest with their customers," says Hugos, CIO at Network Services Co., a $6.8 billion distribution cooperative in the Chicago suburb of Mount Prospect.

But Hugos persisted. He created a brief PowerPoint presentation explaining his plan for a relatively simple and inexpensive online database that both customers and NSC employees could access to view, correct and update a single set of forecast numbers. He took it back to NSC's vice president of sales, Dave Smith, with whom he is chummy, and to the head of customer service. Together, they showed it to one of NSC's top customer companies, which gave it an enthusiastic thumbs up.

"Mike is a great salesman," says Jennifer Jackolin, NSC's director of cus-

former service. "I always thought of him as a salesman disguised as a CIO. He is a terrific collaborator and idea man."

Hugos is also among an elite group of proactive IT leaders who haven't been intimidated by back-to-back years of cost cutting, slashed budgets and dismal business IT alignment scores. In March, a paltry 10% of 200 executives jointly surveyed by Deloitte Consulting and IDC Research Services Experts said that their companies have been successful at aligning IT with corporate strategies.

"Some of us have felt beat up, and we've taken a passive position in the IT profession," says Hugos, who is a *Computerworld* columnist. That makes it easy to fall into the trap of waiting around to be told what to do. "I think we have slipped into this out of a defensive reaction, and now it's time to brush ourselves off and try again," he says.

Here's some advice from CIOs who successfully pushed through their unsolicited ideas, saving or earning their companies millions of dollars in the process.

Knowledge Is Power

Knowing the business inside and out is the best and fastest way IT can gain credibility for its homegrown ideas for addressing business needs. That's why Bill Homa, CIO at Hannaford Bros. Co., a 120-store grocery chain based in Portland, Maine, fills IT positions with people who have worked on the front lines. "Unless you've worked in a store, you can't experience all of the issues that people there run up against," says Homa. Hannaford's head of retail systems, for example, was a store manager for 15 years.

That business experience was the linchpin in winning over executive support for an IT proposal to equip all stores with wireless technology, Homa says. Today, all ordering, inventory and product layout activities are performed in stores via handheld wireless devices with access to a real-time online database of purchasing and product history. "When someone in the store is ordering a product, we can prompt them with what we think they should order based on that store's previous week's sales as well as their sales for the same week of the previous year," Homa explains. A single application for marking down perishable meat and poultry has paid a 100% return on Hannaford's $2 million investment in wireless infrastructure, which now supports 11 different applications, Homa says.

Other CIOs recommend organizing the IT department so that a team of staffers is dedicated exclusively to staying current on all business issues.

At Calpine Corp., an energy producer in San Jose, CIO Dennis Fishback has created an IT team whose sole job is to study the markets in which Calpine operates. Fishback says it's all part of his philosophy and drive to have IT "transform" the business rather than simply help or improve it.

"The people we have in IS in many cases are energy professionals first and IT specialists second," Fishback says. Indeed, it was IT — as opposed to brokers or financial executives — that conceived the idea and pushed for the creation of a set of real-time interfaces to several energy markets. Since 2002, Calpine's $136,000 investment in the interfaces has helped generate or protect millions of dollars in revenue, according to Fishback.

"Nobody from the business came and asked us for these real-time interfaces," Fishback stresses. "We [in IT] recognized the need. IT has to be proactive. You have to understand the business. It's more important than understanding the technology."

HERE'S HOW TO SHOW SOME INITIATIVE

- Know your company's customers, markets and competitors — and their IT capabilities.
- Read the trade publications that your CFO and CEO read.
- Buddy up with regional sales managers. They're your window into what's happening on the front lines of the business.
- Always seek to relieve conflict and drudgery in business processes.
- When feasible, let IT employees test-drive your ideas first.
- Base your suggestions on your IT department's strengths.
- Build credibility with quick-hit, easy-payback projects. Recruit allies in functional business departments and get them to fund such projects.

Sell Your Strengths

IT services giant Accenture Ltd. formally reviews and updates its IT strategy every two years. It was during one of those reviews that CIO Frank Modruson, formerly a consultant at the company, decided to compare his own list of internal IT strengths with the portfolio of IT services Accenture sells in the market.

"Internally, we had a strength in managing and architecting IT infrastructure, yet that was not a service we were offering in the market," Modruson recalls. Accenture had also just migrated 80,000 of its own users from Lotus Notes to Microsoft e-mail, yet Microsoft integration was another key strength that was not on the company's list of revenue-generating service offerings.

Working with the executive steering committee, Modruson pushed for the company to offer both services, which it now sells. Accenture also entered into a joint venture with Microsoft Corp. to create Avanade Inc., a global technology integration company dedicated to Microsoft software. Launched in April 2000, Seattle-based Avanade now boasts more than 1,000 customers and 2,000 employees.

"The business is reaching out to the CIO to drive more [innovation]," Modruson says. Even though he has seen budget cuts and an overall down economy force many IT organizations into "order-taking mode," IT needs to be proactive, he says. "That's what we tell our clients they should be doing, too."

Try This at Home

At Marcus & Millichap Real Estate Investment Brokerage Co. in Encino, Calif., "anything that comes out of my department has to make brokers' jobs more efficient," says CIO Rick Peltz. He often tests ideas in IT before bringing them to the business.

For example, before floating his proposal to equip the company's 800 brokers with wireless BlackBerry devices as a way to stay current with e-mail, he decided to try them first in his own department, which readily embraced the technology. Given IT's positive response, Peltz knew the BlackBerries were right for busy agents looking to stay in contact with clients without lugging around their laptop computers.

He was right. More than 100 agents "flocked to the technology within the first two months," he says.

That gave Peltz and the IT department the credibility and the $1 million in funding needed to build and launch a Web-based marketing application that lets agents create a customized marketing presentation — with the look and feel of a PowerPoint presentation — using information that is stored in templates and accessible via the Internet. With the previous marketing application, agents had to be on the company intranet to access the information they needed for presentations.

"It was a fixed solution. If they decided to work on the weekend at home, they'd have to re-enter all of the information," Peltz says. "We hooked them on this new application" because it simplified and shortened the creation of marketing packages, he says.

What users want from IT, Peltz explains, is "a way to streamline processes and support to make a new process easy." The best way to do that, he adds, is to first use the technology you're proposing internally and then decide whether the benefits are truly there.

The bottom line, says Calpine's Fishback, is that CIOs can take one of two paths: "You can be a reactive order-taker, or a business process change agent," he says. If you allow yourself to be an order-taker, "you're a prime candidate for outsourcing," he explains. "If you really want to make a value-added contribution to your company, you have to be proactive." 48047



"Unless you've worked in a store, you can't experience all of the issues that people there run up against."

BILL HOMA, [illegible]



"You can be a reactive order-taker, or a business process change agent."

DENNIS FISHBACK, CIO, CALPINE CORP.



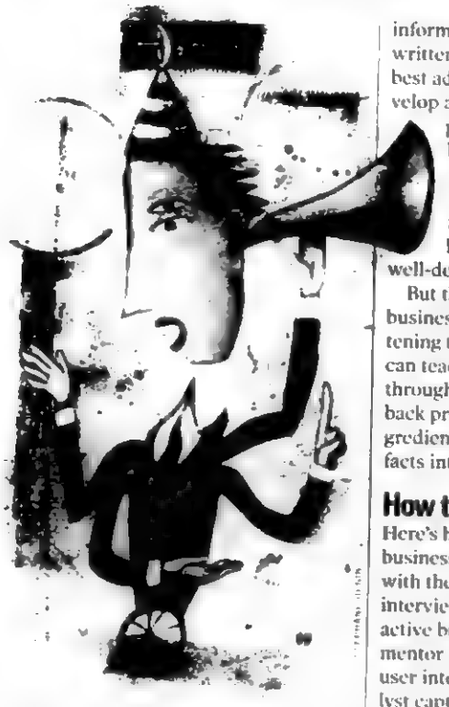
"Anything that comes out of my department has to make brokers' jobs more efficient."

RICK PELTZ, CIO, MARCUS & MILLICHAP

Listen!

Want to build better systems? Teach your people to conduct better user interviews.

By Dick Lefkon



ASK NEARLY ANY IT MANAGER how helpful business users are, and he will eventually say something like, "I know it's not their fault, but when I expend resources to gather predesign information from the business users, they tell us only half of what we need to know and then give me trouble at sign-off when we've built exactly what they asked for."

That may be true. But why?

Maybe it's because the business analysts who question the users aren't routinely given real training on how to conduct an interview and don't receive feedback on their performance. They may be schooled in how to distill the vital facts into UML product templates but not in how to get the valid facts from users in the first place.

Half the solution is to construct and require regular use of a user interview form. Every IT unit should have such a form for gathering systems planning information before specifications are written. Dust it off, distribute it to your best advisers, and discuss it. Then develop a plan for improving and reimplementing it. That way, you'll be sure that all the important questions you come up with in advance will get asked in the first interview. This will go a long way toward producing a well-designed system.

But this works only if the business analyst is really listening to the answers. You can teach him to listen through a simple tracking-and-feedback protocol, and that's the second ingredient for getting better business facts into your design specifications.

How the System Works

Here's how it works: A supervisor or business analyst mentor tags along with the business analyst to the user interview. At the user session, both the active business analyst and the silent mentor write on copies of the standard user interview form. But while the analyst captures business facts, the mentor uses the form to record sequences of code letters plus occasional keywords to facilitate later review of the session. The user needn't be told that the mentor is "grading" the analyst's interviewing skills.

Using a simple, 10-letter mnemonic code (see box at right), the mentor notes what he sees and hears every few seconds during the interview. Even if the mentor has never before coded or analyzed interviews, the process is easy to learn and can be quickly internalized with a little practice.

Here's how a mentor might employ the code to record a few seconds of an interview:

■ **ANALYST: What process difficulties have you had with the current bond trading system?** (Mentor: Q...Q) **USER:** Well, we've been booking styrips and zero coupon bonds as very long-term T-bills, but sometimes the P&L results reverse credits and debits and also come out much bigger than the trader expected. (Mentor: A...A...A)

■ **ANALYST: So you're saying T-bills lasting many years sometimes have their profits and losses reversed and have an unexpectedly large magnitude?** (Mentor: B...B...B) **USER:** Come to think of it, I just recalled some real bookkeeping problems the such-and-such system caused last year. (Mentor: X...X)

■ **ANALYST: Yes, I remember about bookkeeping very well. You know, I got all A's and B's in it at Wharton.** (Mentor: X...X...X)

Later, the mentor and analyst should meet to go over the mentor's notated user interview form, and the mentor can explain how the analyst encouraged or discouraged the user's information flow during the session.

The analyst should easily discern where improvements are needed from the raw counts as well as the sequences of the code letters. For instance, producing lots of QA and QN sequences is good, even with intervening S's. But frequent QQQ's or XXQ's may mean that the interviewer is wasting time by overexplaining questions.

Usually, business analysts readily accept a mentor's guidance and keep the 10 letters in mind at subsequent user interviews. You'll find that they become better interviewers through practice, followed by a half-hour critique in which real counts of the letter codes are reviewed in context.

Soon, your design specifications will be written from more and better business-user input. **48290**

Lefkon is a former IT manager at Smith Barney and Equitable Capital who now consults for financial services companies. Contact him at aitp848@hotmail.com.

This is the first in an occasional series of columns written by IT managers for IT managers.

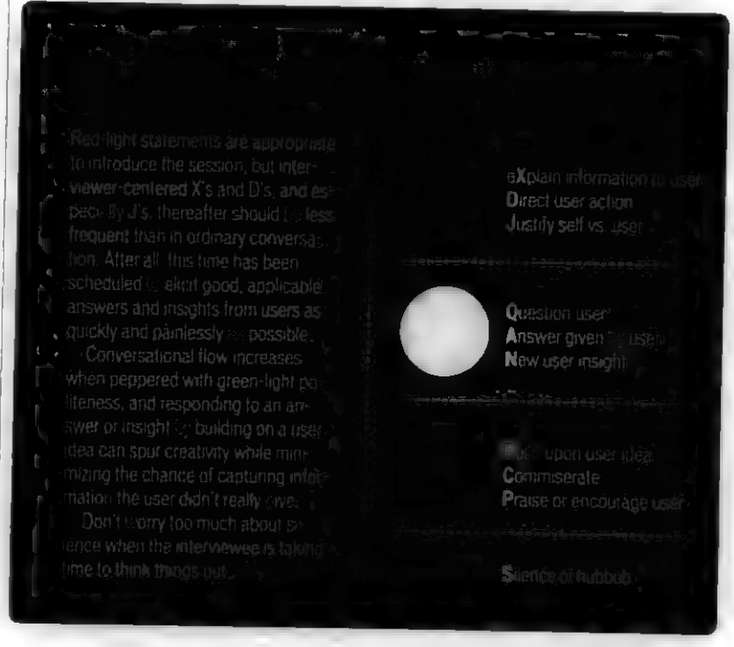
IT MENTOR

Self Test

By categorizing each of these phrases with one of the 10 codes:

1. [ ] Please disable your phone ringer.
2. [ ] That made us lose a big client.
3. [ ] Which buildings will they be in?
4. [ ] Your reports are easy to read.
5. [ ] We're upgrading the mail server.
6. [ ] Business user searches for folder.
7. [ ] Users seldom describe needs well.
8. [ ] I can see why you got angry.
9. [ ] Would an audit trail prevent that?
10. [ ] 80 clerks, but only 20 at a time.

Answers: 1-D; 2-N; 3-I; 4-P; 5-X; 6-S; 7-J; 8-C; 9-B; 10-A



tomer service. "I always thought of him as a salesman disguised as a CIO. He is a terrific collaborator and idea man."

Hugos is also among an elite group of proactive IT leaders who haven't been intimidated by back-to-back years of cost cutting, slashed budgets and dismal business/IT alignment scores. In March, a paltry 10% of 200 executives jointly surveyed by Deloitte Consulting and IDG Research Services reported that their companies have been successful at aligning IT with corporate strategies.

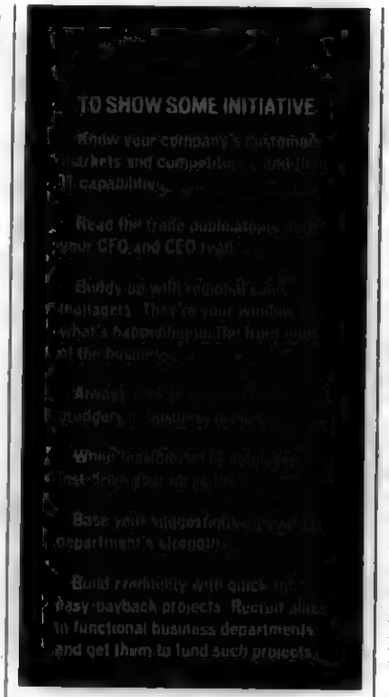
"Some of us have felt beat up, and we've taken a passive position in the IT profession," says Hugos, who is a *Computerworld* columnist. That makes it easy to fall into the trap of waiting around to be told what to do. "I think we have slipped into this out of a defensive reaction, and now it's time to brush ourselves off and try again," he says.

Here's some advice from CIOs who successfully pushed through their unsolicited ideas, saving or earning their companies millions of dollars in the process.

Knowledge Is Power

Knowing the business inside and out is the best and fastest way IT can gain credibility for its homegrown ideas for addressing business needs. That's why Bill Homa, CIO at Hannaford Bros. Co., a 120-store grocery chain based in Portland, Maine, fills IT positions with people who have worked on the front lines. "Unless you've worked in a store, you can't experience all of the issues that people there run up against," says Homa. Hannaford's head of retail systems, for example, was a store manager for 15 years.

That business experience was the linchpin in winning over executive support for an IT proposal to equip all stores with wireless technology, Homa says. Today, all ordering, inventory and product layout activities are performed in stores via handheld wireless devices with access to a real-time online database of purchasing and product history. "When someone in the store is ordering a product, we can prompt them with what we think they should order based on that store's previous week's sales as well as their sales for the same week of the previous year," Homa explains. A single application for marking down perishable meat and poultry has paid a 100% return on Hannaford's $2 million investment in wireless infrastructure, which now supports 11 different applications, Homa says.



Other CIOs recommend organizing the IT department so that a team of staffers is dedicated exclusively to staying current on all business issues.

At Calpine Corp., an energy producer in San Jose, CIO Dennis Fishback has created an IT team whose sole job is to study the markets in which Calpine operates. Fishback says it's all part of his philosophy and drive to have IT "transform" the business rather than simply help or improve it.

"The people we have in IS in many cases are energy professionals first and IT specialists second," Fishback says. Indeed, it was IT — as opposed to brokers or financial executives — that conceived the idea and pushed for the creation of a set of real-time interfaces to several energy markets. Since 2002, Calpine's $136,000 investment in the interfaces has helped generate or protect millions of dollars in revenue, according to Fishback.

"Nobody from the business came and asked us for these real-time interfaces," Fishback stresses. "We [in IT] recognized the need. IT has to be proactive. You have to understand the business. It's more important than understanding the technology."

Sell Your Strengths

IT services giant Accenture Ltd. formally reviews and updates its IT strategy every two years. It was during one of those reviews that CIO Frank Modruson, formerly a consultant at the company, decided to compare his own list of internal IT strengths with the portfolio of IT services Accenture sells in the market.

"Internally, we had a strength in managing and architecting IT infrastructure, yet that was not a service we were offering in the market," Modruson recalls. Accenture had also just migrated 80,000 of its own users from Lotus Notes to Microsoft e-mail, yet Microsoft integration was another key strength that was not on the company's list of revenue-generating service offerings.

Working with the executive steering committee, Modruson pushed for the company to offer both services, which it now sells. Accenture also entered into a joint venture with Microsoft Corp. to create Avanade Inc., a global technology integration company dedicated to Microsoft software. Launched in April 2000, Seattle-based Avanade now boasts more than 1,000 customers and 2,000 employees.

"The business is reaching out to the CIO to drive more [innovation]," Modruson says. Even though he has seen budget cuts and an overall down economy force many IT organizations into "order-taking mode," IT needs to be proactive, he says. "That's what we tell our clients they should be doing, too."

Try This at Home

At Marcus & Millichap Real Estate Investment Brokerage Co. in Encino, Calif., "anything that comes out of my department has to make brokers' jobs more efficient," says CIO Rick Peltz. He often tests ideas in IT before bringing them to the business.

For example, before floating his proposal to equip the company's 800 brokers with wireless BlackBerry devices as a way to stay current with e-mail, he decided to try them first in his own department, which readily embraced the technology. Given IT's positive response, Peltz knew the BlackBerries were right for busy agents looking to stay in contact with clients without lugging around their laptop computers.

He was right. More than 100 agents "flocked to the technology within the first two months," he says.

That gave Peltz and the IT department the credibility and the $1 million in funding needed to build and launch a Web-based marketing application that lets agents create a customized marketing presentation — with the look and feel of a PowerPoint presentation — using information that is stored in templates and accessible via the Internet. With the previous marketing application, agents had to be on the company intranet to access the information they needed for presentations.

"It was a fixed solution. If they decided to work on the weekend at home, they'd have to re-enter all of the information," Peltz says. "We hooked them on this new application" because it simplified and shortened the creation of marketing packages, he says.

What users want from IT, Peltz explains, is "a way to streamline processes and support to make a new process easy." The best way to do that, he adds, is to first use the technology you're proposing internally and then decide whether the benefits are truly there.

The bottom line, says Calpine's Fishback, is that CIOs can take one of two paths: "You can be a reactive order-taker, or a business process change agent," he says. If you allow yourself to be an order-taker, "you're a prime candidate for outsourcing," he explains. "If you really want to make a value-added contribution to your company, you have to be proactive." 48047



"Unless you've worked in a store, you can't experience all of the issues that people there run up against."

BILL HOMA, CIO, HANNAFORD BROS.



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RICK PELTZ, CIO, MARCUS & MILLICHAP

Listen!

Want to build better systems? Teach your people to conduct better user interviews.

By Dick Lefkon



ASK NEARLY ANY IT MANAGER how helpful business users are, and he will eventually say something like, "I know it's not their fault, but when I expend resources to gather predesign information from the business users, they tell us only half of what we need to know and then give me trouble at sign-off when we've built exactly what they asked for."

That may be true. But why?

Maybe it's because the business analysts who question the users aren't routinely given real training on how to conduct an interview and don't receive feedback on their performance. They may be schooled in how to distill the vital facts into UML product templates but not in how to get the valid facts from users in the first place.

Half the solution is to construct and require regular use of a user interview form. Every IT unit should have such a form for gathering systems planning information before specifications are written. Dust it off, distribute it to your best advisers, and discuss it. Then develop a plan for improving and reimplementing it. That way, you'll be sure that all the important questions you come up with in advance will get asked in the first interview. This will go a long way toward producing a well-designed system.

But this works only if the business analyst is really listening to the answers. You can teach him to listen through a simple tracking-and-feedback protocol, and that's the second ingredient for getting better business facts into your design specifications.

IT MENTOR

How the System Works

Here's how it works: A supervisor or business analyst mentor tags along with the business analyst to the user interview. At the user session, both the active business analyst and the silent mentor write on copies of the standard user interview form. But while the analyst captures business facts, the mentor uses the form to record sequences of code letters plus occasional keywords to facilitate later review of the session. The user needn't be told that the mentor is "grading" the analyst's interviewing skills.

Using a simple, 10-letter mnemonic code (see box at right), the mentor notes what he sees and hears every few seconds during the interview. Even if the mentor has never before coded or analyzed interviews, the process is easy to learn and can be quickly internalized with a little practice.

Here's how a mentor might employ the code to record a few seconds of an interview:

■ ANALYST: What process difficulties have you had with the current bond trading system? (Mentor: Q...Q) USER: Well, we've been booking styrips and zero coupon bonds as very long-term T-bills, but sometimes the P&L results reverse credits and debits and also come out much bigger than the trader expected. (Mentor: A...A...A...A)

■ ANALYST: So you're saying T-bills lasting many years sometimes have their profits and losses reversed and have an unexpectedly large magnitude? (Mentor: R...R...R) USER: Come to think of it, I just recalled some real bookkeeping problems the such-and-such system caused last year. (Mentor: N...N)

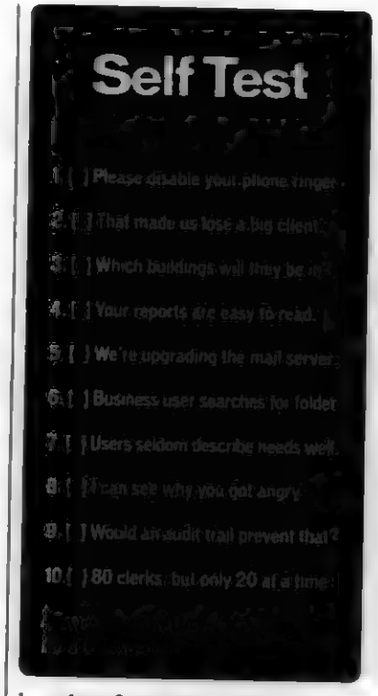
■ ANALYST: Yes, I remember about bookkeeping very well. You know, I got all A's and B's in it at Wharton. (Mentor: X...X...X)

Later, the mentor and analyst should meet to go over the mentor's notated user interview form, and the mentor can explain how the analyst encouraged or discouraged the user's information flow during the session.

The analyst should easily discern where improvements are needed from the raw counts as well as the sequences of the code letters. For instance, producing lots of QA and QN sequences is good, even with intervening S's. But frequent QQQ's or XXQ's may mean that the interviewer is wasting time by overexplaining questions.

Usually, business analysts readily accept a mentor's guidance and keep the 10 letters in mind at subsequent user interviews. You'll find that they become better interviewers through practice, followed by a half-hour critique in which real counts of the letter codes are reviewed in context.

Soon, your design specifications will be written from more and better business-user input. **48290**



Lefkon is a former IT manager at Smith Barney and Equitable Capital who now consults for financial services companies. Contact him at aitp368@hotmail.com.

This is the first in an occasional series of columns written by IT managers for IT managers.











SECURING the CORPORATION

Four chief security officers discuss the steps they've taken to safeguard their organizations' IT infrastructures from internal and external threats.

Q&A **HACKERS. MOLES. CYBERTERRORISTS.** *Back doors left by software developers. These are some of the primary challenges that corporate chief security officers are facing these days. In May,* Computerworld's *Thomas Hoffman moderated a panel discussion with four CSOs who explored these topics at a meeting of the New Jersey chapter of the Society for Information Management.*

The panelists who participated in the discussion at the meeting in Morristown were **Stephen Foster**, *global chief information security officer at Avaya Inc. in Basking Ridge, N.J.;* **Don Garvey**, *chief security officer at Chubb Group of Insurance Companies in Warren, N.J.;* **Mike Zboray**, *chief security officer at Gartner Inc. in Stamford, Conn.; and* **Jonathan Zwang**, *head of global infrastructure strategic planning, benchmarking and information systems security at Aventis Pharmaceuticals Inc. in Bridgewater, N.J.*

What are your organization's top security concerns today, and what steps are you taking to address them?

GARVEY: One of the things that's emerging is the dependence on the Internet infrastructure. Two or three years ago, if Internet access was lost for a couple of days, it would be [merely] inconvenient unless you were in an online business.

But if a terrorist group or a group of hackers wanted to take the Internet out, you could really affect the U.S. economy today, and I don't think it's that difficult to do. Executives don't realize just how dependent they are on that infrastructure, and we need to sit down with them and start to build a strategy around how we would conduct our business if the Internet were disrupted.

ZWANG: One of the concerns that I have right now is what I call cybervandals — basically, kids who have nothing better to do than to create worms and viruses. I see a disturbing trend: that it's starting to escalate to organized crime and move toward cyberterrorism.

What are some of the key security challenges posed through business process or IT outsourcing?

FOSTER: One of the problems with outsourcing is ensuring the quality of work. A lot of development work is being sent offshore to India and Asia. But what controls are in place to ensure quality of service, confidentiality of information, protection of proprietary assets, [and] proper background investigations for employees working with your information? You're potentially giving the keys to the kingdom to an outsourcer, and you're relying on them to provide good security.

We have to push back with our executives and advise them that the security risks might outweigh the cost savings through outsourcing.

ZBORAY: The Gartner culture has always been, "Do it now and then find out who you were supposed to ask." The problem is that we had some staffers outside of headquarters who were acquiring Web services that we didn't know about, and the security state of those sites was unverified.

I can remember once when our CIO called me and asked, "What the heck happened to our Web site?" None of us in IT knew what he was referring to. After some digging, we found that one of our business units had acquired Web services through a service provider and then that outsourced site was hacked.

What worked for us was teaming up with the contracts people, since they have more leverage than we do in IT. As a result, all external acquisitions have to be passed through filters to ensure that technologies and online services we utilize have the appropriate security controls.

How do you make sure there aren't any back doors in software that has been outsourced for development or maintenance?

FOSTER: The only real assurance that back doors have not been coded into an application is to conduct code reviews. [That] can be almost as expensive as the development costs. If you had to do code reviews on all overseas development, it would offset the cost benefits of offshoring your development work. One answer is to conduct more proactive scans of your network to look for such attacks.

ZWANG: You have to apply multiple techniques, such as monitoring what comes into and goes out of your organization. Make sure that you test access points into your environment to see if experts can break in.

How do you communicate to your chief financial officer the steps you're taking to address the security requirements of regulations such as the Sarbanes-Oxley Act?

ZWANG: You have to ask, "Who is the real owner of a business process?" and then work with them to gather those security requirements.

FOSTER: Everything can't be solved by technology or IT controls. We have to challenge business executives to make sure we are requiring all business owners to have better process controls in place.

What are the key shortcomings you would like to see security software vendors address?

GARVEY: Vendors have been playing catch-up in information security for years. Vendors need to spend more time meeting with customers to find out what their challenges are instead of dealing with that vulnerability after a couple of years.

ZWANG: One of the biggest holes we have right now, which is just starting to be addressed, is device and data authentication. It's not going to be a Holy Grail or a silver bullet, but it should be one of the broadest jumps that we can make, to know where the device is that's connected to our environment, who it belongs to and where the data is coming from. **48295**

Career Watch

Easy Marks and Tough Targets

VIRTUALLY EVERY Fortune 100 company boasts its share of talented executives. But the amount of effort it takes to recruit them away from their current employers can vary greatly, according to executive search firm Morgan Howard Worldwide. The Stamford, Conn.-based recruiter recently compiled a list of the easiest and hardest companies to crack when it comes to recruiting key talent. Among the easiest marks: Fannie Mae, American International Group and Verizon Communications. Executives tend to stay put at Wal-Mart, General Electric and The Home Depot, says Morgan Howard President Marc Lewis.

"Cash, bonuses and other compensation components are only one factor in determining whether a company is at risk of losing its top talent," says Lewis. Other key factors include the CEO's ability to connect with company leaders and communicate his vision, the existence of an organizational structure that recognizes and rewards top-performing talent, identification of clear career tracks for executive-level positions, and leaders who are allowed sufficient autonomy to develop their own ideas.

The companies on the easy-target list were weak on at least two and often three of those factors, Lewis says.





Career Clip

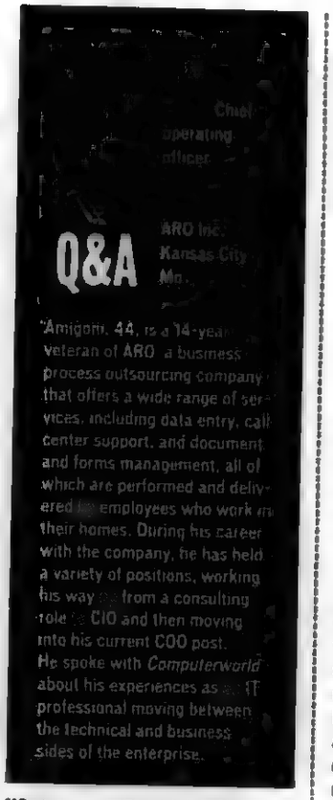
THE BURSTING OF THE technology bubble and horror stories about unemployment and offshore outsourcing of tech jobs have dampened students' interest in computer careers and fueled a 23% decline in computer science program enrollments in U.S. universities between 2002 and 2003, according to recent report in the *Los Angeles Times*. Jeanne Ferrante, associate dean of the University of California, San Diego, School of Engineering, told the newspaper that the rising jobless rate for computer scientists and systems analysts over the past few years – and the accompanying erosion of salaries, bonuses and other amenities – have discouraged students. The enrollment drop-off is happening just as U.S. companies are on the cusp of a hiring resurgence, which is prompting concerns about a scarcity of domestic tech professionals as well as a stalling of technological innovation.

The U.S. Department of Labor forecasts 46% growth in the number of jobs for computer software engineers between 2002 and 2012.



SOURCE: LOS ANGELES TIMES

Q&A



ARO Inc.
Kansas City, Mo.

"Amigoni, 44, is a 14-year veteran of ARO, a business process outsourcing company that offers a wide range of services, including data entry, call center support, and document and forms management, all of which are performed and delivered by employees who work in their homes. During his career with the company, he has held a variety of positions, working his way up from a consulting role to CIO and then moving into his current COO post. He spoke with *Computerworld* about his experiences as an IT professional moving between the technical and business sides of the enterprise.

What was your first job in IT? I started as a database consultant working with small companies. Eventually, I moved to ARO and into a full-time position programming database applications around a predictive dialer application the company had purchased.

How did you make the move to the business side? Was it a gradual transition, or did you make a clear-cut jump out of heads-down technical work to a business/strategy role? The move from a strictly IT job to operations was gradual, since we had to write and integrate other programming to support the predictive dialer application. I worked my way up to CIO. Eventually I was making more and more decisions about operations, since IT is the framework for building a more efficient and cost-effective operation. As a result of a person departing from the operations position, I assumed a dual role of CIO/COO. In an organization that has less then $10 million in sales, a person can play both roles very effectively. But as we grew, my CIO role eventually was too much with the COO role, and a separate CIO was hired.

With more and more IT work, such as programming and application support and maintenance, moving offshore, do you see the need for purely technical skills on the decline here in the U.S.? Yes. I think technical ability alone will limit your job choices. However, with some business and operations background, you can be part of the team that manages any offshore activity.

In your opinion, are there other non-technical skills an IT professional should hone to ensure continued career success? I obtained an MBA at University of Illinois, specializing in both IT and finance. I believe that more and more IT involves making operations and marketing decisions. A person who can sit down with marketing/finance/accounting departments and speak their language and overlay this to IT is very valuable to organizations.

What advantages does your IT background and experience afford you in your role as COO? Seven years ago, I spearheaded our move to a virtual business model for our customer service and business process outsourcing. Back then, a virtual customer relationship management model was very cutting edge and still is seven years later. With my IT background, I was able to calculate risk on decisions that were being made. I coupled this IT background with my business and telecom knowledge to develop a business model for an all-virtual BPO services company. I see many operations managers at the mercy of IT [which is] telling them that this cannot be done or that cannot be done. Instead, I tell my IT managers what will be done with a lot of confidence.

What advice do you have for IT professionals looking to move into a hybrid position that requires business skills? I would suggest taking some graduate courses in marketing, finance and operations. These courses will teach you how to become more well rounded in business. You will understand that IT is not the center of the universe. Instead, products and services grow an organization. You can have the best enterprise network and systems, but without growing revenue from customers, you have nothing. An IT professional who can think like a marketing person in an IT shell will be a great asset to many businesses across many industries. 48416

– *Julia King*

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EASIEST

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- American International Group Inc.
- Merck & Co.
- Verizon Communications Inc.
- Hewlett-Packard Co.
- Citigroup Inc.
- Ford Motor Co.
- AT&T Corp.
- Motorola Corp.

HARDEST

- Wal-Mart Stores Inc.
- Dell Inc.
- General Electric Co.
- The Home Depot Inc.
- Intel Corp.
- McKesson Corp.
- Cisco Systems Inc.
- ConocoPhillips Co.
- Exxon Mobil Corp.
- The Kroger Co.

Career Clip

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UNIVERSITY COMPUTER SCIENCE ENROLLMENT, 1999-2003

MIT

U.C. Berkeley

Georgia Institute of Technology

SOURCE: *LOS ANGELES TIMES*

Q&A

Michael Amigoni

TITLE: Chief operating officer

COMPANY: ARO Inc., Kansas City, Mo.

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What advantages does your IT background and experience afford you in your role as COO? Seven years ago, I spearheaded our move to a virtual business model for our customer service and business [illegible]. Developing a virtual customer relationship management model was very cutting-edge [illegible] seven years later. With my IT background, I was able to calculate risk on the [illegible] that were being made. I coupled this IT background with my business and telecom knowledge to develop a business model for an all-virtual BPO services company. I see many operations managers at the mercy of IT [which is] telling them that this cannot be done or that cannot be done. Instead, I believe IT must support what is to be done with a lot of confidence.

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Julia King

CONTRACTS

DePauw Inks Online Music Deal

Online music retailer MusicRebellion.com, a division of Digonex Technologies Inc. in Indianapolis, announced that it will offer all 2,300 DePauw University students legal music through its Web-based platform on a pay-per-download basis without any added fees. The company will donate 1% of all sales back to Greencastle, Ind.-based DePauw for student scholarships.

Imerys Picks AT&T for VoIP

AT&T Corp. has secured a three-year, $2.25 million contract to provide Paris-based mineral processor Imerys with IP-based data and voice networking services. Under the deal, AT&T will connect approximately 50 Imerys sites worldwide using its Global Managed Internet Service, allowing Imerys employees to share mining management systems in real time. AT&T also provides Imerys with local, long-distance and international voice service, as well as audio- and video-conferencing services.

Santa Clara Signs Outsourcing Pact

Dynamic Systems Inc., a Los Angeles-based technology and services provider, announced a five-year contract with the county of Santa Clara to manage its Sun Microsystems Inc. assets and service contracts. The contract also includes presales configuration, asset tracking and postsales integration and configuration.

Boston College Picks Dell Latitudes

Dell Inc. announced a three-year agreement with Boston College to offer students wireless-enabled Latitude D600 notebook computers via the online college bookstore. The program replaces a previous arrangement with IBM.

BART PERKINS

Objectivity: Don't Settle for Less

TODAY, IT'S VERY DIFFICULT to get objective advice regarding IT direction and strategy. Many of the firms that used to specialize in IT strategy work are now owned by large systems integrators or computer manufacturers. To make matters worse, many IT suppliers now offer referral fees to firms that recommend their products and services. So much for objectivity.



Years ago, there was much more market fragmentation: Strategy firms dispensed advice, systems integrators built systems, outsourcers ran data centers, and manufacturers delivered hardware or software. There was no "one-stop shopping." On the positive side, the customer got objective advice. On the negative side, since the strategy firms didn't have delivery experience, their time and cost estimates were sometimes inaccurate. In addition, poor communication among the companies involved often resulted in misinformation, much like the old game of "telephone." These disconnects could cause expensive mistakes.

All parties believed that tighter linkage would offer benefits:

- Customers felt that they were more likely to have new systems delivered on time, on budget and with high quality if the people who built the plan were also responsible for executing it.
- Strategy firms wanted to grow. They saw that systems integration companies were getting 10 to 20 times as much revenue for implementing the plan as they were for building the plan.
- Systems integration firms felt that if they worked with senior executives to establish the strategy, they would get more implementation work.
- Manufacturers viewed systems integration as a new line of business that would help them sell more of their traditional IT products.

End-to-end integration appeared to meet everyone's objectives. Therefore, some of the manufacturers and systems integrators began to acquire strategy firms: CSC acquired Index, EDS picked up A.T. Kearney, and Nolan, Norton & Co. was acquired by KPMG Peat Marwick. Other companies, such as Andersen Consulting, started their own strategy groups. IBM did both.

Large companies that have their own strategy groups often use IT strategy and planning projects as loss leaders. They offer to do the planning work (worth hundreds of thousands of dollars) at minimal cost in order to get millions of dollars of hardware sales or systems integration work. Unfortunately, these plans often specify particular hardware, database software and application packages or services that can be performed only by their own company. So much for objectivity.

As a result of the industry consolidation, there are very few firms that can dispense truly independent advice, but they're out there if you look hard enough. When searching for objectivity, keep these tips in mind:

- Look for an independent "boutique." Although sometimes difficult to find, these still exist. They are best found through referrals from people you trust.
- Draw a clear line between strategy and implementation contracts. To ensure objectivity, make the firm that develops the strategy ineligible to bid on the implementation. If you can't find an independent boutique, hire a big company but specify contractually that it will not be allowed to bid for resulting implementation projects.
- Demand contractual independence. In all cases, put language in the contract specifying that the firm developing the strategy and plan is not allowed to receive any referral or other fees from the suppliers they recommend.
- Monitor progress objectively. For large programs, consider retaining an independent firm to periodically monitor progress.

My dad taught me to "measure twice; cut once." That applies here as well, but on a much grander scale. If you already have an IT strategy from a large, multipurpose company, or if your CEO requires you to use a company for political reasons, hire an independent firm to provide a second opinion. A mistake in today's marketplace is prohibitively expensive; an independent opinion is well worth the cost. Just make sure the firm's staff is senior enough to have the breadth and depth of experience needed to accurately assess the validity of your IT strategy. Don't hire a firm that will cut costs by using a horde of recent college graduates.

Your IT strategy has an enormous impact on your business. It deserves and demands objective decisions as its foundation. Leverage your decision-making process by soliciting objective outside advice. 48284

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Senior Developer (NYC) Defing scope of overall relational database modeling projects. Develop & implement project strategy & architecture production schedules, projections & budget for assigned tasks and roles. Oversee installation configuring & tuning of SQL Server 6.5, 7.0 & 2000 databases, servers & Oracle. Analyze & evaluate existing & proposed systems. Develop computer programs/systems & related procedures to process data. Provide comprehensive analysis for clients, prepare program specifications, diagrams, develop coding logic flowcharts, & test to ensure proper system performance. Prepare detailed progress reports for management & schedule projects for deliverable reviews & Quality Assurance tasks. BS/MS in Comp Sci, or any Engg or related field and relevant experience required. Send resume to Devon Archer, President, Sitaro Group, 48 Wall St., #1100, NY, NY 10005.

TECH PERSONNEL RECRUITING MGR

Work closely with client & project mgrs. assess technical resourcing rqmnts of info technology projects for animation, retail, semiconductor & finance industries. Seek out, interview & screen computer professionals with appropriate skill sets. Train software consultants on functional aspects of Enterprise Resource Planning & Customer Relationship Management packages. BS in Comp Sci. or Engrng + 2 yrs exp in job offered or as a Tech Recruiter req'd. Must have exp. in functional aspects of SAP, HR Bluestorming, Siebel, PeopleSoft, Maya Kondor and IEF technologies skill sets. High mobility preferred. 40 hrs/wk, OT as reqd, 8 am - 5 pm, $54,597/year. Submit resume to Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5699. Please refer to Job Order No WEB 440046.

SW Engineer - As member of s/ware development team, design & develop call control s/ware. Analyze s/ware requirements & functional specs. Design, code & test critical Call Control functionality including translations, CLASS 5/4 Services, AIN basic Call Model, messaging & associated protocols. Participate in design & code reviews. Maintain existing s/ware systems. Test & integrate telecom products. Must have BS in Computer Engineering, Comp Sci, EE or equiv, + 2 yrs exp in job offered or 2 yrs telecom s/ware development exp. Must have knowledge of internet protocols & the following telecom tools: CVS, GNU, LYNX, UNIX, EMET & HAMMER, as well as strong coding skills in C. 40hrs/wk. Salary $75,000/yr. Send 2 copies of resume to Case# 200300199, Division of Career Services, Labor Certification Unit, 19 Stanford St., 1st FL, Boston, MA 02114.

SRCT Inc. is seeking a Software Engineer experienced on AS400, DB2, COBOL, RPG. Please respond to Mr. Faiz, 3213 Ridgecane Rd, Lexington, KY 40513.

SW Engineer (Technical Services) - Ensure integrity of design, development, implementation, & testing of communication s/ware for company's cutting edge telecom products. Resolve complex problems caused by anomalies in one or more of telecom s/ware or network sub-systems. Reproduce problems in lab to isolate s/ware problems to affected module(s). Develop interim solutions to problems encountered in the field. Assess ways to enhance product reliability & serviceability. Recommend applicable process improvements to enhance service delivery offerings. Work closely w/Sustaining Engineering to obtain root cause analysis of reported anomalies. Must have BS in Computer Engineering, Comp Sci, EE or equiv, + 2 yrs exp in job offered or 2 yrs exp recreating, diagnosing & solving complex problems in telecom or data networks. In-depth knowledge of one or more telecom protocols (i.e. SS7, TCP/IP, etc.); scripting languages (i.e. TCL/Expect, UNIX shell programming, or PERL, as well as C or C++) & telecom testing tools & equipment. 40hrs/wk. Salary $82,000. Send 2 copies of resume to Case# 200300203, Division of Career Services, Labor Certification Unit, 19 Stamford St., 1st FL, Boston, MA 02114.

Software Analyst/ Business Development Manager. Duties include gathering requirements, doing business analysis and proposing solutions for IT needs of healthcare and pharmaceutical industry. Will build and lead team to develop and customize software dealing with clinical trials for the pharmaceutical industry. Requirements: Bachelor of Science degree in Science of Technology Field or equivalent and 1 year coursework in medicine or pharmacology required. Must have 3 yrs. exp. software analyst/business development manager or 3 yrs. exp. in marketing and/or research in the IT field. Since TechNation has clients located in several states and since assignments are of temporary nature, candidates must be willing to move from location to location for assignment duration that varies from 3 mos. to year. Email CV to rsoff@rsoinc.com. Rona Treff, HR Mgr of TechNation Software Consulting, Inc., or mail to 300 N. Dakota Avenue, #5056, Sioux Falls, SD 57104

Database Administrator needed. Responsible for providing technical leadership for organization's Oracle database environment. Must have B.Sc. in computer engineering and 1 yr. experience. Mail resume to Gernie Teddy @ ITS, 2500 City West Blvd., Ste. 2400, Houston, TX 77042 or email to: gleddy@itsinc.com

Simplex Info Systems

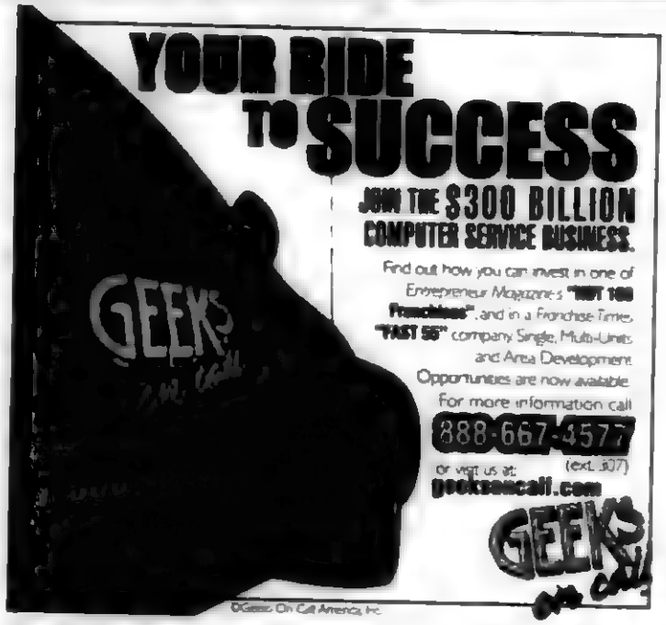
Senior System Analysts. Analyze, design, develop, test, implement, maintain and support application software using COBOL, PL/1, MQ Series, IMS DB/DC, J2EE, SAS. Requires Bachelors in Computer Science/Engineering or Related and 2 years experience.

Send resume to: HR Manager, Simplex Info Systems, Inc. 76 Northeastern Blvd., Suite 32C, Nashua, NH 03062, or email to resumes@simplexinfo.com.

IT Network Engineer - Assist in analyzing local & wide area net systems. Plan/design LAN, MAN, & WAN networks utilizing Shared/Switched Ethernet, Gigabit Ethernet, FDDI, & Token Ring, in addition to TCP/IP, IPX/SPX, SNMP, DHCP, AppleTalk, X.25, ATM, & Frame Relay, RIP, OSPF, IGRP, EIGRP, BGP, ISL, 802.1q, VTP, & STP. Assist in resolving interoperability problems to obtain operations across all platforms including e-mail, file transfer, multimedia, & teleconferencing. Provide support to tech network systems using above protocols, Network Analyzer, channel coding & transmission theory, number systems, codes, digital electronic signals & switches, Boolean algebra & reduction techs, arithmetic operation & circuits; code converters, multiplexers, & demultiplexers. Select op systems, protocol stds & configuring comm media using bridges, routers, gateways, transport media, TCP/IP, IPX/SPX, & SNA. Provide network modeling & emulation assistance to deliver client/server app functionality. BS Comp Sci, Eng or related & working/theoretical knowledge of LAN, MAN, WAN networks, Shared/Switched Ethernet, Gigabit Ethernet, FDDI, Token Ring topologies, TCP/IP, IPX/SPX, SNMP, DHCP, AppleTalk, X.25, ATM, &Frame Relay, RIP, OSPF, IGRP, EIGRP, BGP, ISL, 802.1q, VTP, STP protocols, Network Analyzer, channel coding, knowledge of digital electronic signals/switches, Boolean algebra & reduction techniques, arithmetic operation & circuits, code converters, multiplexers, demultiplexers, Bridges, routers, gateways, transport, media & SNA. $65,300/yr. M-F, 40 hrs/wk, Denver, CO. Must have proof of legal authority to work permanently in U.S. Application by resume only to Workforce Development Programs, PO Box 46547, Denver, CO 80202 Ref Job#CO5086186.

An environmental engineering consulting firm with emphases on mine remediation & restoration is seeking a GIS Database Administrator. Reqs inc. develp & integrated d-bases for tracking remedial actions at historic sites such as the Bunker Hill Superfund Site, work with in-house & EPA Scientists, Civil Engineers & proj. mgrs. to des. d-bases & secure online interfaces to retrieve site info such as ownership, soil-water-dust samples, analytical results & other remedial properties. Collect user reqs, design, implement, manage & maintain integrity of Environmental & Geog Info Sys. (GIS) d-bases for mine remediation & restoration projects. Use computer technology & tools such as MS-SQL server, T-SQL, ASP communications, Java & VB scripts, SAS statistical tech., ArcGIS, EquIS & Win Server 2000. Reqs are Bach. in Mining Engrng or Comp Sc. & 2 yrs rel exp. incl mining reclamation & remediation d-base develpmt. U.S. evaluated equiv. Bach. of Technology in Mining Engineering with noted exp. is acceptable. M.S. & 1 yr exp is acceptable in lieu of Bach. & 2 yrs. exp. Send resume to HR Mgr., Terra Graphics Environmental Engineering, Inc., 121 S. Jackson St., Moscow, Idaho 83843.

McData Corp. seeks applicants for the position of Sr. Software Engineer in Sunnyvale, CA to design and develop Fibre Channel switch protocols and fabric services. Requirements include bachelor's in computer science and 3 yrs exp as a software engineer in a Windows 2000 and NT environment, including one year using Fibre Channel switch protocols. Requirements also include working knowledge of Fibre Channel analyzers and third party HBAs and their management utilities. Respond by resume to Ken Hill, McData, 380 Interlocken Crescent, Broomfield, CO 80021



Computer Programmer 40 hrs /wk. 7:30am-4:30pm M-F $54,000/yr. Develop and enhance computer programs and decision support systems for employee benefit plans using third generation structured programming languages & Windows based technologies, website development both dynamic database driven & static page websites including designing, testing, and implementing of same; add new options to existing programs, document large projects defining new programs, enhancements, database structure, database administration and system flow using MS Word and Vision, confer with clients and coworkers to define new programs and modifications, communicate with clients regarding changes made to programs and facilitate training required to use new or modified programs, stay current on new technology items by reading, attending seminars & continuing education. Req: Bach or Eq. Eq. in Computer Science, MIS, Commerce, Business Administration & 2 yrs. exp. as Software Systems Analyst, Systems Engineer, Software Consultant or comb. Work exp must include 2 yrs. With Visual Basic 6, Structured Query Language, Transact SQL for Microsoft SQL Server 7, ASP coding, n-tier application development, Data Modeling, Visual Studio, Database Design & Administration, HTML, DHTML, Javascripts, VB-script, Crystal Reports Access, ADP, COM, Visual C++, Frontpage, Flash, Adobe Photoshop, packaging and deployment components of Visual Studio. Send resumes to Michigan Department of Career Development, P.O. Box 11170, Detroit, MI 48202-1170 Incl. ref. #222603 & social security # w/ Resume. Employer Paid Ad.

SOFTWARE ENGINEER to provide on-site consultancy to design and develop embedded systems software in real-time systems using VxWorks operating system, socket programming, TCP/IP network protocols on UNIX platform. Require Bachelor's in Computer Science/Engineering and four years experience in the job offered or any experience providing skills in the described job duties. 40% travel to client sites within the United States required. Salary $68,000 per year, 40-hours/week, 8:30 am to 5:30 pm. Apply with resume to Human Resource Manager, 4C Solutions, Inc., 1201 7th Street, East Moline, IL 61244.

Senior Consultant

(Glen Mills, PA and other locations throughout the United States) Manage a team of client and consulting resources for the life cycle of SAP implementation projects, with a particular focus on companies in the manufacturing industry. Perform all required SAP (MM/WM/SAP Console) configuration and testing. Prepare functional specifications, unit and integration testing scenarios. Design, configure, implement, and test transactions for inventory, Warehouse Management and Shipping. Create queries, identify and analyze master data and inventory load errors and rectify problems. Provide on-site implementation and Go-Live support for the clients. Utilize SAP interfaces including ALE, IDocs and Remote Functions Calls (RFC), and Barcoding Technology. Assist in developing business cases.

The wage offered is $105,368/year. The work schedule is Monday-Friday 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree in Computer Science, Math, Business Administration Information Systems, or Engineering (any) + 5 years experience in the job offered or 5 years experience as a Consultant, Systems Analyst or Project Team Member. Related experience must include SAP Console configuration, SAP RFC (Remote Function Calls) Barcoding Technology, SAP ALE configuration, SAP IDoc Configuration, SAP Inventory Management, and Warehouse Management configuration.

Please send your resume, referencing Job Order Number WEB4390888 to the PA CareerLink, FLC Unit,235 W Chelten Ave, Philadelphia PA 19144. EOE

Software Engineer (New York, NY) wanted for design and development of multi-tier enterprise and web based systems. Must have Bachelor's degree in Computer Science or Electrical Engineering and 5 years experience. Must be authorized to work in the U.S. Send resume to Meg Lyons, TradingScreen, Inc., 5 Union Square West, 4th Floor, New York, NY 10003.

RedPrairie Corporation, world leader in provision of logistics execution systems, seeks the following **Managers** (Technical) for supply chain execution application services at Cary, NC, office to assist in leading in technical aspects of customer implementation & to mentor/provide administrative lead for group of Software Engineers. Require Bachelor's in Computer Science, MIS, Engineering or related field (equivalent combination education/experience or equivalent experience considered) plus 3 yrs experience in computer-related occupation including leadership role in project implementing warehouse management or supply chain software, & experience in automated warehouse/distribution systems industry. **Senior Manager** for supply chain execution application services at Cary, NC office with responsibility for major portion of customer TMS products, to interface with internal groups to enable delivery of products that meet customer's need & to serve as primary point of contact for customers. Require Bachelor's Computer Science, MIS, Engineering or related field (equivalent combination education/experience or equivalent experience considered) plus 5 yrs experience in computer-related occupation, including experience in logistics & supply chain consulting or related field. TMS functionality & management of logistics projects. Interested candidates should e-mail, fax or mail a resume and cover letter including code CW1 with salary requirements to

RedPrairie Corporation
Attn: Organizational Development
20700 Swenson Drive
Waukesha, WI 53186
Fax: 262-317-2632
Email: Recruiter@redprairie.com

Computer Programmer. Develop/maintain customer databases using MIS, retrieve & analyze data using Unix &/or DOS-based PMS v9.6/g; develop, modify & maintain accounting & budgeting systems; system & network administration of MS Windows based computers. Req 4 yrs work exp in job offered. Send resume to BKN and S Partnership, 2920 Clairmont Rd., Atlanta, GA 30329.

SW Engineer - Design & develop call control s/ware. Analyze s/ware requirements & functional specs. Design, code & test critical Call Control functionality including: transactions, CLASS 5/4 Services, AIN basic Call Model, messaging & associated protocols. Participate in design & code reviews. Maintain existing s/ware systems. Test & integrate telecom products. Must have Bach in EE, Comp Eng'g/Sci, or other relevant field, + 2 yrs exp in job offered or 2 yrs telecom s/ware development exp. Must have knowledge of Internet Protocols, as well as telecom tools such as INET & GDB. Suitable candidates must also have strong coding skills in C programming language. 40hrs/wk. Salary $80,000/yr. Send 2 copies of resume to Case#200300205, Division of Career Services, Labor Certification Unit, 19 Stanford St., 1st FL, Boston, MA 02114.

Softline Systems, Inc is seeking qualified individuals to work at client sites throughout the United States. We have openings for the following positions:

Oracle Programmer Analyst to develop various applications, user interface and database programs using Oracle, PL/SQL and SQL.

Data Warehouse Programmer Analyst to develop data warehouse and data marts using Business Objects, Oracle and PL/SQL.

Ab-Initio Programmer Analyst to develop data warehouse and data marts using Ab-Initio, Oracle, SQL and PL/SQL.

Teradata Developer to develop Teradata databases.

Apply to: Softline Systems, Inc., 1600 Boston Providence Highway, Walpole, MA 02081.

SW Engineer - Design, code & test features for cutting edge telecomm products. Modify product features to ensure conformance to ANSI specs. Analyze & fix bugs in system as they arise at various customer sites. Must have Bach. in Computer Science/Engineering, Electrical/Electronics Engineering, + 2 yrs exp in job offered or 2 yrs telecom s/ware development exp. Must have exp in telecomm &/or data networking industry, includ'g exp w/SS7 technology. In-depth knowledge of one or more telecom protocols required. 40 hrs/wk. Salary: $80,000/yr. Send 2 copies of resume to: Case# 200300200, Division of Career Services, Labor Certification Unit, 19 Stanford St., 1st FL, Boston, MA 02114.

PROG. ANALYST - SYSTEMS ADMIN.

Install new software releases, system upgrades & software patches. Perform system back-up & recovery. Maintain data files & monitor system config. to ensure data integrity. BS degree in Comp. Sci., Electrical or Electronics Engrng + 2 yrs exp. in job offered or as a Software Engnr / Sys. Admin reqd. Exp. must include embedded programming, SIP & H.323 protocols; Citrix on AIX and Solaris 9.0; Macola ERP & Reuters Kondor software & Production DBA in Oracle 9, Sybase 12.5 and SQL Servers. High mobility preferred. 40 hrs/wk, OT as reqd, 9 am - 5 pm. $66,730/yr. Submit resume to Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5699. Please refer to Job Order No. 441381.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Business Application Analyst. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree or equivalent" in computer science, math, statistics, business or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with SQL, CGI environment and J2EE environment also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to: Marc Blackburn, FedEx Corporate Services, 4200 Regent Blvd., Irving, TX 75063. EOE M/F/D/V

SOFTWARE ENGINEERS (12 positions): require Bachelor's or equivalent in Engineering/Computer Science/Mathematics/Science or closely related field with two years experience providing skills in described duties, at $79,000 per year. Provide on-site consulting in design, analysis and development of software for legacy systems in IBM mainframe environment; development and administration in Oracle, DB2 SQL Server and Sybase; e-commerce and web systems development in Microsoft, Java and related technologies; network management systems development with Netscape Server and related tools; SAP R/3 application systems on Windows with DOS and ABAP/4 and related modules. 40% travel to client sites in the United States. Mail resumes to: YASH Technologies Inc., 605 17th Avenue, Suite 1, East Moline, IL 61244.

Software Engineers Needed

Seeking qual. candidates possessing MS or equiv and/or rel. work exp. Part of the req. rel. work exp. must include 3 yrs working w/Oracle Technologies. Duties include: Support & interface w/Oracle applications e-business suite components HR, PAY, OAB, OTL, OIC, AP, AR, GL, INV, PO & OM. Work w/Oracle, PL/SQL, Developer, Discoverer, & Workflow Builder. Send resume, references & salary requirements to: Elixor Inc., 8374 Market St., #161, Bradenton, FL 34202.

SW Engineer - As member of the s/ware development team, design & develop network management s/ware. Participate in design & code reviews. Maintain existing s/ware systems. Test & integrate cutting-edge telecom products. Must have BS in Computer Engineering, Comp Sci, EE or equiv.+ 2 yrs exp in job offered or 2 yrs exp in telecom s/ware development, "C" coding. Must have exp w/Lynx & LINUX, GDB, SmartBits & ATM Modules. 40 hrs/wk. Salary: $93,000. Send 2 copies of resume to: Case#200300204, Division of Career Services, Labor Certification Unit, 19 Stanford St., 1st FL, Boston, MA 02114

Computers - Database Administrators needed. Seeking qual. candidates possessing BS or equiv. and/or relevant work exp. Duties include: Administer & support database development & production environment; Work with Informix, Sun Solaris, AIX, HP-UX, DB2 UDB & Veritas. Mail resume & ref. to: Object Solutions, Inc., Attn: HR, 3025 Harbor Lane, Plymouth, MN 55447-5119.

Computer Touch, LLC, is looking for a Programmer Analyst to develop and test Java features, administer Unix Accounts, create client websites for e-commerce and integrate and test GUI interface, and develop node to node routing protocols for wireless networks. Please send all resumes to Computer Touch, LLC, 9 Belgravia Terrace, Farmington, CT 06032, Attn: Human Resources Dept.

Software Developer III B.S. in Comp. Sci. or rel. field + 3 yrs complex programming exp. w/ASP, VB, & MS Access. Exp. w/HTML, JavaScript, & structured analysis & dsgn methodologies. Ability to write complex SQL queries. Demonstrated knowl of relational d/bases & object oriented methodologies. Resumes to: Erica Petersen, 4800 Westown Pkwy, #300, West Des Moines, IA 50266.



Convergence Network Specialist, Hauppauge, NY. Install and maintain Voice over IP phone systems. 2 yrs in job exp. req'd. Resume only to bg@cinetworks.net or CT Networks, 125 Wireless Blvd., Hauppauge Technology Center, Hauppauge, NY 11788. Attn: Barry Goldstein.

PROGRAMMER ANALYSTS for Overland Park, KS office. Develop & maintain software applications using Orbix, J2EE, MKS, TEMIP, Interwoven, Coolgen, Metrica, Netrac, Tuxedo, Tango, Eclipse, CORBA, RMI, RUP. Bachelors Degree reqrd in Computers, Engineering or related field + 2yrs of related exp. 40 hrs/wk; Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Spectrum Informatics Inc, 11936 W 119th St., #141, Overland Park, KS 66213.

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Today, more than ever, the right skills fuel the new economy and IT Careers wants you to be there. Check us out at: www.itcareers.com

SW Engineer - As member of software development team, design & develop call control software. Analyze software requirements & functional specs. Design, code & test critical Call Control functionality includ'g: translations, CLASS SS7 services, AIN basic Call Model, messaging & associated protocols. Participate in design & code reviews. Maintain existing software systems. Test & integrate telecom products. Must have B.S. in Computer Engineering, Comp Sci, EE or equiv, + 2 yrs exp in job offered or 2 yrs telecom software development exp. Must have knowledge in at least one of the following telecom protocols: Call Processing or TCP/IP, as well as strong coding skills in C. 40hrs/wk. Salary: $78,000/yr. Send 2 copies of resume to: Case#200300201, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st FL, Boston, MA 02114.

COMPUTERS: HCL Technologies (MASS), Inc. has multiple openings at its corporate offices located in Quincy, MA and their branch office in Tallahassee, FL for the following positions: Software Engineers; Systems Analysts; Programmer Analysts; Project Managers; Account Managers/Sales Managers; Sales Engineers; Market Research Analysts; Business/Management Analysts; and Network Engineers. Salary commensurate with education and experience. All positions may involve travel or relocation to various sites throughout the U.S. Send resume to: HCL Technologies (MASS), Inc Attn: Rajiv Shesh, 400 Crown Colony Drive Suite # 500 Quincy, MA 02169 indicating the position you are applying for.

Informerica is looking for system /programmer analysts, software /project engineers & computer consultants working at different sites (travel required) using C/C++, Oracle, Java, ASP, Unix, EJP, ERP, VB, SQL etc. Must have BS/MS with 1-year exp in IT fields. Send resumes to info@informerainc.com. EOE.

Park Systems, Inc. is looking for IT Analyst/Engineers to fill various positions using C/C++, Java, VB, Web Tech, Oracle, Unix-Sun Solaris, EJB, Rational Rose/UML, JSP, OOAD. Candidates must have MS/BS & IT experience. Apply at jobs@parksbrs.com. Travel maybe required. EOE.

Optimal Solutions Integration, Inc. has multiple openings for SAP and i2 Consultants, Software Analysts and System Analysts in our Irving, Texas and Washington, DC offices. Please send resumes with salary history and requirements to Optimal Solutions Integration, 8445 Freeport Parkway #240, Irving, TX 75063. Open to GreenCard holders or US Citizens.

Programmer/Analyst - Software Art Corp., a software-consulting firm, requires software professionals with demonstrated hands-on experience in the following: Client Server: MS VB .NET, ASP .NET C#/C++/Oracle /Sybase/Windows/Unix; DBA: Sybase/SQL Server Internet Computing: JAVA/CORBA/XML, JAVA Websphere/Weblogic.

QA Testers: Manual/Automated Business Analyst, National Account Managers SAS Programmers. Send resume to:

Software Art Corporation
jobs@softwareart.com

Managing Director: Director/Coordinates R & D in Grid Computing. Plans/formulates R & D proposals. Responsible for strategic technology innovation/development/strategic planning process to balance mission/markets. Oversees launching of new technologically intensive products. Uses knowledge of federal government contracting regulations, incl. proposal development/pricing/project mgt. Uses knowledge in computer/communications networks/grid computing. Utilizes strong problem-solving ability. Collaborates w/colleagues/scientist/administrators. Conducts mediation to resolve disputes/manage competing organizational issues. Uses business/marketing skills. Represents MCNC to academic/government/commercial/professional constituencies. Req. Ph.D Mathematics, Physics, Computer Science or related field, and 3 yrs exp. in job offered or 3 yrs exp. in Management of R & D in Grid Computing. Hrs. 8 am to 5 pm. Send Resume to MCNC, Attn: Virginia Graves, PO Box 12889, Research Triangle Park, NC 27709-2889.

Technical Consultant. Interface with users(internal and external) to define system requirements and determine modification necessary for effective product. Write code, complete programming and test debug applications. Complete documentation and procedure for installation and maintenance of product. Analyze, design, program, Troubleshoot, debug and modify local, network or internet-related computer programs for commercial or end user applications such as Process engineering, financial, Insurance management or desktop applications product. Must have Multi Platforms environment experience. Manual and automated testing experience and relational database experience and scripting experience. B.S. in Comp Science or equivalent and 2 years experience in job offered. 40hrs/wk (9:00 a.m. to 5:00 pm) $80,878.00/yr. Please send two (2) copies of resume/letters to Job Order #2004-174, P.O. Box 989, Concord, NH 03302-0989.

SW (Test) Engineer - As member of software testing team, test & develop test automation software. Participate in design & code reviews. Write test plans according to system reqs. Maintain existing test plans & automated test scripts. Test telecom products. Support potential customers during lab trials. Must have BS in Computer Engineering, Comp Sci, EE or equiv, + 2 yrs exp in job offered or 2 yrs exp w/software testing for the telecom industry, including detailed knowledge of telecom protocols, general telecom procedures, & scripting. 40hrs/wk. Salary: $75,000. Send 2 copies of resume to: Case#200300202, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st FL, Boston, MA 02114.

Infobahn Technologies delivers innovative IT Solutions to business clients nationwide. We have immediate full time opportunities for Software Engineers. All applicants must have a minimum BS in Computer Science Engineering or Related field plus 2 years of experience. Send resumes to: Infobahn Technologies, (HR) 286 Walnut St. #410 Newton, MA 02460.

IT PROFESSIONALS
Senior Consultant

(Glen Mills, PA and other locations throughout the United States). Responsible for designing applications in the Telecommunications industry including implementation and testing of Siebel and WebMethods. Gather requirements, design and build modules in Siebel and build functionality for the data integration from Siebel to back-end applications utilizing Workflow Processes, Workflow Policies and Business Services. Responsible for gathering requirements and design for data integration in Web Methods between various front-end applications and back-end applications utilizing High Level event flow, Low Level event flow and Data structure mapping between applications. Responsible for custom coding in Visual Basic, e-Script, and Java and design and build project status applications in Microsoft Access using Visual Basic. Design and build Siebel modules using e-Script for Accounts and Contacts functionality while integrating data from Siebel to back-end applications. Design and build Java applications to test data integration between front end and back end applications and Java applications to log data flow in WebMethods. Responsible for designing and configuring billing modules in Arbor/BP to present billing information from Arbor/BP to front end applications.

The wage offered is $75,780/year. The work schedule is Monday-Friday 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Engineering (any), Information Systems, Computer Science or Mathematics plus 3 years experience in the job offered or 3 years experience as a Senior Consultant, Consultant, or Systems Analyst. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials evaluation service. Related experience must also include at least 1 year of implementation or testing of Siebel & WebMethods, custom coding in Visual Basic, e-Script, and Java, and designing and configuring billing modules in Arbor/BP.

Please send your resume, referencing Job Order Number WEB439173 to the PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

Business Analyst sought by Fairfield, CT Outsource Service Provider Company. Duties: Analyse of new business requirements and product enhancement. Synthesis of new business requirements into detailed technical product development specifications. Monitoring and management of the entire cycle of ongoing development projects, including scheduling, code delivery, functional and overall testing, and deployment into our production environment. Analyses and resolution of technological and business-logic related issues. Management of our Quality Assurance team. Must have experience in and knowledge of database SQL, N-tiered application principles, ASP and VB programming, Object-oriented analyses and design, Unified Modeling Language, Automated testing tools and bug tracking software. Must interact and communicate with the back office employees of our sister company who are based in Uzbekistan. Must also have experience in dealing with financial markets, banking principles and accounting. Job to be performed in Fairfield, CT and various unanticipated clients sites in the U.S. as assigned. The selected candidate must be able to converse, read and write in the Russian language. Req. A Bachelors Degree or Equivalent, in either Applied Math/Comp. Sci., Business or Economics, and two years of experience in the job offered or related occupation. Hours, 9:00 AM to 5:00PM, Mon-Fri, 40 hrs/wk. Apply to, ATTN: BA Position, Foundation Source Philanthropic Services, Inc., 95 Wells Drive, 3rd Flr., Fairfield, CT 06824.

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To design, develop and implement complex business SAP R/3 applications, focusing on: PP, PP-PI, MM, QM and WM modules, using SAP R/3, ABAP/4, E-Batches, ACSIS, Info Pac, RWD, PI Sheets, Toledo Mettler Weigh Scales, OPC Server Interfaces and FDA's Current GMP. Attn: Job ST.

To design, develop and implement complex business SAP R/3 applications, focusing on SD, MM and CRM modules, using SAP R/3 and ABAP/4. Attn: Job AB.

To design, develop and implement complex business SAP R/3 applications using SAP ABAP/4 programming, BDC, Dialog programming, ALE, IDOC, RFC, SAP Script, Smart forms, user interface and user exits on MM, WM, SD, FI/CO, PP and QM modules. Attn: Job CD.

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Software Engineer - Tickets.com, Inc., located in Costa Mesa, CA, is looking for professionals to design, code & test small to medium software modules; participate in short term planning of IT projects & programs, among other duties. Reqs: Bachelor's degree in Comp Sci, Engg, Math or Tech or foreign equivalent; 2 yrs exp in job offered or 2 yrs exp in related occupations of Programmer Analyst, Systems Analyst, Consultant, Project Leader, Programmer or Programmer Trainee. Exp must involve Java, HTML, Perl & Oracle. Must be willing to travel to worksites nationally. Employer deems 3 yrs of undergrad study + 1 or more yrs towards graduate study as meeting degree requirement. 40 hr/wk. Please fax resume to HR at 714-327-5512.

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Sr Application Development Specialist - Acting at a senior level, plans, coordinates and implements software application development and integration activities for directory services in a team environment. Works closely with customer representatives to establish customer requirements. Will translate high-level requirements into system design and creative solutions. Performs system design, development, and installation of complex multi-system applications in a geographically diverse environment. Will perform system testing and error correction. Develops conversion plans and procedures, and documents all phases of system development. Will use listed requirements during course of duties. Requires Masters Degree in Computer Science or Physics plus six years of experience in the job offered or six years of experience as System Analyst. Requires implementation experience in LDAP-based Directory Services with knowledge of programming in schema def sign, integration with legacy systems, data replicator, and synch services in addition to experience with Visual basic, Visual C++, MFC, Crystal Reports, Active X and SQL Server databases. Web programming using multiple languages, software development life cycle for enterprise application implementations and experience with Project Management Methodology. In lieu of a Masters in Computer Science plus six years of experience employer will accept a Bachelors of Science or foreign degree equivalent plus eight years experience in job offered or in systems analyst or related field. Salary: $80,591/year 40 Hours/week, M-F, 8:00am to 5:00pm, Job Location: Mechanicsburg, PA. Job Order # WEB 441439. Send resumes with reference to job order # to: Attn: M. Tauber, Cumberland County CareerLink, 1 Alexander Court, Carlisle, PA 17013.

SENIOR SYSTEMS SOFTWARE ENGINEER to design, develop and test leading edge network products, Cisco Routers /Switches, and test scripts using TCL/Expect, Perl, Shell Scripts, Traffic generators/analyzers, routing simulators and packet sniffers. Set up and maintain UNIX, Linux Servers, Veritas Netbackup, Veritas Volume Manager, LNSS, EPO, IDS, Trend Micro Server Protect and IDS management console; implement and test vlan based enterprise networks using multi-layer switches catalyst6500; implement networks to test various protocols including BGP, IGRP, OSPF and IS-IS; Mentor junior engineers and programmers. Require: Bachelor's degree in Computer Science, an Engineering discipline, or a closely related field with 5 yrs of progressively responsible exp in the job offered or as a Systems Administrator. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Krishna Mupparaju, Data Matrix Associates, Inc., 102 Furlong Court, Frankfort, KY 40601 Attn: Job RK.

Programmer Analyst

Analyze, design, code test & document computer software using platforms/systems: MVS, Unix, AIX, NT, languages: PL/SQL, Shell scripts, Cobol, C++, Visual Basic, SAS, Java, databases: Oracle, SQL, design computer applications for business problems & tech. support. Req: BS Comp. Sci. or Comp. Eng. & 2 yrs. exp. in job or 2 yrs. exp. as Software Eng. MS in Comp. Sci. or Comp. Eng. may be substituted for BS & 2 yrs. exp. Resume to Attn: Human Resources-SS, NCCI Holdings, Inc. 901 Peninsula Corporate Circle Boca Raton, FL 33487. No calls. We require a drug screen and background check. EEO/Smoke Free environment.

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PROGRAMMER/ANALYST to analyze, design, develop, implement, test, maintain and support application software in a mainframe client/server environment using COBOL, SAS, CICS, MVS, DB2, VSAM, SQL, DB2 UDB, RDBMS, IMS-DB/DC, CSP, C, C++, Visual Basic, Oracle, Teradata, Informix, File-Aid, Easytrieve, Changeman, Xpediter, Rexx, JCL, Focus and Microstrategy under UNIX, AIX and Windows operating systems. Require: B.S. degree in Computer Science/Engineering, or a closely related field with 2 yrs of exp in the job offered or as a Programmer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ravi Kandimalla, Everest Computers Inc., 675 Old Roswell Road, Ste E-400, Roswell, GA 30076, Attn: Job VB.





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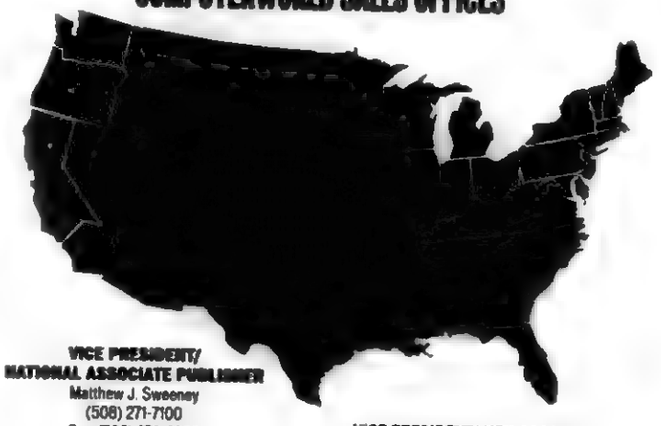
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Gateway PCs to Get New Chassis Design

BY MATT HAMBLEN

Gateway Inc., as part of its plans to focus more on business users, last week detailed a desktop PC that's due in the fall and could be the first system released with Intel Corp.'s new BTX chassis design.

BTX is expected to eventually replace the 10-year-old ATX design that's now widely used in PCs. The new chassis technology realigns components to maximize cooling. Among other things, it features a front fan that is 50% larger than the one on current PCs but runs more quietly, said Ken Loyd, director of business marketing at Gateway.

The primary driver for the development of BTX is the fact that the processors used in PCs generate four times more heat than they did 10 years ago, while the heat produced by graphics cards is as much as 20 times greater than it once was, Loyd said.

He added that Poway, Calif.-based Gateway will offer PCs built around the new chassis design to consumers in September and to corporate users in mid-October under an E-6300 Series name. Pricing is expected to be less than current ATX models, which range from $889 to $1,269.

Using the BTX design is one in a series of changes that Gateway is making to reach out to business users after closing all 180 of its retail stores in March, said Roger Kay, an analyst at market research firm IDC.

"The company imploded when they closed the stores, but they have have been instituting a lot of financial discipline," Kay said. "They've done most of the trashing and burning and can rise again."

Kay said it's "bold" of Gateway to go to market with BTX-based products early, and he predicted that users will make the conversion rapidly, especially with Intel promoting the new chassis design.

In addition to its PCs, Gateway is now offering a range of other products designed to entice corporate IT managers, from servers to switches and wireless access points. For example, Gateway announced last week that it plans to offer



Intel's new Xeon processor with 64-bit support in its dual-CPU servers. "The rounded line will help them," Kay said.

David Kirkland, IT director at MasterCraft Boat Co. in Vonore, Tenn., said he already has several of Gateway's E-Series desktop PCs and plans to find out more about the upcoming BTX-based products. MasterCraft annually replaces about 50 PCs and might consider the new systems, he said.

The company has also bought laptops and servers from Gateway, as well as two plasma displays. "It helps that they provide a range of devices," Kirkland said, adding that Gateway also "blows away" competitors on price by as much as 10% to 15%.

This summer, Winona State University in Winona, Minn., is rolling out about 4,000 Gateway laptops for students and faculty as part of a seven-year contract valued at $40 million, said Joe Whetstone, the school's vice president of IT. Gateway won the contract over other vendors primarily because it seemed to be the most willing to adapt to the school's needs. "They don't say, 'This is what we've got, take it or leave it,' " Whetstone said. 40055

Continued from page 1

Biometrics

private sector has been slow to deploy them, mainly because of cost, reliability and standards issues, according to a newly released report from Burton Group.

"Over the next two to three years, biometrics will remain a niche solution in enterprises rather than a technology that is deployed to the masses," the report said. And many users appear to agree.

"I think in time, use of this technology in the private sector will grow," said David Stacy, global IT security director at St. Jude Medical Inc., a $1.9 billion maker of cardiovascular equipment in St. Paul, Minn. "I think a lot of companies are waiting for the prices to come down, and there is a sense among security professionals that these products have not been perfected yet."

Providence Health System in Seattle has examined biometric technology "a bit in the past, somewhat casually," said David Rymal, the company's director of technology. Providence was looking at biometric products primarily as an alternative to the tokens it uses for two-factor authentication for remote users, Rymal said. But "the largest barrier to us has been interoperability, especially since our users are faced with multiple applications, and we haven't made much progress with single sign-on," he explained.

Midvale, Utah-based Burton Group's assessment comes at a time when adoption of biometric technologies has been increasing in the public sector, thanks to programs such as the United States Visitor and Immigrant Status Indicator Technology (known as US-VISIT), the Transport Workers Identity Card and similar initiatives.

Slow Growth



"There was a big bump in interest in these technologies after the terrorist attacks," said Gerry Gable, author of the Burton Group's report.

But so far, that interest has failed to generate even half the predicted uptake of these technologies in the private sector, experts said. In fact, only about one-third of the biometric industry's $719 million in revenue in 2003 came from the private sector, according to the International Biometric Group (IBG) in New York.

The upfront cost of buying and integrating the needed hardware, software and middleware has been one major reason for the slow adoption in the private sector, Gable said.

According to analysts, per-user costs can easily exceed $200 on just the hardware and middleware technologies, depending on the technology.

"While there are security concerns in the private sector, the funding is not there yet" for biometric products, said Donald Fisch, an analyst at IBG. "It will take proven success of the technologies before private-sector businesses deploy."

More work also needs to be done in terms of interoperability with existing enterprise user authentication technologies, analysts said.

Holding Off

The University of Wisconsin–Madison has done some "limited piloting" of biometric devices, but there are no immediate plans to implement them, said Kim Milford, information security manager at the university's department of information technology. Some of the challenges were interoperability, cost and high error rates. "In addition, there's the human challenge [in] helping users to understand the technology and to overcome their concerns about privacy," she said. "Biometric evaluation still seems to be too intrusive to many people."

"Because of the hype after 9/11, people's expectations of the technology far exceeded the reality," said Maxine Most, president of Acuity Market Intelligence in Boulder, Colo. "Biometrics got pulled into the public eye prematurely."

In the long term, though, the stronger identity assurance and user convenience enabled by biometric technologies will drive increased enterprise use, said Tarvinder Sembhi, director of product management at Iridian Technologies Inc., a vendor of iris recognition technologies in Moorestown, N.J.

"We are seeing some early adopters that have deployed iris recognition to ensure that only the right people have the right access" to protected health information, Sembhi said. 40063

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FRANK HAYES • FRANKLY SPEAKING

Net Party Time

THIRTY-FIVE YEARS. It seems like about a century, doesn't it? But it was 35 years ago this month that the Arpanet — the initial piece of today's Internet — began to go live. Sure, that's a fuzzy way of saying it. But it took a while. On Aug. 30, 1969, the first Arpanet node was set up at the University of California, Los Angeles. The second node wasn't ready at the Stanford Research Institute until Oct. 1. And the first attempt to log on across the Arpanet didn't happen until Oct. 29. (For the record, it crashed the network.)

Go ahead — party from now until Halloween. The Net is worth it.

1969 was a great year for technology. Ken Thompson at AT&T's Bell Labs wrote the first version of Unix that year. Ted Codd defined the relational database. Three IBM researchers — Charles Goldfarb, Edward Mosher and Raymond Lorie — lent their initials to GML, the ancestor of today's HTML and XML. And Xerox's Gary Starkweather combined photocopier technology with laser imaging to create the first laser printer.

They all changed the face of IT — and the way IT is used in business. But none has had as dramatic an impact as the Arpanet.

The rest changed how we do what we do. The Net changed the paradigm.

Wait, stop, don't leave! That's not just the usual buzzspeak. The Arpanet's impact really *is* qualitatively different from those of the other technologies.

Unix, relational databases, markup languages and laser printers proved their value by replacing existing operating systems, databases, text-coding schemes and printers. They let us do the same things as before, only better.

But the Arpanet — and the Internet — changed the way we think.

With the Net, IT went from being about number crunching and data processing to being about communications — between machines and between people.

After 35 years, the network isn't just the computer, as Sun Microsystems used to say. With Web services, the network is the application. With network-attached storage, it's the disk drive. With voice over IP, it's the telephone.

Add the Web, and the network is the radio and the TV. It's the conference room and the office. It's the retail store and the research library.

It's not just how we do IT. Increasingly, it's how the world does business.

The dark side? Sure, it's there. With the Net, physical collocation is no longer required, and physical security is no longer enough. And offshoring of information jobs becomes possible. And criminals halfway around the world attacking our systems became inevitable. And on the Web, every design flaw in our systems is exposed to customers, with no sales clerks or customer service agents to cover for us.

But the Net also lets our companies do business with customers they would never have approached before. It opens up new ways of cutting costs and adding value. It has dragged IT out of the back office and the glass house and made it indispensable to every step in the business process — from supply chains, logistics and manufacturing to sales, cross-marketing and customer care.

After 35 years, the Net really has brought us a long way. But not quite far enough.

After all, we still don't quite get it. Sure, we buy things on eBay and search with Google. We check our e-mail and load our iPods over the Internet. But we still talk about writing application code instead of wiring together Web services. We think in terms of data centers instead of network-attached everything.

Don't worry — we'll master it. Old habits of thinking are just tough to break.

But until we do, we'll have to celebrate the Arpanet's birthday the old-fashioned way.

And party like it's 1969. 48489



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Don't DO That!

It's years ago at this busy circuit-board manufacturing facility, and the new component-insertion machine goes bonkers one morning. "It was sticking capacitors and resistors everywhere but where they belonged," says IT pilot fish. What changed overnight? "Maintenance thought someone might trip over a data cable," fish groans. "So they nailed it to the concrete floor."

SHARK TANK

Unplugged

Dust isn't the only problem for this U.S. Army communications unit in the desert. "One day, out of the blue, a senior officer who has no relationship to the operation walks into the tent and announces that there are too many electrical cords strewn about — and starts disconnecting them," says a pilot fish on duty. "Eight hours and four hard drives later, the systems are up and running again. And the senior NCO who is also the sysadmin is finally calm enough to get his weapon back."

Not Exactly

User calls help desk pilot fish that when she reboots the server, it says that it "can't find some drives." "It took several minutes of coaxing, coaching and cajoling to get her to read exactly what the message really said," fish grumbles. "And it turned out to be about missing *drivers*, not drives. Said the user, 'Drives, drivers — same difference!' "

Ergo Error

Support pilot fish gets a call that this remote office needs an ink-jet cartridge for its outgoing fax machine. When he arrives, he tries printing a report, and it looks fine. "I ask the user why he thought it needed a new cartridge," says fish. "He replied, 'I got a request to resend a fax because part of it was blank. So I assumed our machine was out of ink.' "

Priorities

At this pilot fish's company, power users get new high-end machines, and their old PCs go to users with lower requirements who can use the upgrade. "My reasonably new PC was scheduled to be upgraded, but the old and barely adequate box of the guy next to me, who did the same programming I did, was not," fish says. Why not? "They wouldn't upgrade his PC because it wasn't sufficient for the needs of anyone else in the company either."

Nothing New

After three days of hearing admins complain about a smell in the server room, support pilot fish investigates. The room does stink of sulfur — and there's a red light on the rack-mounted UPS. "That can't be it," admin tells fish. "That warning light has been on for three weeks."

SHARKY WANTS FRESH MEAT! Send your true tale of IT life to me at sharky@computerworld.com. You snag a snazzy Shark shirt if I use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at computerworld.com/sharky.

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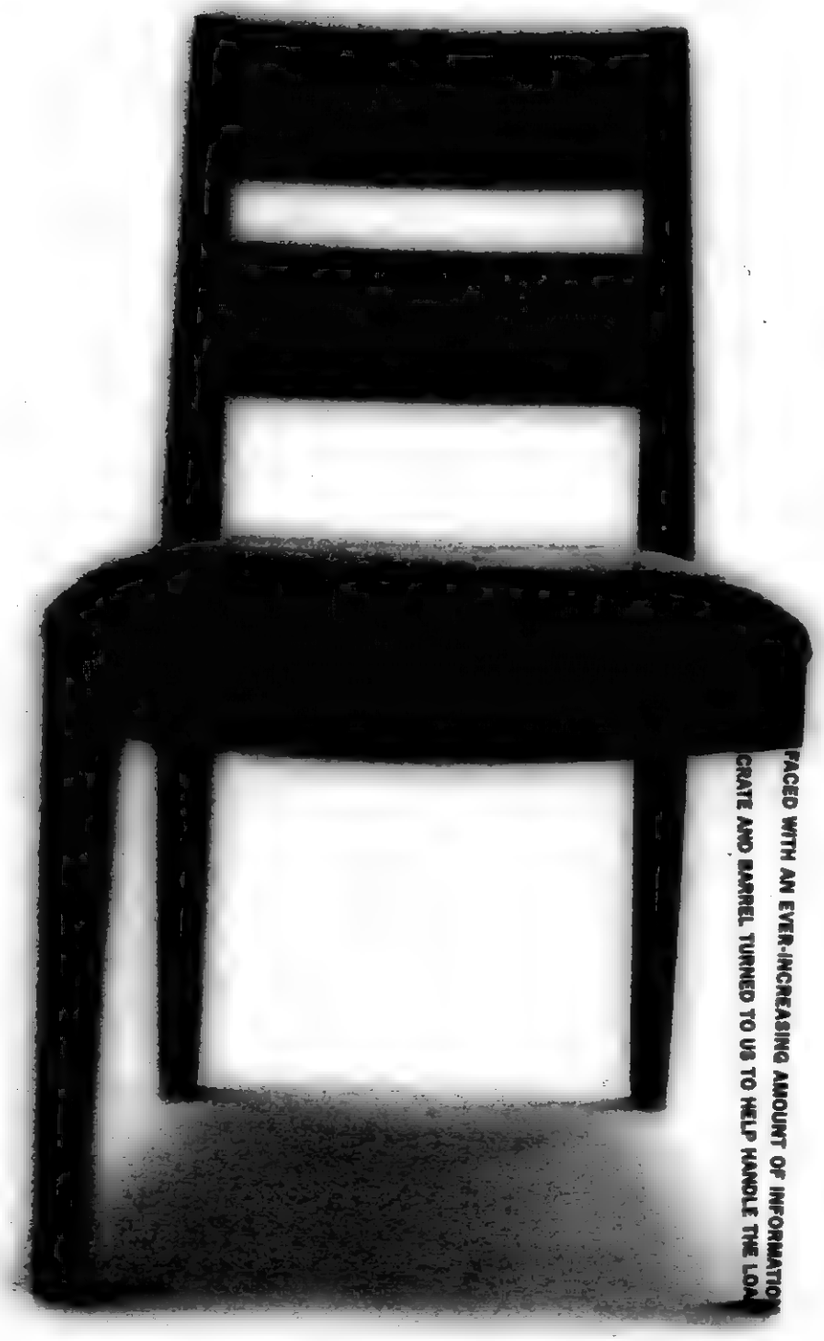
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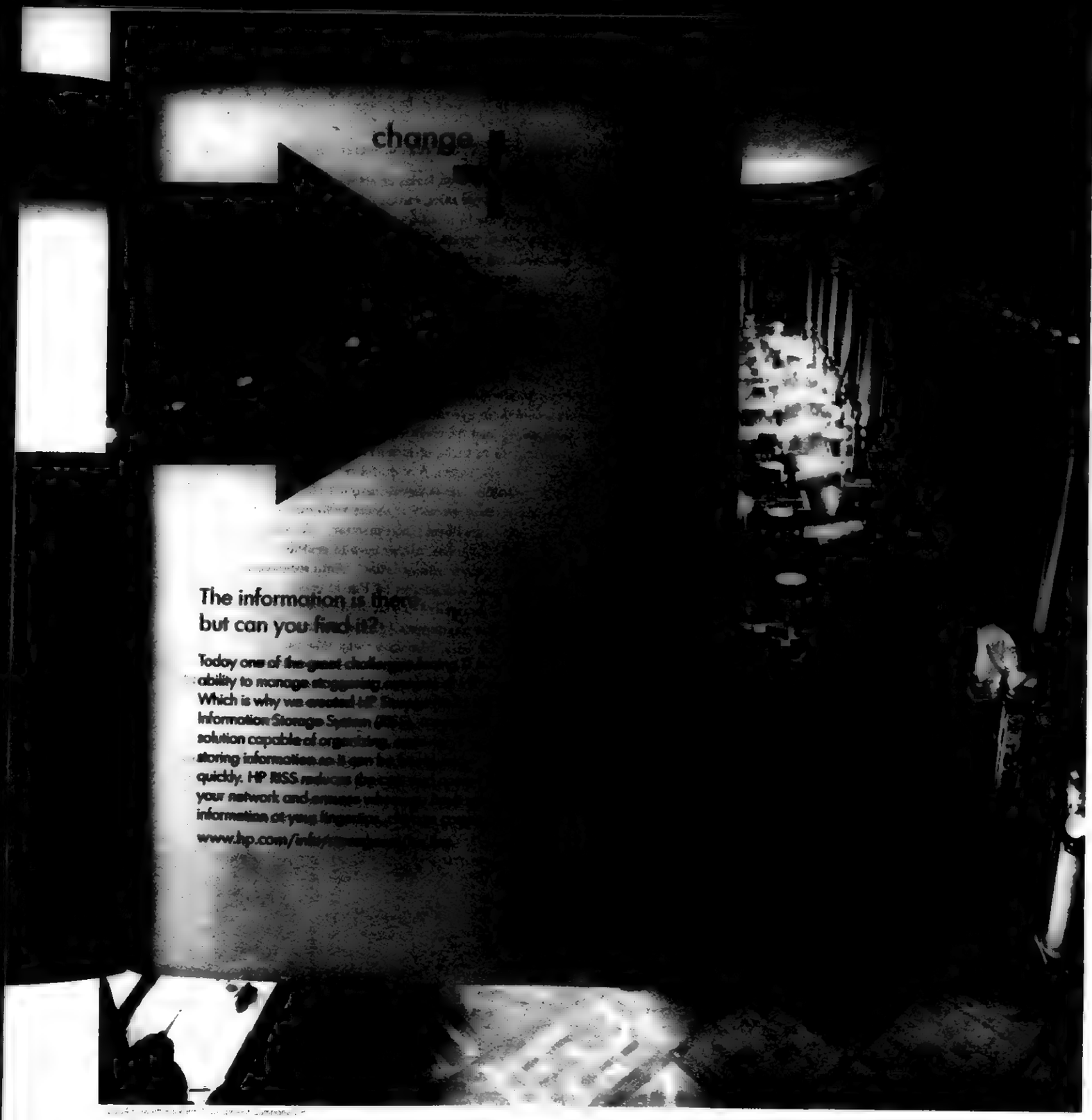




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U.S. Banks Balk at Data Classification

Canadian initiative for security leads the way

BY JAIKUMAR VIJAYAN AND LUCAS MEARIAN

An initiative by several leading Canadian banks to develop standards for data classification has shined an unwanted spotlight on U.S. banks, which appear to be unwilling to follow suit.

ONLINE

A working draft of Canada's common data-sensitivity classification scheme is expected to be released by year's end, said Robert Garigue, coordinator of the initiative and chief information security officer at Toronto-based Bank of Montreal.

The goal is to come up with a standard that "embodies a minimum set of expectations around information classification and controls," he explained.

But there is no similar effort under way in the U.S., despite a growing recognition of the need for a common standard for data labeling here as well, several analysts said.

Standards for information classification will not only

U.S. Banks, page 49

Circuit City Chooses Linux for Cash Registers in 600 Stores

Retailer cites total cost of ownership, desire for less customization

BY CAROL SLIWA

Circuit City Stores Inc. last week bucked the trend of retailers opting for Windows-based point-of-sale systems when it announced plans to migrate to IBM SurePOS 300 cash registers running Linux at its 600 stores.

INSIDE

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Less than 5% of the installed base of North American cash registers run Linux, according to Franklin, Tenn.-based IHL Consulting Group. But the open-source operating system, which has been struggling to gain traction on corporate desktops, is seeing a slow uptick in usage among retailers upgrading their POS systems.

Another major retailer that recently announced a move to Linux-based IBM cash

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Budgetary Black Holes
In the Management section: That giant sucking sound is your IT project budget going down the tubes. Here are 10 prime mistakes that can cost you big time — and how to avoid them. **Page 29**

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KNOWLEDGE CENTER WEB SERVICES

Web Services Hurdles

In this special report, we take a sober look at the challenges of implementing service-oriented architectures, including security, governance and reliability.



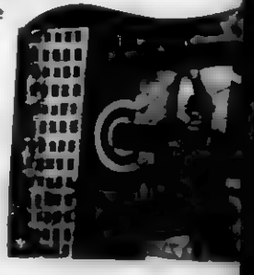
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34 Managing the Building Blocks. To get the benefits promised by service-oriented architectures, you need a carefully defined repository and a governance process so you can find, manage and reuse the code.

36 Message Received? Companies that require a high degree of reliability from Web services are learning to customize their own coding and build in layers of redundancy.

37 Trouble in Transit. The same design that lets users easily exchange data with Web services also opens holes for hackers. Companies are finding that safeguarding that data exchange is complicated.



38 QuickStudy: This primer offers a history of COM, or Component Object Model, a language-independent architecture that lets developers build applications from reusable, binary software components. Developed by Microsoft in the 1990s, COM is still alive and well today.



41 Opinion: XML is terrific, says columnist Mark Hall. So, why is it so slow? And why can't it deal with opaque data?

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Web Services Glossary. Get familiar with Web services terms, courtesy of the World Wide Web Consortium.
QuickLink a1950

Book Excerpts. Explanations of what Web services are and when to use them, from *Web Services Explained*, at QuickLink a4870, and *Web Services: A Manager's Guide*, at QuickLink a4880.

Accessible Networks Are Key. Opinion: Richard Stevens of Capient sees great promise in Web services, but not until the public UDDI network becomes trustworthy.
QuickLink 46407

AT DEADLINE

Google Begins Stock Auction

Google Inc. opened the auction for its much-anticipated initial public offering on Friday, with plans to announce the pricing of its stock this week. Google has estimated that its shares will be priced between $108 and $135 each. The start of the auction came a week after the company revealed that it may have violated U.S. securities laws by issuing unregistered shares to employees and consultants. The company has offered to buy back the shares in question in the hope of rectifying the matter.

Petition Filed Against E-Voting System

Eight Maryland voters last week asked an appeals court to force the Maryland State Board of Elections (SBE) to address alleged security risks in an electronic voting machine system and provide a voter-verified paper trail during elections. The voters filed motions to force the SBE to fix alleged problems with an e-voting system sold to the state by Diebold Inc.

AOL, Yahoo Step Up Antispam Efforts

America Online Inc. and Yahoo Inc. plan to use technology to verify the source of e-mail messages as a means of fighting spam. In September, AOL will verify the source of incoming e-mail using a component of Microsoft Corp.'s Sender ID architecture. Yahoo will use its DomainKeys authentication technology to sign all e-mail coming from its mail servers by year's end.

Short Takes

DELL INC. posted second-quarter revenue of $11.7 billion, 20% higher than in the same quarter a year ago. . . . Eric Benhamou will resign as chairman of PALMSOURCE INC. on Oct. 28. PalmSource said he is expected to continue in his role as chairman of sister company PALMONE INC.

HP World Opens as Key Exec Heads Roll

Faltering financial results trigger three dismissals

BY PATRICK THIBODEAU

AS HP WORLD opens in Chicago this week, the buzz among the expected 7,000 attendees will no doubt be about the disappointing financial results that sent some top Hewlett-Packard Co. executives packing.

A key problem for HP is the principal focus of many attending the conference: enterprise hardware. Enterprise storage and server revenue fell 5% to $3.4 billion, while overall revenue for the company grew 9% to $18.9 billion.

In particular, HP's Alpha server line was down 32%, and NonStop servers fell 25%. There was also a 23% decline in storage systems revenue.

Bill Moran, an analyst at D.H. Brown & Associates Inc. in Port Chester, N.Y., said the decline in Alpha revenue likely reflects falling customer interest in a system that HP will stop producing in 2006 but will continue to support until 2011. The NonStop decline may indicate that customers are waiting for HP to complete its transition from the MIPS processor to Itanium, said Moran.

Management Shuffle

HP CEO Carly Fiorina fired Peter Blackmore, executive vice president of HP's Customer Solutions Group. He was replaced by Mike Winkler, who had been with Compaq. Jim Milton, CSG senior vice president and managing director of the Americas region, and Kasper Rorsted, CSG senior vice president and managing director for Europe, the Middle East and Africa, were also dismissed.

The management shuffle "deflects criticism" away from Fiorina, said Moran. "She has bought herself some time," he added. Fiorina isn't scheduled to speak at HP World.

Product announcements expected at the show include expanded virtualization capabilities in the Itanium-based Integrity server line. A new version of Global Workload Manager will now be able to handle Linux as well as HP-UX, and manage hundreds of servers and partitions. It's now limited to 20 partitions.



HP is also introducing sub-CPU partitioning on the Integrity line, which will allow users to divide the CPU up to 20 ways and run HP-UX and Linux on the partitions.

There are currently two versions of HP-UX: one for the Alpha-based HP 9000, and the other for Integrity. But in October, HP will deliver a unified version.

"This is in response to customer demand," said Don Jenkins, vice president of marketing for HP's business-critical servers. "Many customers want to manage one release, patch update, etc., across their environment."

HP will also announce Alpha chip improvements that will boost performance by 16%, officials said. But it is still encouraging users to move to Itanium.

Seattle-based Boeing Employees Credit Union recently moved from Alpha servers to the Integrity line. Scott Wolfe, BECU's IT enterprise architect, said that because of increasing batch processing demands, the company had to either upgrade its Alpha servers or move to an alternative.

An Alpha upgrade "was a perfectly viable option," and something the company debated until the end, said Wolfe. "I don't second-guess anyone who wants to continue with Alpha," he said. But since BECU planned to move to Itanium at some point anyway, now was better than later, he said.

The upgrade to faster processors allowed BECU to reduce the number of processors needed from 16 to eight. That boosted performance and, because of per-processor licensing, cut the cost of its Oracle Corp. software in half, said Wolfe. **48813**

EVENT PLANNING

Hewlett-Packard details plans for its unified technology conference.

QuickLink 48769
www.computerworld.com

HP Puts Part of the Blame on SAP Migration

Hewlett-Packard said last week that part of the blame for the revenue shortfall in its enterprise servers and storage group rested on a problematic migration to an SAP AG order-processing and supply chain system.

HP CEO Carly Fiorina said the problems cost the group about $400 million in revenue and $275 million in operating profits.

"We executed poorly on the migration," Fiorina said. While the problems primarily hit HP's industry-standard server business, they also affected the business-critical and storage businesses.

Although the company worked to ensure product availability, HP still lost sales and was forced to fulfill direct orders through channel partners and expedite other orders via air shipments. Those moves cut into the company's gross margins.

HP is a close partner with SAP and offers specialized consulting services around SAP's supply chain and ERP software.

HP has a "strong and productive relationship [with SAP], first as a customer and as a strategic partner," said SAP Americas Inc. spokesman William Wohl. "The relationship continues to expand even today, as teams talk about deepening that customer relationship.

"We can't talk specifically about what's happening inside HP," Wohl added. But he noted that in HP's statements, no blame for the problems has been attributed to SAP's software.

HP is a highly decentralized company whose various divisions make their own decisions around implementing software and order management processes, noted David Dobrin, an analyst at B2B Analysts Inc. in Cambridge, Mass. After its previous implementations, it would seem logical that HP should have known how such rollouts can create problems severe enough to affect sales and prepared itself accordingly.

"Even if HP doesn't have the institutional memory, you would think that SAP would," he added.

This case of a high-tech company "choking on its own dog food" was likely caused by human error during the execution of the project, and not by the software itself, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif. "I was impressed HP fired management and didn't nail SAP to the wall," he said.

However, it's surprising that "good software could take a company down like this," Greenbaum added. "It doesn't get more embarrassing than that."

–Marc L. Songini

N.H. Agency to Revamp Criminal Offender Systems

Move follows years of struggle to overcome glitches

BY MARC L. SONGINI

The New Hampshire Department of Corrections (DOC) hopes to retire a legacy criminal offender field management system with a long history of troubles as part of an effort to rectify shortcomings in the agency's IT infrastructure.

The original system, designed to help with the case management of criminal offenders on probation or parole, was to have been built by Computer Associates International Inc.

The custom application was also supposed to handle financial transactions, including the payment of fines to the state and of restitution money to victims. But after working on the system for more than two years and spending $240,000, the state had little to show for its efforts [QuickLink 28102]. The DOC and CA severed all ties in August 2002. As part of a negotiated settlement, CA refunded the money that the DOC had paid, according to Ron Cormier, a project manager at the agency.

Makeshift System

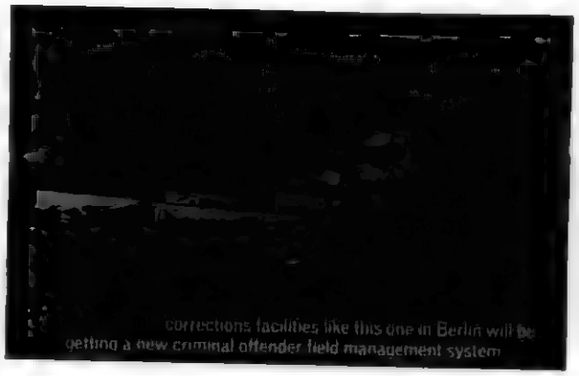
After the effort failed, in-house staffers tinkered with the existing parole and probation management system, creating a stripped-down version of the application to handle restitution and fine payments.

By writing code around a "very old and outdated" Informix database, the DOC was able to put together a system that allows it to issue restitution checks to victims every 30 days — down from the original 90-day processing cycle, Cormier said.

While that system now handles restitution accounts adequately, it lacks the case management features the agency needed when it hired CA, said state Rep. David Welch, chairman of the Criminal Justice Committee that has oversight of the DOC.

"It's a basic system that doesn't fulfill our needs," he said. The system that was envisioned would have let police or field correction officers easily access the full records of probationers caught committing crimes.

As a result, the DOC plans to retire its two Unix-based offender management systems and replace them with a single application running on a Microsoft Corp. SQL Server database. The agency issued a request for proposals earlier this year and is awaiting approval from the governor's office before moving forward with its plans.



Corrections facilities like this one in Berlin will be getting a new criminal offender field management system

The DOC wants a Web-based system that will support the payment of fines and parole management, as well as the prison facility and management processes associated with handling New Hampshire's 2,500 inmates and 7,000 offenders who are on parole or probation.

Cormier said the system will be written to Microsoft .Net programming specifications and allow prison facilities and field service officers, for example, to share data.

"When an offender comes into the system, his entire stay would be tracked through until he's on parole, including the financial processes," said Cormier.

Lesson Learned

Although details about the upgrade are still confidential pending the governor's approval, the DOC hopes to launch the implementation this October and wrap up the project by April 2006.

Cormier doesn't know how much it cost the state to create the restitution database now in place, but he said the DOC has learned from its overall experience with the data warehouse project.

"We wanted the initial system to be built from the ground up, and in the requirements phase of the project, [DOC officials] asked for a lot instead of ensuring they got minimal functionality and building onto that," said Cormier. Ultimately, he said, "we learned we needed to ask for a base system, then build off that."

Because of the negotiated settlement between the DOC and CA, Cormier couldn't elaborate on why the project went awry. CA officials weren't available for comment. 48793

Tight IT Security in Place at Athens Games

Strategy keys in on attack prevention and containment

BY JAIKUMAR VIJAYAN

The Olympics got under way in Athens last week amid some of the tightest security in the history of the Games — not just on the physical side, but on the IT side as well.

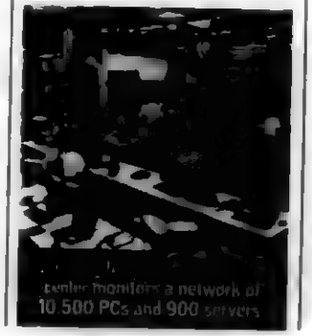
Fears of a cyberattack on the networks and systems that support the event have prompted the Olympic Games' technology integrator, Atos Origin in France, to implement a multilayered defense focused both on attack prevention and containment.

At its core is a segmentation strategy under which the main network has been carved up into multiple virtual networks, said Jean Chevallier, vice president of Atos Origin's Olympics Games program.

Each of the Olympic venues sits on its own LAN segment. Networks serving TV broadcasters and print reporters, for instance, are isolated from the ones serving athletes and the Olympic committee. Users on one network don't have access to another network.

"The idea is containment," Chevallier said. "If we have a problem on one network, we can contain that issue to that network."

All of the 10,500 PCs, 900 servers, 2,500 terminals and 4,000 printers that are connected to the Olympic network have been assigned unique identifiers that also tie them to specific locations on the network.



Sentinel monitors a network of 10,500 PCs and 900 servers

A machine that's disconnected from its assigned network location will not be permitted access again without administrator intervention; the port is shut down to prevent unauthorized systems from logging on. Each of the machines has also been locked down into one of 218 hardware and software configurations.

The precautions are needed because many of the machines are accessible in public areas in the Olympic venues, said Chevallier.

Software from Computer Associates International Inc. will monitor the networks for intrusions and other security breaches. Months have been spent scripting filters to ensure that only significant security events reach administrators, Chevallier said.

Each core system has its own backup, and the main data center is mirrored at a remote location 200 miles outside Athens to ensure high availability and disaster recoverability, Chevallier said.

For the past two months, the networks and systems have also been subjected to a series of simulated worm and virus attacks, malicious hacks and network failures. "In fact, about 80% of our time has been spent testing this out," Chevallier said.

During the Games, a team of 400 IT professionals will monitor systems in 61 Olympics-related venues from a central technology operation center located in the main Olympics complex in Athens. An additional 3,000 IT volunteers will provide support. 48815

MORE ONLINE

The U.S. Olympic team powers up with Gateway equipment

QuickLink 48731
www.computerworld.com

BRIEFS

Symantec Lowers Revenue After Glitch

Symantec Corp. last week reduced its reported revenue for the first quarter of fiscal 2005 by $20 million after discovering that it had incorrectly configured an internally developed accounting tool. The error involved software used to calculate deferred subscription revenue from Symantec's international retail business and had no effect on Symantec's cash position.

Cisco Posts Record Profit of $1.4B in Q4

Cisco Systems Inc. last week reported record fourth-quarter net income of $1.4 billion, a significant leap from net income of $982 million in last year's fourth quarter. The profit came on net sales of $5.9 billion, up from $4.7 billion in the year-earlier quarter. Cisco CEO John Chambers said the company plans to add 1,000 employees by year's end, a majority of them in research and development.

IBM Lands Linux Mainframe Deal

IBM said last week that Endress + Hauser (International) Holding AG in Germany is consolidating its SAP AG systems onto two eServer zSeries 990 mainframes running Linux. IBM isn't disclosing the deal's value, but a company representative said that one server fully integrated for Linux generally costs about $122,400 per processor. The mainframes Endress + Hauser purchased have 36 processors each, which would put the deal's value at about $8.8 million.

Short Takes

MOTOROLA INC. said it was informed by the U.S. Internal Revenue Service that it may owe about $500 million in additional taxes for 1996-2000. . . . A simplified and lower-priced version of MICROSOFT CORP.'s Windows XP will begin shipping on new PCs in Malaysia, Indonesia and Thailand in October **(see Frankly Speaking, page 50).**

Turmoil at BEA Casts Cloud Over Its Future

Revenue drop, exec departures raise viability questions

BY CAROL SLIWA

QUESTIONS continued to swirl last week about BEA Systems Inc.'s long-term viability, as the company's second-quarter revenue fell short of expectations on the heels of the resignations of some top executives.

Although BEA's $263.2 million in revenue was up 7% from $245 million for the second quarter last year, the figure fell short of the initial projection of $265 million to $275 million. It was also the second straight quarter that BEA failed to meet license revenue expectations.

Just a week earlier, Scott Dietzen left his position as chief technology officer at the San Jose-based software maker. Dietzen had joined BEA with its 1998 acquisition of WebLogic Inc., maker of the application server that became the company's main product line.

Dietzen was the second technology visionary to depart in less than two weeks. Adam Bosworth, the chief architect responsible for longer-term initiatives, took a senior engineering role at Google Inc. after leaving BEA on July 23.

Also gone is Scott Edgington, vice president of worldwide channels and alliances, who went to Voltage Security Inc. in Palo Alto, Calif. Rick Jackson, senior vice president of product marketing, left to become chief marketing officer at Borland Software Corp.

"There may be some further changes," said BEA CEO Alfred Chuang, during a conference call last week to report the financial results. But he said BEA has "taken those into account in our planning. This is a very strong company with more than 3,000 employees."

BEA-Ting Feet



But David Rudow, a senior research analyst at Piper Jaffray & Co. in Minneapolis, predicted more departures over the next month. "With these high-profile people leaving, you've got to wonder about the future vision of the firm and what customers are going to do," he added.

"An awful lot of enterprise customers have questioned me recently about the long-term viability of BEA," said Anne Thomas Manes, an analyst at Midvale, Utah-based Burton Group. "That's a significant issue if enterprise customers are saying, 'Is it safe for me to buy from them?' "

Kevin Faulkner, vice president of investor relations at BEA, insisted that the company is "strong financially," with $1.6 billion in cash. He also noted recent changes that BEA thinks will help going forward.

For example, Tom Ashburn, who joined BEA two years ago after a 33-year career at Hewlett-Packard Co., assumed the newly created position of executive vice president of worldwide field operations. Ashburn will oversee the sales, services and marketing operations that are being unified under one umbrella "for better coordination of those functions," Faulkner said.

Faulkner also cited the importance of updated priorities set by BEA's reorganized product leadership team, now headed by Chuang. Priorities include hardening WebLogic 8.1 to improve scalability, reliability and performance; building a special application server edition for telecommunications customers; improving features in the portal and integration products; and shipping the core 9.0 WebLogic Platform in the first half of next year.

"You should expect to see BEA become more focused and aggressive," said Faulkner. "There will be people who like that program, agree with that program and are on board to execute. And there will be people who disagree, and they'll move on."

Mark Carges, a key force behind BEA's Tuxedo software, replaced Dietzen as CTO. Dietzen couldn't be located for comment. Bosworth declined comment, citing a quiet period at Google. **48614**

Some Users Unfazed by BEA Woes

BEA Systems' revenue shortfall and recent executive resignations are causing speculation about the company's future. But some users are unfazed by the turn of events.

"Market share comes and goes. They have a huge customer base, and I find it hard to believe they would just go away," said Chris Hjelm, CTO at Orbitz LLC in Chicago. "The worst case is somebody picks them up."

Hjelm said he's not overly concerned about BEA's future, in part because Orbitz has the flexibility to switch to a different application server if necessary.

Jim Kline, a project manager at The ServiceMaster Co. in Downers Grove, Ill., said his company upped its commitment to BEA, signing an agreement last month to use WebLogic Platform. ServiceMaster previously used BEA's application servers for e-commerce and back-office business applications but now plans to add WebLogic Portal and Integration. "The cohesiveness was appealing to us," he said.

Kline said ServiceMaster wasn't aware of the various BEA executive departures and revenue forecasts when making its decision. But he said he's not concerned. "If they don't fill the void, then it would become a worry," he said. "But there's a lot of smart people at BEA."

"We have confidence in the products, and we anticipate no changes at this time," said another BEA customer, Michael Jones, CIO at Circuit City Stores Inc. in Richmond, Va.

One of BEA's problems has been users who are slow to move to WebLogic 8.1, and license revenue has lagged. Analysts said the problem isn't BEA's technology, which remains top-notch, and there's no reason to think that the recent woes will result in dire consequences, given BEA's cash reserves and customer base.

But since the application server market has become commoditized, BEA needs to further differentiate itself to achieve growth and withstand the increasing pressure from IBM, Oracle Corp., Microsoft Corp. and open-source competitors. Some also have speculated that BEA will buy a company or be acquired, potentially by Oracle or Hewlett-Packard Co.

"There is no reason for any rash action" by BEA customers, said Yefim Natis, an analyst at Gartner Inc. "But users should be watching carefully and delay any massive strategic investments with BEA until their long-term business strategy is clarified."

– Carol Sliwa

Mark Hall


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Certification Rarely Required As Linux Job Market Grows

Experience often more highly valued than book learning in potential hires

BY TODD R. WEISS

EMPLOYERS appear to be looking for more and more workers with Linux IT skills, but they're not necessarily seeking those with Linux certification, according to statistics from online IT job board Dice.com.

Of the approximately 49,000 IT job notices listed on Dice.com in the past few weeks, about 2,200 wanted applicants with Linux experience, said Scot Melland, CEO and president of the New York-based company.

"That's up 190% from a year ago. It qualifies as a hot skill set that's really growing in demand," he added.

More than half of the Linux-related jobs being advertised are developer or programming positions, and about a third are located in California.

Practical Knowledge

Perhaps more importantly for job seekers with Linux skills, employers don't usually require that they be certified in Linux, Melland said. "Linux certification has not taken off" as a must-have skill for employers looking over job candidates, he said. "I really don't know if it will."

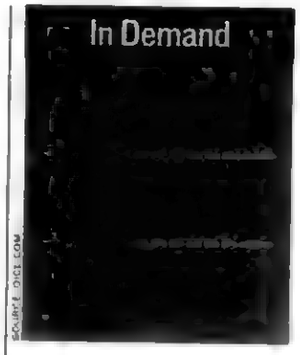
Instead, employers seem to prefer real-world knowledge. "The mantra for the past 12 or 24 months has been experience," Melland said.

While the most popular Linux certification mentioned in Dice.com's job listings is for Red Hat Certified Engineers, only 10 of the 2,200 Linux job listings referred to the certification, he said. "I would say pretty much that that's pretty low," Melland said.

Chris Hjelm, chief technology officer at Chicago-based online travel service Orbitz LLC, said that "a candidate's ability to learn, solve complex problems, apply their experience and possess solid interpersonal skills and team fit are more relevant" than certifications.

"There is an extensive technical interview process, and the depth of Linux screening varies, depending on the position," Hjelm said. "It works well, given that I haven't seen a recent hire leave due to not having the requisite technical skills."

Joe Poole, technical support manager at Boscov's Department Store LLC in Reading, Pa., said that when his company hires IT staffers, Linux certification may help get an applicant into an interview more quickly, but it's not mandatory.



The department store chain is a big Linux user in its operations, from its stores to its mainframe and servers in its data center.

The reason Linux certification isn't a must, he said, is that "if you're hiring from the outside, you really don't know [if applicants are qualified], even if they're certified."

Getting a Grilling

"Book learning and practical experience are two different things," Poole said. To find out more about an applicant's training during an interview, Poole said he will have the potential new hire talk to IT technicians inside the company so they can gauge the applicant's actual experience. "You can see whether that generates nods of approval or blank stares," he said.

Brian Dewey, a network engineer at Livermore, N.Y.-based Raymour & Flanigan Furniture, which uses Linux in its operations and data center, agreed, saying his company doesn't require certification in Linux or any other operating system for its IT hires.

Instead of requiring certification, applicants are grilled with technical questions in an effort to trip them up and separate the qualified candidates from the rest, he said.

Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H., said that while employers want to hire only qualified workers, certification isn't typically a prerequisite because it doesn't always guarantee that the applicant has the necessary skills. "It's a nice proxy" though, he said. "It does give people an additional feeling of confidence" when hiring. **46818**

MORE ONLINE

For additional news and information, visit our Linux special coverage page:
QuickLink s1000
www.computerworld.com

Antiphishing Tool Adopted by eBay Now Available to the General Public

BY JAIKUMAR VIJAYAN

EBay Inc.'s popularity clearly has a downside. The company has become a prime target for "phishing" attacks by online perpetrators who e-mail unsuspecting users and set up Web sites in the guise of the popular online auctioneer.

One of the weapons eBay is using to fight back is a product from WholeSecurity Inc. called Web Caller-ID, which allows users to verify the authenticity of a Web site. This week, Austin-based WholeSecurity is making Web Caller-ID generally available to other users as well.

The browser-based software has been embedded in the Account Guard feature of the eBay tool bar since January. It not only detects fake sites in real time but also prevents users from accessing them.

"No technology is going to solve 100% of the phishing problem," said Howard Schmidt, eBay's chief information security officer and a former White House cybersecurity adviser. "But this has provided an additional layer of protection for users."

The product uses a unique behavior-based detection method to identify spoofed Web sites, said Scott Olsen, a senior vice president at WholeSecurity.

Unlike products that work by blacklisting sites that are already known to be fraudulent, Web Caller-ID evaluates every site the user accesses for suspicious behavior, Olsen said. Pages are analyzed and scored using a proprietary rating system that determines whether a page is valid or spoofed.



Users are alerted and blocked when they attempt to launch such pages or enter confidential information into them, Olsen said. WholeSecurity declined to release pricing information.

The technology is effective at detecting new and unreported spoof sites that are often used in phishing scams, said Avivah Litan, an analyst at Stamford, Conn.-based Gartner Inc. "It's a big jump over blacklist technology," she said.

But there are caveats.

To be protected, users need to download plug-ins that are integrated into browsers or tool bars. Currently, only very large sites, like those of eBay and Yahoo Inc., have such tool bars, Litan said. Users would also need to download multiple tool bars as more companies start using the technology, she said.

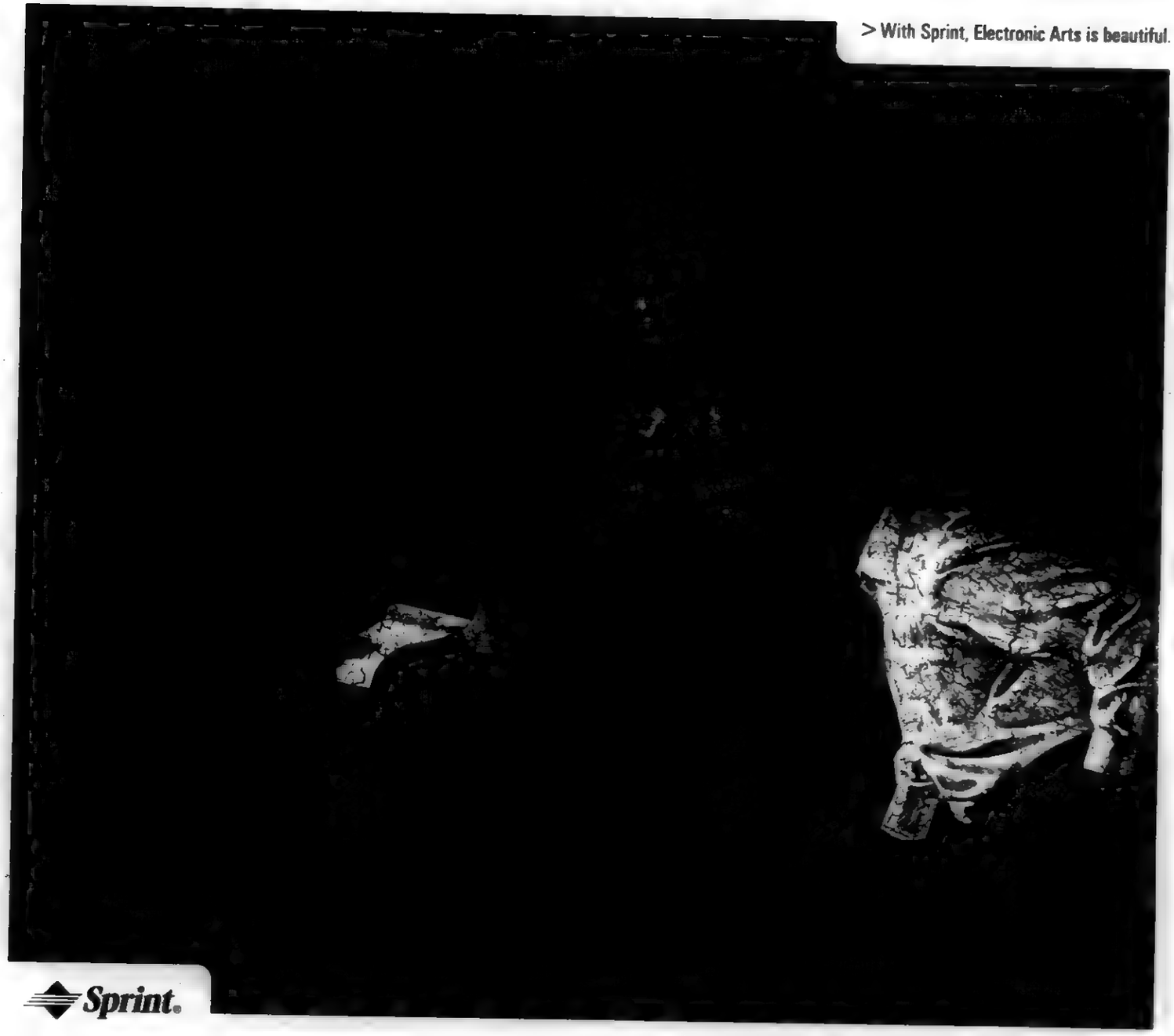
WholeSecurity's technology is being released at a time when phishing attacks, which use spoofed e-mail and Web sites to fool users into divulging personal information, are rising.

The Anti-Phishing Working Group reported 1,422 unique phishing attacks in June, up 19% over May. For the 12-month period that ended in April, phishing attacks cost victims $1.2 billion, with U.S. companies bearing most of the costs, Gartner said.

The trend has resulted in a "growing sense of urgency" to implement steps to combat the problem, according to Gartner.

Other vendors offering antiphishing tools include Cyota Inc. in New York and MarkMonitor Inc. in Boise, Idaho. **46811**

> With Sprint, Electronic Arts is beautiful.



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Electronic Arts makes beautiful video games. Since this entertainment powerhouse switched its data transport from ATM to IP with Sprint, coupled with Electronic Arts' technology, network performance has improved dramatically. Gigabytes of game code and digital assets that took 8–10 hours to send now take less than 20 minutes. Thanks to shortened data transport times and the ability to host digital assets in one place, the process of developing games is now both quick and highly collaborative, with information sharing amongst more than 40 countries. And since switching to Sprint, Electronic Arts saves roughly $100,000 a month. With Sprint, Electronic Arts is reliable, faster and more effective – in a word, beautiful. **With Sprint, business is beautiful.™**

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IBM Tells Internal Users Not To Install Windows XP Update

Cites compatibility problems with SP2

BY JORIS EVERS

DEVELOPERS at Microsoft Corp. may be celebrating that they finished work on Service Pack 2 for Windows XP [QuickLink 48694], but IT departments around the world now face the question of whether they should update their systems.

IBM, for one, is holding off on installing the security-focused update for Windows XP. In a note headlined "To patch — or not to patch," posted Aug. 6 on its corporate intranet, IBM told employees not to download SP2 when it becomes available because of compatibility issues. A copy of the note was obtained by IDG News Service.

"While this patch may be good news for other Microsoft Windows XP owners, IBM is directing XP users not to install SP2," the note states. With close to 400,000 desktops, IBM is a very large Microsoft customer.

"IBM's large number of Web applications will need to be tested and some modified to work correctly with SP2. Currently, some high-profile, business-critical applications are also known to conflict with SP2," IBM said in the note. "When the current issues and concerns have been addressed, IBM will deploy a customized version of SP2."

An IBM spokeswoman declined to comment on internal IT issues.

A Microsoft spokesman said the company believes IBM's recommendation to its employees is prudent.

"Microsoft would expect any well-run IT organization to make the same recommendation," he said. The company has "recommended all along that customers thoroughly test SP2 before deploying it" to ensure compatibility and avoid unforeseen problems, he said.

IBM alerted its users on the same day Microsoft announced the release to manufacturing of the service pack. The Windows XP update will be available soon through downloads, retail distribution and free CDs, as well as on new PCs. A network installation package will be available for enterprise users.

SP2 for Windows XP is more than the usual package of bug fixes and updates. Microsoft has made a trade-off, focusing on security at the expense of compatibility. As a result, SP2 can render existing applications inoperable.

Broad Changes

IBM isn't the only company showing evidence of compatibility problems with XP SP2; Microsoft's own software is also affected. The vendor recently released an update for Microsoft CRM 1.2 because SP2 will prevent the original application from running correctly.

Because of Microsoft's broad changes, analysts have compared the XP service pack to a Windows upgrade rather than a simple update. Business users typically take much longer to install a new version of Windows than a service pack because of compatibility testing.

Thomas Smith, manager of desktop engineering at a large Houston-based company that he asked not be identified, said he hopes to equip his 5,000 desktops with a customized version of the service pack before Microsoft pushes it out on Windows Update.

Many of the desktops Smith manages are scattered throughout North America and use common high-speed Internet connections such as DSL or cable. Although the company uses a remote management tool supplied by Altiris Inc., Smith said he relies on Windows Update for patching. If the standard Windows XP SP2 distribution is applied to his machines, it will block access to several corporate Web applications, he said.

Microsoft will help users in Smith's position, said Barry Goffe, a group manager in Microsoft's Windows group. The software maker plans to offer simple ways to set a unique registry key on XP desktops that will instruct the systems to skip SP2 but still download other critical updates through Windows Update and Automatic Update, Goffe said. "We want to give customers some breathing room," he said.

> **"Microsoft would expect any well-run IT organization to make the same recommendation. [We've] recommended all along that customers thoroughly test SP2 before deploying it."**
>
> A MICROSOFT SPOKESMAN

Nevertheless, Microsoft is urging all users to install SP2 as soon as they can, Goffe said. "This is not about fun and games," he said. "SP2 is about improving the security of our customers' infrastructure. We have spent a lot of time making sure that this delivers a lot of value to all our customers. We're urging all customers to deploy SP2 as soon as possible."

Business users obviously need to test, but Microsoft can't be blamed if users are now unpleasantly surprised by SP2, said Michael Cherry, an analyst at Directions on Microsoft Inc. in Kirkland, Wash.

"Microsoft has been more than forthcoming about the number of changes in this service pack and making it available for testing," Cherry said. "I would say to IT departments that they want to get their testing done quickly because there are significant improvements in this service pack, and I am not sure you would want to forgo those." 48777

Evers writes for the IDG News Service. Computerworld's Todd R. Weiss contributed to this story.



Afghan women try using one of the LeapPad talking books.

U.S. Sends Health Data Devices to Afghanistan

The U.S. Department of Health and Human Services is distributing thousands of computer-based talking books in Afghanistan as part of a $1.5 million program designed to provide basic health information to Afghans who can't read or write.

The agency worked with LeapFrog Enterprises Inc. in Emeryville, Calif., to develop the 42-page interactive health care manuals, which use point-and-touch technology and support Afghanistan's two major languages, Dari and Pashto. LeapFrog adapted devices used to teach children in the U.S.

HHS Secretary Tommy Thompson has visited Afghanistan three times since 2001 to evaluate the health care needs of the country's residents. In a statement, he noted that almost 80% of Afghan women are illiterate and that infant, child and maternal mortality rates "are all shockingly high." HHS expects that the LeapPad devices will be "an important tool" for helping to improve the health of families in Afghanistan, he said.

Jim Marggraff, LeapFrog's executive vice president for worldwide content, said the LeapPads are based on a proprietary chip. Each book used in a LeapPad comes with a data cartridge, which is synchronized with paper-based content via a screen that the book is placed on. When a user touches text or a picture, the book "reads" it through a Musical Instrument Digital Interface connected to the cartridge.

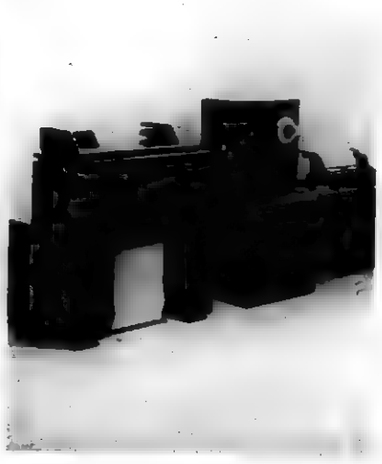
HHS has ordered 20,000 of the modified LeapPads, which measure 9 in. by 12 in. The agency has distributed about 2,000 devices to families and health care facilities in Afghanistan in an initial rollout that will be used to evaluate the technology's usability and its effect on the health-related behavior of Afghans. 48838

– *Bob Brewin*

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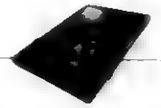
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BRIEFS

Seagate Says Rival Can't Get Ex-worker

Hard drive maker Seagate Technology LLC is seeking a court injunction to prevent a former employee, Pete Goglia, from working for Western Digital Corp., saying Goglia knows too much about Seagate's hard drive reading and writing technology to work for a competitor. Goglia, who worked at Seagate for 17 years, was most recently executive director of its recording-head operation.

FTC Settles With Pop-up Spammer

San Diego-based D Squared Solutions LLC, which allegedly used a barrage of pop-up ads to sell pop-up blocking software, is barred from employing that tactic in the future under a settlement announced last week by the Federal Trade Commission. D Squared allegedly used Windows Messenger Service to send pop-ups that appeared as frequently as every 10 minutes, according to the FTC.

McAfee Updates E-Business Server

McAfee Inc. last week released a new version of its E-Business Server data encryption software that it said will make it easier for companies to encrypt data sent outside their networks. E-Business Server 8.0, available now, will also allow large companies to remotely manage multiple E-Business deployments from a single interface, McAfee officials said.

Nortel Restatement Due on Thursday

Nortel Networks Ltd. will provide preliminary, unaudited results for the first two quarters of 2004 on Aug. 19, the company said last week. Nortel is under investigation by the Ontario Securities Commission and the U.S. Securities and Exchange Commission regarding the restatement of its financial results as far back as 2001.

HUD Again Awards EDS $750M Services Contract

Lockheed Martin had filed a complaint over the original $860M bid last year

BY TODD R. WEISS

FOR THE SECOND TIME in a year, the U.S. Department of Housing and Urban Development has awarded a disputed IT services contract worth more than $750 million to Electronic Data Systems Corp. instead of to the vendor that previously provided the services.

HUD again awarded the contract to EDS on Aug. 6, after a seven-month review that began after the current IT services vendor, Lockheed Martin Simulation, Training and Support (LMSTS), filed a protest last year against the contract award. In its complaint, LMSTS alleged that the government agency misevaluated the business proposals from the two companies and "made an irrational source-selection decision."

An audit by the Government Accountability Office in response to the complaint agreed and determined that HUD's decision to award the contract to EDS was unreasonable and should be rebid [QuickLink 43933]. The contract was originally valued at about $860 million.

After a new review, however, the agency again awarded the HUD Information Technology Systems (HITS) contract to Plano, Texas-based EDS. Under the deal, EDS will provide the staff, hardware, software, telecommunications, facilities and services needed to deliver HUD's basic IT functions to about 18,000 workers in more than 80 offices nationwide.

The contract has a base period of four months plus nine option years, with a total potential value of $750 million.

Nettie R. Johnson, a spokeswoman for LMSTS, said in a statement that the latest HUD decision is "even more surprising than its first award" of the contract. "While we are disappointed at this outcome, we have requested a debrief and look forward to learning how HUD made its selection of EDS for the critically important 10-year HITS program. We will not have any further comment on this matter until we receive our debriefing from HUD," she said.

HUD spokesman Jereon Brown said he had no further comment. "I can't go into specifics," Brown said.

Jim Duffey, vice president of global sales at EDS, said that despite the delays, the company is eager to get back to work on the HUD IT project. "It has been a long and arduous process, but the new award by HUD reaffirms that EDS offered the superior solution — twice," he said.

The IT services will include enterprisewide data processing and management from mainframe to the desktop, information security, technology refresh services, help desk support, user support, disaster recovery, printing and distribution, networking services, wireless services, TV/video-conferencing and Web administration. **48772**

HUD Contract Timeline

AUGUST 2003
- EDS wins original contract.
- Lockheed files formal protest a week later.

JANUARY 2004
- HUD rebids contract.
- Deal audited by GAO.

AUGUST 2004
- HUD again awards contract to EDS.

Zurich Financial Outsources App Development to CSC

BY LUCAS MEARIAN

Zurich Financial Services, one of the world's largest insurers, has signed a seven-year, $1.3 billion outsourcing agreement with Computer Sciences Corp. to hand off new application development and the management of more than 4,000 existing applications.

ZFS's server infrastructure will continue to be managed in-house, but the deal, signed late last month, will transfer about 1,600 of the Zurich-based company's 5,000 IT employees to El Segundo, Calif.-based CSC. About 650 of the employees being transferred are U.S.-based, ZFS said.

U.S. employees and personnel in the U.K. and Switzerland are expected to transfer to CSC in the fourth quarter, and employees in Germany are expected to make the transition during the second half of 2005.

Expected Benefits

"We're getting a very, very flexible framework, where we can redeploy our skills and resources almost to any needs we want," said Michael Paravicini, ZFS's chief information technology officer. "Secondly, it's about productivity. It's about leveraging the expertise CSC has, making sure we can streamline our applications landscape and reduce the number of platforms and systems in it."

Paravicini said ZFS expects to reduce costs by about 20% by employing CSC. "We [expect to] get to a very reasonable benefit early on in the contract, which is very important to me," he said.

ZFS's global organization has traditionally been a geographically oriented operation, in which each region runs on its own unique business applications, Paravicini said. Last year, in a move to standardize operations and cut costs, the company finished consolidating its physical infrastructure into two data centers, one for European and Asia-Pacific operations and one for U.S. operations.

About 85% of ZFS's applications are homegrown, according to Paravicini, who said the company will likely choose to standardize on some of its existing platforms instead of developing or buying new ones.

Bill Bradway, an analyst at Framingham, Mass.-based Financial Insights, said the insurance industry as a whole is five to seven years behind banking and brokerage firms in consolidating IT infrastructures and standardizing platforms. Paravicini agreed with that assessment.

Paul Defuria, chief technology officer for CSC's Financial Services Group, said his company will focus primarily on ZFS's bread-and-butter applications of insurance underwriting and claims.

"Certainly, they have an incredibly large insurance portfolio with millions of policies," Defuria said. "Policy administration, just by the sheer weight of it, is important." **48780**

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Novell Bundles JBoss App Server

Red Hat launches app server as well

BY CAROL SLIWA

NOVELL INC. earlier this month bundled the open-source, J2EE-compliant JBoss Application Server with its SUSE Linux Enterprise Server 9, giving application developers a built-in deployment option.

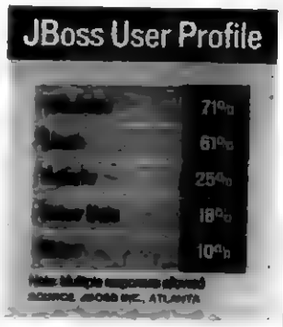
Novell's SUSE Linux-JBoss offering includes a software development kit with documentation and tools that aim to make developers more productive. Technical support is being provided by Novell with backing from Atlanta-based JBoss Inc., which announced last month that its open-source application server passed Sun Microsystems Inc.'s compatibility test suite for Java 2 Enterprise Edition 1.4.

JBoss CEO Marc Fleury said Java virtual machine (JVM) performance had been hampered on Linux due to limitations with the kernel threading model. But Novell's SUSE Enterprise Server 9 supports the 2.6 Linux kernel patches that fix the threading model, he said.

"That will lead to better performance and scalability for Java virtual machines, so now Linux can be a very serious enterprise-level choice when it comes to deployment platforms," Fleury said. "Novell is doing the right things to make SUSE Linux the best Linux platform to run Java. I certainly hope to see Red Hat step up with a 2.6 enterprise shipment of Linux."

Red Hat Inc. has incorporated some of the 2.6 kernel features into its current Red Hat Enterprise Linux 3 release. Version 4, due early next year, will be built around the new kernel, Red Hat spokeswoman Leigh Day said.

At the recent LinuxWorld Conference in San Francisco, Novell also announced that the next major release of its exteNd application suite, due in late 2005, will be bundled with JBoss Application Server 4.x rather than the exteNd Application Server it acquired in 2002 from SilverStream Software Inc.



A maintenance release of exteNd will support the JBoss application server by year's end, according to Ashish Larivee, a director of product marketing at Novell.

Continued Support

Even though Novell will no longer ship new releases of its application server, it pledged to continue support for the product, as well as for IBM's WebSphere, BEA Systems Inc.'s WebLogic and Jakarta Tomcat.

"We have been looking at supporting open-source projects and products wherever it makes sense within our product portfolio, and an application server is pretty much a commoditized part of the platform," Larivee said. "We first investigated trying to open-source our application server, but because of licensing restrictions, we were unable to do so. The next option was to look at the most popular open-source application server, and JBoss was the clear choice."

Novell plans to provide a series of white papers and technical guides to help customers, but the company expects migration issues to be minimal since JBoss is J2EE-compliant.

"This is a good thing for both Novell and JBoss," said Anne Thomas Manes, an analyst at Midvale, Utah-based Burton Group. "It's a waste of time, effort and money for Novell to continue to invest in this commodity J2EE application server technology when there are freely available, high-quality app servers that they can embed for their product instead."

Also at LinuxWorld, Red Hat announced the availability of its lightweight application server, which is based on the open-source Jonas application server from the ObjectWeb Consortium. Raleigh, N.C.-based Red Hat said it plans to test the application server to ensure that it interoperates with J2EE platforms from BEA, IBM and Oracle Corp.

Red Hat Application Server is tested and supported on all major commercial JVMs, including those from BEA, IBM and Sun, according to the company. Plans also call for it to be tested and certified with leading database management systems, including those from Oracle, IBM and Sybase Inc.

Tom Murphy, an analyst at Meta Group Inc., predicted "a flurry of activity" around open-source application servers such as Red Hat, Novell's releases and others.

"Just like it took the formation of Red Hat to really get Linux going and then the backing of IBM to make corporations comfortable, we are seeing a similar era now for open-source middleware," he said. 48796

Reporter Todd R. Weiss contributed to this story.

Oracle Gives CRM Another Shot

BY MARC L. SONGINI

Oracle Corp. is counting on the latest revision of its E-Business Suite, aimed largely at improving sales processes, to finally give it the elusive traction it has sought in the CRM market for years.

The company today is expected to announce Oracle CRM 11i.10, an upgrade that includes a revamp of its sales, marketing and partner relationship management modules. The new CRM application is part of an ongoing E-Business Suite upgrade that earlier this month yielded Version 11i.10 of its Supply Chain Management application.

Timed for release as corporations are expected to be willing to once again invest in customer-facing applications, CRM 11i.10 is designed to enable the alignment of sales activities with company goals, boost the effectiveness of individual salespeople and bolster collaboration between in-house and indirect sales forces, said John Wookey, Oracle's senior vice president of applications development.

Among the new tools in CRM 11i.10 is the Oracle Audience Workbench, which can access data from the Oracle sales and marketing modules and present it in a single screen to help managers identify the best customers to target for upselling or cross-selling.

In addition, managers can now craft compensation packages that reward salespeople who fulfill corporate objectives.

According to Wookey, analytical technology will enable managers to track sales by product or other categories and create a "holistic view" of companywide CRM activities. Users can access sales status information, do historical and predictive analyses, and report on potential deals, Oracle said.

Making Inroads

The cross-selling, analytical and marketing integration enhancements are of particular interest to Affina, a customer service company in Peoria, Ill. Victor Burgess, vice president and general manager of alliances, said the company will be able to offer the upselling and cross-selling technology to its customers as part of its contact center service. Affina currently runs Oracle's E-Business Suite 11i.9 CRM and application server software.

The CRM 11i.10 release is the latest of several attempts by Oracle to gain share in the CRM market — an effort that so far has yielded few results, said Erin Kinikin, an analyst at Forrester Research Inc.

By building in features that help salespeople save time and make more money, the suite might be appealing enough to ease their historical aversion to CRM software, Kinikin said. However, she noted, "we need to see some customer references and return-on-investment results."

All Oracle CRM 11i.10 modules will be available within the next eight weeks. Pricing per module starts at $3,995 per user, subject to conditions in Oracle's E-Business Suite pricing schedule. 48800



New Mexico County Pioneers Courthouse Wi-Fi Service

BY BOB BREWIN

Bernalillo County, N.M., has adopted Wi-Fi technology to support Internet access for judges, lawyers and jurors in its courthouse. The service also provides wireless voice-over-IP phone service for security personnel.

Jim McMillan, principal court technology consultant at the National Center for State Courts in Williamsburg, Va., called Bernalillo county a pioneer in the use of Wi-Fi service and Wi-Fi VoIP phones in courts. McMillan said the Bernalillo courthouse is one of the first in the country to offer free Wi-Fi service to jurors.

Paul Roybal, CIO of the Metropolitan Court in Bernalillo county, which encompasses greater Albuquerque, said the court this month kicked off the second phase of a $150,000 Wi-Fi deployment that began in February. It will provide both Wi-Fi VoIP and data services throughout the 10-story courthouse. The Wi-Fi network is intended to reduce juror frustration with waiting to be called for cases, Roybal noted.

The network hardware includes two BeaconMaster Layer 3 routers from Chantry Networks Inc. in Waltham, Mass. Once the project is completed, the network will have 65 Chantry BeaconPoint 802.11a/b/g access points, Roybal said.

Addressing Security

The VoIP phone service will replace a dedicated 900-MHz phone system that had trouble operating in some areas of the steel and concrete structure. The VoIP service will also get around a ban on using cell phones in the courthouse, according to Roybal.

Luc Roy, senior director of product management at Chantry, said the BeaconMaster routers used in the Bernalillo courthouse segregate traffic and subject it to a firewall through virtual private network connections. Each router is capable of supporting 50 VPNs.

Roy said network managers can control access to subnetworks by assigning different sets of Wi-Fi service set identifiers, the header broadcast by an access point. Client devices must use the same SSID as the one broadcast by the access point, and judges, lawyers and jurors will all be assigned different SSIDs in the courthouse.

The network uses two BeaconMaster 1100 routers, which can support up to 100 access points each and are priced at $22,000 apiece. The BeaconPoint access points cost $395 each.

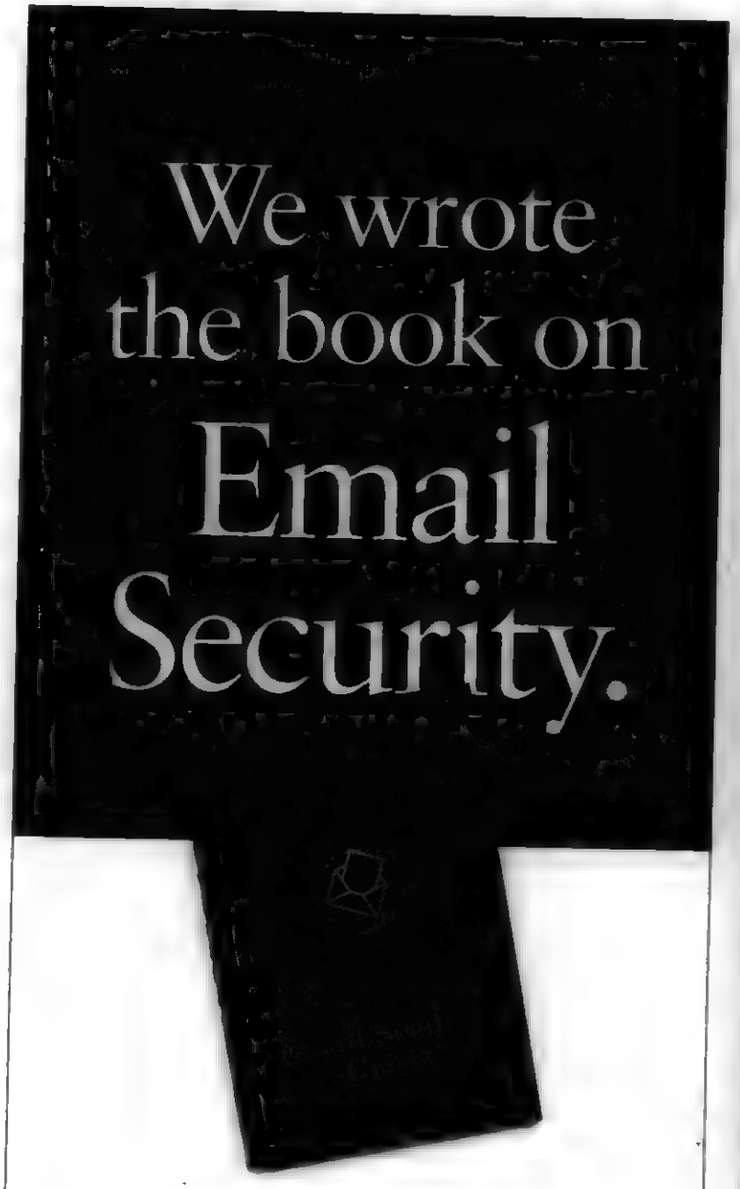
Roybal said he has equipped the court security force with 36 NetLink Wi-Fi VoIP phones from SpectraLink Corp. in Boulder, Colo. Ben Guderian, director of marketing at SpectraLink, said the phones cost $595 each. Although that might seem high compared with the price of basic cell phones, which go for around $100, Guderian said mobile VoIP users save on monthly costs for airtime.

McMillan said the Bernalillo installation is the beginning of a trend in Wi-Fi deployments at courthouses nationwide. The state of North Carolina plans to install Wi-Fi in all 100 of its courthouses, while New York-based Courtroom Connect has installed fee-based Wi-Fi networks in 21 state and municipal courts. **48737**



at the Bernalillo county courthouse will allow lawyers to conduct online research

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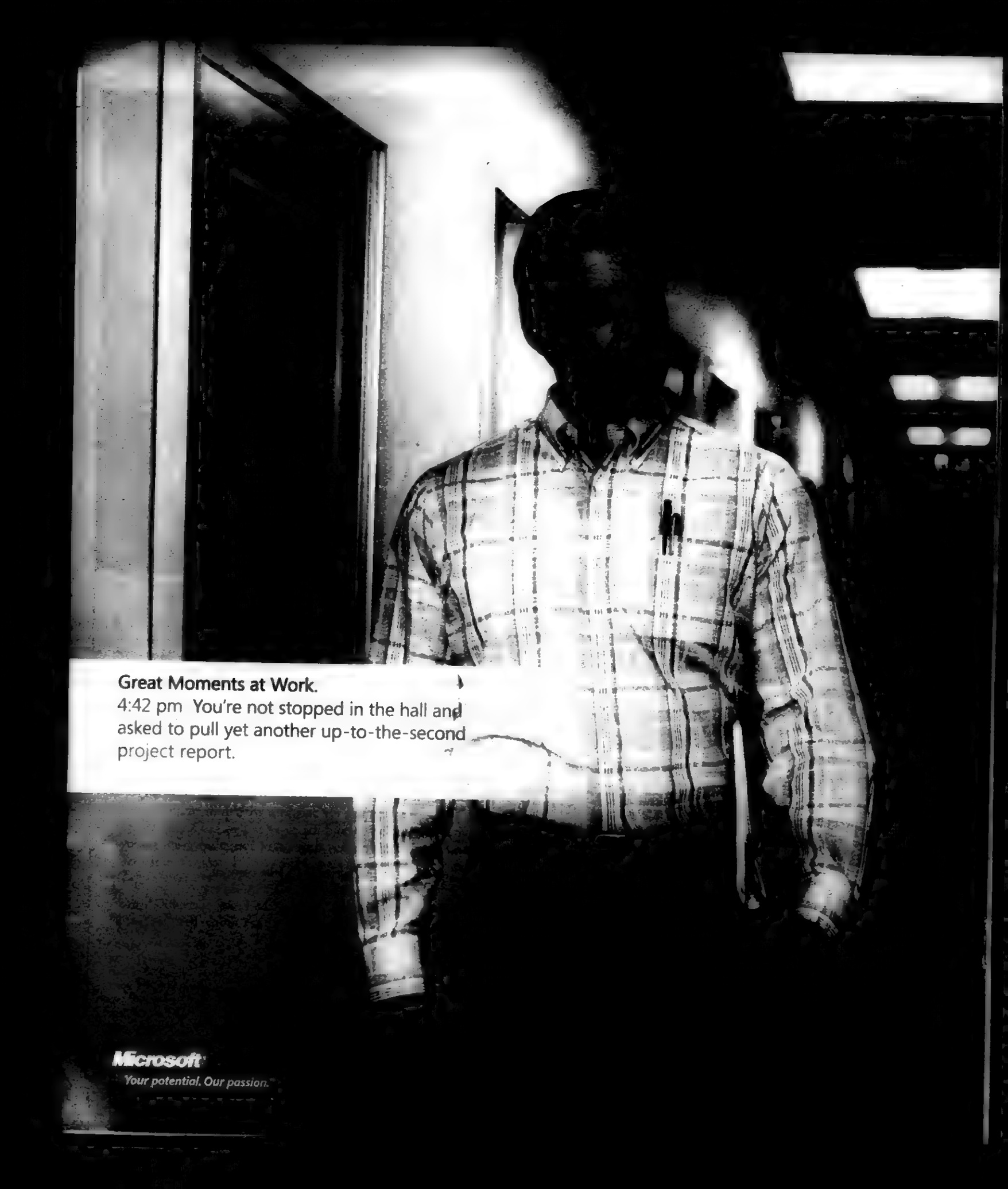


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MARYFRAN JOHNSON

Security Blind Spot

SOME OF OUR READERS objected strongly last week to Dan Verton's front-page story about the potential dangers of sensitive company information posted on corporate Web sites ["Online Data a Gold Mine for Terrorists," QuickLink 48662]. They felt it was irresponsible to call attention to the problem and accused us of showing poor judgment in identifying specific examples from corporate Web sites.



"Please, spread the fear," one reader sarcastically suggested. "Is this *Computerworld* or Fox News?"

"You do more harm than good," wrote another manager. "If there are people out there that didn't know about it before, they do now!"

"Although it raises some awareness," said a systems engineer, "now you've added some details and hyperlinks that allow the terrorists to see more data. Something to think about."

I certainly agree it's worth thinking about. But I still believe it's far better to recognize potential dangers than to ignore them. The Department of Homeland Security thinks so, too. Amit Yoran, director of the National Cyber Security Division at the DHS, encouraged our reporter to write about this issue. "Not thinking through the security implications of some of the information put online can be a very dangerous mistake," Yoran said. Another senior intelligence official at the DHS gave us a real example of that danger, pointing to the recent capture of an al-Qaeda computer engineer whose laptop contained photographs and floor diagrams of U.S. buildings.

Unfortunately, this story could have been headlined "Online Data *Still* a Gold Mine for Terrorists," since we called attention to the exact same issue more than two years ago ["Web Sites Seen as Terrorist Aids," QuickLink 27059]. In that story, we cited a security audit that turned up startling amounts of sensitive internal information made available on corporate Web sites, such as building plans and schematics, elevator system specs, wireless network details and infrastructure diagrams.

Why on earth does the public Web site for Entergy Corp.'s Indian Point nuclear power plant still post details about its reactor design [QuickLink 48675], including the thickness of the reactor's various layers and the types of steel reinforcement bars? For school science projects?

Not surprisingly, security analysts and consultants lined up in favor of calling attention to such lapses. "I thought the piece on the building plans was great," one security consultant wrote to our reporter. "This is an area that just does not get considered."

But the issue isn't restricted to corporate entities. One security manager at a technical services company in the Midwest wrote in about a U.S. government Web site that freely distributes a software package that, in his view, could help terrorists plot "a chemical or biological weapons attack." The software is actually intended for emergency response teams, he said, "but after seeing it, I would say it could be used by terrorists quite easily."

The problem, of course, is that most of us think like the good guys, not the bad guys. We don't look at a sharpened pencil on a desk and see a deadly weapon. Who wants to live that way?

There's also an argument to be made that this isn't an IT problem at all. The content of most large company Web sites is usually managed by marketing and communications departments, and they're more worried about presenting a good image than about the implications of posting a photo of the underground parking garage.

So you tell me: If IT and security managers don't pay attention to this corporate security blind spot, who will? **48782**



MICHAEL GARTENBERG

When Mobile, Connectivity Is Everything

IT WOULD BE GREAT to have a unified architecture for mobile digital content, applications and devices, an architecture that would let me link my efforts at work with my content and information at home seamlessly. I could be mobile and still access any critical information that was contextually relative.

Although the unified platform doesn't exist, an emerging crop of portable devices does, thankfully, grant me greater flexibility in synchronization and connectivity. While the PDA started a revolution years ago, the need for disconnected PDAs is rapidly declining. In fact, a few years ago, I predicted that most portable devices sold on the market would have at least two forms of connectivity built in. That proved to be correct, and today connectivity should be a primary driver when you're looking into mobile device purchases for business use. There are several factors that come into play in making the purchasing decision.



First, you need to decide how many devices you (or your users) want to carry. For most users, it will be no more than three, with two being the sweet spot. Form factor is important as well — there's a huge difference between a device that's truly pocketable and something that needs to go into a case with a laptop. And pay attention to battery life. No matter how small the device is, once the battery goes, it's a brick.

Then focus on the importance of primary and secondary functions. If voice is important, you might want a small, dedicated cell phone that's separate from other functions and therefore always available. If e-mail or messaging is important, make sure a keyboard is available for the device. (A good rule

of thumb when it comes to mobile messaging is that the worst keyboard is better than none at all.) If you need to access other information, make sure the device is compatible with Microsoft Office applications so you can read attachments when on the road.

Finally and most importantly, remember that the key these days is connectivity. For phone-centric devices or PDAs, Bluetooth is a must so you can connect them to other devices or headsets. For e-mail-centric devices, make sure coverage areas match your usage pattern. The best products on the market offer Wi-Fi in addition to WAN or Bluetooth, which is great for connectivity at home, on campus networks and via hot spots on the road. Unless you're sure about where the device will be used, you will want connectivity options that give you more flexibility for staying connected — and in the end, that's what it's all about. A Wi-Fi-only device won't do if there's no network; a GSM/GPRS device might have connectivity problems indoors.

A handful of products meet these criteria well. For two-piece connectivity, a good combo is a small, Bluetooth-enabled cell phone and a Bluetooth PDA. For e-mail centricity, the venerable BlackBerry is a great choice. For all-around PDA functionality with telephony, the Treo 600 is an excellent tool. For flexibility, nothing beats the HP 6300, which combines telephony, GPRS, Wi-Fi and Bluetooth, all in a tiny form factor. There's no one killer device that's right for everyone.

Next month, I'll be taking a close look at some of the best of these devices in a more in-depth review of how well they work for the mobile professional. **48674**

PIMM FOX

Technology Not the Answer To Terror

IS TECHNOLOGY going to be able to foil terrorists? It's doubtful. Consider the case of those biometric passports you may have read about a couple of years ago.

In 2002, Congress passed, and President Bush signed, the Enhanced Border Security and Visa Entry Reform Act. One of the features of this slab of legislation is the requirement that 27 foreign governments institute new passports with biometric features that support facial recognition. These 27 nations are participants in the Visa Waiver Program, which lets someone from the U.K., for example, visit the U.S. without a visa.

When this law was passed, the deadline for the newfangled passports was set for Oct. 26 of this year. Although technically U.S. passports don't have to have the new biometric chip, the State Department decided it wouldn't be fair if we demanded that other countries adopt the new passports without us leading the way.

But guess what — Maura Harty, assistant secretary of state for consular affairs, told the Senate Judiciary Committee on June 15 that this scheme is too complicated to be up and running by Halloween. Indeed, there aren't even passports with the special biometric chips available for testing yet.

The U.S. government settled on facial recognition because the International Civil Aviation Organization adopted that standard in May 2003.



For biometric passports to work, you need globally interoperable, contactless chips. I almost fell out of my airplane seat when I heard that one. *Globally* and *interoperable* shouldn't be allowed in the same sentence, never mind in one chip design.

Harty said the U.S. won't begin receiving large shipments of the 64KB chips for use in passports until next spring at the earliest. None of the larger countries in the Visa Waiver Program, such as the U.K., Japan, France, Ireland, Italy, Spain and Germany, has started to roll out the new biometric passports, though the U.K. is switching to the biometric system next year, and Japan should be well along by 2006.

As a stopgap measure, visitors who arrive via the Visitor Waiver Program must enroll in the US-VISIT program, which is designed to track the entry and exit of foreigners using electronically scanned fingerprints and photographs.

The State Department has asked Congress to extend the deadline by two years so everyone has more time to get on the biometric bandwagon. The Judiciary Committee's chairman, Sen. Orrin Hatch (R-Utah), has proposed a one-year extension.

Without shifting this deadline, U.S. embassies and consular offices will be swamped by an estimated 5 million applications for visas. That's a 70% increase in the nonimmigrant visa workload, according to the State Department.

Of course, all of the political blather over using technology to make us more secure is irrelevant. It's worth noting that there's evidence that once these biometric passports are in place, they could easily be thwarted, for example, by a terrorist who got Botox injections just before traveling. Besides, the recent report on the 9/11 suicide attacks makes it clear that poor communication among the FBI, CIA and local law enforcement may have prevented officials from foiling the attacks.

We don't need more technology. We need to learn how to use the technology we have, and we need some common sense. **48705**

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READERS' LETTERS

Pentagon Misuse

MY JOB in the Navy reserves was to administer and operate the Worldwide Port System, which had been developed for the Army based on a manual system ["GAO: Pentagon IT Mismanagement Wastes Billions," QuickLink 48055]. The software did little more than somewhat automate the manual system. Although data entry screens were almost a duplicate of the old paper forms and knowledge of special codes was still required, the system was touted as advanced software to simplify the inventory and material-transfer operations involved in operating a shipping port and warehouse.

I saw something similar in the National Guard. It was difficult for me to use these systems as they were while ignoring my then 15 years of experience in IT, since both systems could have easily been written from scratch using proper database and application design techniques. Instead of trying to duplicate paper-based systems that predate World War II, the Pentagon should do what every company in the country does – use technology to make its systems more efficient.

Aaron M. Cutshall
Systems analyst,
ELSA LLC, Elwood, Ind.

Paper Forever

MICHAEL GARTENBERG wrote in a recent article ["No Turning Back From Digital Age," QuickLink 48042] that using paper for data storage makes no sense. I'm no Luddite, but I disagree. Many of our editors carry on e-mail correspondence with social, political and literary authors of great stature whose books will be read and lives studied for decades. How do we manage the archives for this correspondence? I can gather up editors' .pst files from Outlook and ship them off to our archive partners at Columbia University, but are they going to be able to help a researcher 20 or 30 years from now import that file into whatever will pass for an e-mail client in the future? Most likely not.

Technology standards change – already, in the switch from Outlook for Mac OS 9 to the archive file format in Entourage in OS X, the .pst file has been replaced by the incompatible .mbox file for e-mail archiving. The easiest thing to do to ensure that someone can read this correspondence in the future is to get it on paper. Besides, I'll take the glow of a candle over a CRT any day.

Joe Wojak
Senior user analyst,
W.W. Norton & Co., New York

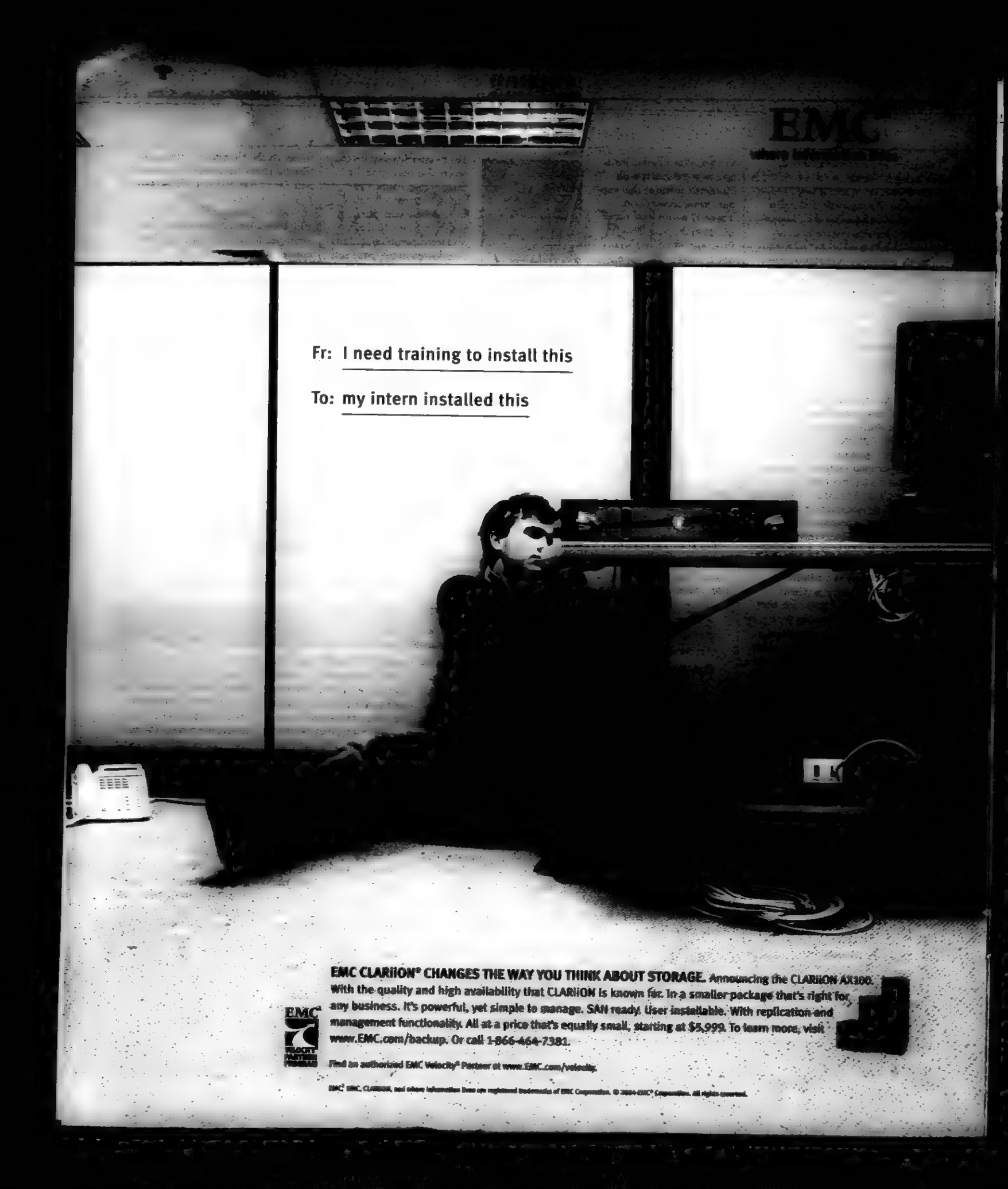
Keep It Competitive

IN A JULY 19 letter ["Apple's Integration Problems," QuickLink 47982], James Kunysz stated, "I personally no longer see a need to support two types of hardware and operating systems on the corporate desktop." Most of the companies I've worked for have recognized the value of a competitive marketplace. Since the early 1980s, it has been common for very large companies to use an Amdahl processor or two in addition to their IBM models to apply competitive pressure to Big Blue. I have seen companies install software products that they had little or no intention of using in order to get significant price concessions from their vendor of choice. Similarly, even with only a 3% market share, Apple's presence in the marketplace provides a crucial counterbalance to Microsoft. But for some reason, Kunysz's reasoning seems to be widespread when it comes to the desktop. When are people going to realize that Microsoft is a monopoly made by them and that it will continue to be until they (not the government) do something about it?

Cathy Taddei
Portland, Ore.

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wanted customers' personalized experiences with the company ... extend to ... Web site.

STEVEN WEINFELD

Getting Personal [AGAIN]

Personalization technologies didn't live up to their hype during the dot-com boom, but some companies are taking another look. BY KYM GILHOOLY

WHEN MARVIN SCHWAN decided to bolster his family's dairy business by selling ice cream door to door more than 50 years ago, he quickly developed relationships with the customers on his route. He must have been doing something right: Since then, privately held The Schwan Food Co. has grown into a frozen-good giant, with 5 million customers in 48 states and estimated revenue of $4 billion. It sells into homes through its Schwan's Home Service Inc. division as well as into retail locations.

When Schwan's decided a few years ago to leverage the Web as a key customer sales channel, executives wanted to translate the personalized experience customers get in their homes and through the call center into the online experience, according to Glenn Bader, director of e-commerce and emerging channels at the Marshall, Minn.-based company. Doing so required, among other efforts, centralizing data from the customer master file and other sources in a dedicated data mart and finding personalization software that could recommend an individualized mix of products and offer personalized incentives to site visitors. For its personalization, campaign management and marketing analytics needs, Schwan's chose Interaction Advisor from San Mateo, Calif.-based E.piphany Inc.

Personalization technologies came on the scene to much fanfare during the dot-com craze, but for a number of reasons, they didn't live up to the hype. Based on concepts such as one-to-one marketing, personalization tried to treat all customers as unique, but the numerous business rules required to do so were difficult to maintain and greatly affected online system performance. Moreover, many businesses found that the majority of their customers simply weren't different enough to justify the expenditures.

Nonetheless, many large companies today are seeing significant returns from personalized marketing, sales and customer service efforts through CRM strategies that combine a host of factors. They use appropriate personalization algorithms and sophisticated analytics for understanding behavior and focus on a smaller group of customers — typically high-value, frequent customers.

For example, Harrah's Entertainment Inc. in Las Vegas has bolstered highly segmented customer data used for its casino customer base with a personalization strategy for its premier 100,000 customers — who generate 30% of its revenue. Harrah's uses the Clienteling product from Blue Martini Software Inc. in San Mateo, Calif., to implement the program.

Daily or even more frequently, managers establish contact priorities for Harrah's service-oriented hosts by running Cognos queries against a Teradata warehouse to identify appropriate segments and then feeding results into the Clienteling data mart. Blue Martini's personalization engine generates contact names and reward offers appropriate to the current promotional campaign of Harrah's. For example, if an event on a certain night isn't filled, hosts can tar-

CONSUMERS WANT PERSONALIZED CONTENT

U.S. Internet users interested in personalized content

Age	Percentage of Respondents
18-24	87%
25-34	82%
35-49	79%
50+	77%

U.S. Internet users who are willing to provide demographic data in exchange for personalized content

Age	% of Respondents
18-34	59%
35+	49%

Base: 673 respondents surveyed in May 2004

SOURCE: CHOICESTREAM INC., CAMBRIDGE, MASS.

get specific customers and make a personalized offer based on behavior and preferences.

"We're able to be highly customized with Blue Martini's [personalization engine]. Managers dictate more of the prioritization and are able to generate the right names," says David Norton, senior vice president of relationship marketing. Thanks to this effort, says Norton, Harrah's has increased revenue from its premier customer segment by 28% over the past two years, while its other segments have experienced modest growth rates.

PERFORMANCE ANXIETY

When Schwan developed its personalization strategy, according to Bader, the company paid attention to factors that have historically caused failures in such efforts: performance problems, databases with conflicting customer data, lack of integration among channels and unreliable personalization techniques.

Because Schwan had deployed the analytics and campaign management components of the E.piphany platform before the personalization, the company had already done a significant amount of work on its data mart. Database work was greatly eased by the fact that field reps had been using DOS-based handhelds since the 1980s that fed a customer master file, from which they populated the data mart, says Bader.

Also key, says Bader, was making personalization contextually relevant, an area where efforts often fall short. Doing so requires personalization strategies that don't rely on just one technique such as collaborative filtering or rules-based algorithms but combines them to, for example, make a purchase recommendation. While exploring other food sites to prepare for Schwan's personalization effort, Bader had a personalization engine recommend an onion and a bottle of wine for a family dinner, and he was determined to avoid similar problems.

"If you're going to use [collaborative filtering] to upsell, there have to be business rules that go around it for specific situations," he says. Bader rejected pure rules-based software as well as pure collaborative filtering platforms "because they didn't have a lot of ability to build rules around them." Ultimately, Schwan added business-specific rules within the E.piphany system, and those that the system couldn't accommodate were built outside of it.

As for the site's performance, "we were obviously concerned about tapping into a technology where there were questions about whether it would scale or perform, particularly with our traffic and sales volume," says Bader. But the cache-driven nature of E.piphany's personalization engine has thus far alleviated concerns. "There's an element of real time where [the technology] captures new information as to where customers are going, but when it's making a call into the personalization engine itself, it's not querying to figure things out — it's a cache-driven operation," he says.

The personalization engine takes into account elements such as a user's purchase history, pages visited, demographic data and profile to make recommendations. Not only has the personalization effort improved Schwan's upsell rates at online checkout, but it has also improved overall conversion rates and increased order frequency, says Bader.

Performance was also a concern for A&E Television Networks when it decided to better target customers by offering separate online stores for its A&E Television, History Channel and Biography Channel merchandise, says So Young Park, director of e-commerce at the New York-based company.

A&E abandoned its earlier e-commerce platform, in part because it couldn't scale, and rearchitected its site — a tribranded effort behind which sit the separate storefronts — based on Art Technology Group Inc.'s Commerce Suite and its Dynamo personalization technology. Now, depending on preferences defined during a registration process and based on past behavior, customers get individualized content and store promotions specific to each channel. If they have opted to receive e-mail content, they receive targeted messages based on their profiles.

Due to limited IT resources, A&E opted to use ATG's packaged personalization "scenarios" — rules-based "if-then" processes that deliver recommendations based on user interests, history and so on. The company uses SiteCatalyst Web analytics from Orem, Utah-based Omniture Inc. to analyze how its Web page tags are working.

A&E's personalization strategy has helped it brand the individual stores, which together have 5,500 products. "Among other things, it's improved conversion up to 50%. While our earlier [combined] storefront might have converted 3% of visitors, our individually branded storefronts convert anywhere from 5% to 8%. It's helped obviously from a merchandising and sales perspective, but also branding," says Park.

Before a company undertakes any personalization effort, say experts, they've got to determine the value to customers. Ultimately, if you give appropriate control to customers, they're much more likely to remain loyal, says Chris Selland, an analyst at Aberdeen Group Inc.

"Customers should be managing you in a relationship, rather than you managing them," Selland says. "Personalization used to be all about marketing and pushing offers in people's faces. Now it's almost become personalization as a customer service tool rather than a marketing tool. It's about establishing preferences as to how and what customers like to buy and how they want to be communicated with." **48557**

Gilhooly is a freelance writer in Falmouth, Maine. Contact her at kymg@maine.rr.com.

The Privacy Dilemma

Personalization is only as good as the data it's based on. The more you know, and the better it is, the more relevant the personalized interaction. The problem is, privacy concerns have customers increasingly shy about sharing. This, coupled with legislative headaches such as the "do not call" initiative, means businesses have to figure out ways to maximize each interaction with a customer and then securely develop the relationship.

"Companies have to avoid the 'marketing gone wild' mentality, as every interaction is a reflection on brand," says analyst Elaine Anderson at Forrester Research Inc. She recommends that they focus on building customer relationships based on proactive service, leveraging personalization technologies on inbound channels to maximize the interaction when a customer makes contact. "It's the reason marketing should own the contact center; if messages are done right, they're service-oriented instead of the hard sell," she says.

At Mahwah, N.J.-based Sharp Electronics Corp., privacy policies dictate that the company doesn't share customer data and that it never sends unsolicited e-mail to existing customers, according to Fred Kaczeba, vice president of marketing and planning decisions. As part of its acquisition strategy, however, Sharp does send e-mails asking recipients for permission to establish relationships.

For its part, Schwan Food makes it a policy not to collect data it won't use, both to streamline operations and because the company doesn't want to intimidate customers.

"Have a purpose for collecting personal data, and always honor opt-out requests," says Glenn Bader, Schwan's director of e-commerce and emerging channels.

According to Gartner Inc. analyst Adam Sarner, privacy legislation can actually be a boon to personalization initiatives – at least in the case of "explicit" personalization, in which a company collects data with the customer's permission, with the promise that it will use the data to only make relevant contact.

"Every company should have user profiles that allow customers to set preferences: when they want to be contacted, how often and about what. That's explicit personalization, and it can be extremely powerful," says Sarner. While the sit-down nature of the Web offers the best interface for creating user profiles, the data should be populated across databases that touch every relevant contact point, whether it be through e-mail or call center or at point of sale. "The trick is not just tease it on the Web but make it part of the complete user profile," Sarner says.

–Kym Gilhooly

BRIEFS

Autodesk Updates Design Software

Autodesk Inc. in San Rafael, Calif., has announced a new release of Autodesk Buzzsaw, design software that helps keep building, manufacturing and infrastructure projects on time and on budget. Buzzsaw 6, available now, includes project portfolio management reports on schedule, budget and project status, as well as a dashboard with key performance indicators for all projects that are under way, Autodesk said. Pricing starts at $30,000.

Veritas Upgrades Replication App

Veritas Software Corp. this month announced Storage Replicator 3.0, software aimed at protecting remote office data through real-time data replication. Storage Replicator allows organizations to centralize backup without disrupting normal server operations. It does that by replicating remote office data over an IP connection, either continuously or on a scheduled basis, to a central location where it can be reliably backed up and stored, according to Veritas. The software is available now and costs $1,495 for Windows Server and Advanced Server.

VMX Tool Monitors Linux, Unix Clients

Vintela Inc. in Linden, Utah, has announced that new Vintela Management Extensions 1.0 are now available. The extensions allow Unix, Linux and Mac OS X clients to be managed and monitored natively from within Microsoft Systems Management Server 2003, according to Vintela. VMX 1.0 is an administration console snap-in and client for SMS that solves multiplatform administration and management problems, the company said. VMX starts at $1,995, including unlimited administration workstations and five managed workstation licenses.

ROBERT L. MITCHELL

Wireless World Needs a Directory

THE OTHER DAY, I needed to reach my elderly parents, who were traveling, on an urgent matter. Not to worry, I thought: They have a cell phone. There was just one tiny problem: They had recently switched carriers and been issued a new phone and telephone number. I couldn't get that number to save my life, which is too bad, since sometimes a phone call is a life-and-death matter.



Today, there is no public nationwide directory of cell phone numbers, no national 411 service and no white pages that include everyone's cell numbers. Even if you know the person's cellular carrier, it won't help. No matter what you say, the customer service representative won't release the number. I said everything, tried every angle, but to no avail.

This situation might have made sense in 1993, when the 16 million cell phones in use were treated like handy accessories. In 2004, however, the industry has some 160 million subscribers, according to the Cellular Telecommunications & Internet Association (CTIA), and an increasing number of those customers use the cell phone as their primary communications medium. Today, not having a public mechanism to look up consumer and business cell phone numbers is just plain ridiculous.

Like wireline customers, wireless users have phones. They have phone numbers. But since they choose wireless as the underlying medium, the game changes. Their names just disappear from phone books, online white pages and national calling directories.

The technology to create a nationwide cellular phone number database has always been available. The problem is that the competitive, fragmented wireless industry, with its Byzantine service contract and billing models and a general sense of paranoia, has conspired to prevent such a directory from being created. The thinking is, Who wants to receive telemarketing calls when you're paying by the minute for incoming calls? In a competitive market, what carrier wants to share its customer list with other vendors for the sake of creating a directory?

Now the industry is finally pushing ahead to create a nationwide directory-assistance database. It will be less inclusive than traditional directories, limited to listing only those who ask to be included. There will be no charge to be listed, and vendors have pledged not to sell or publish the data. The effort is a good example of how to use technology to give people choices.

But you wouldn't know that, given all the ruckus. Privacy advocates, conspiracy theorists and folks who just don't like the idea of carriers possibly profiting by distributing wireless user data are objecting. It's not enough that they don't need to do anything to keep their own names out of the directory — they don't want yours in one, either.

Surprisingly, one of the most vocal opponents is Verizon Wireless. CEO Denny Strigl called the initiative, led by the CTIA and a consortium of five major wireless carriers, a "dumb idea." He claims to be defending his customers' privacy and says that users don't want such a directory. This argument is a bit disingenuous, to say the least. Verizon already publishes and shares my wired phone number and address information. If I don't like it, I have to pay them to stop the practice by making my number unlisted. But for some reason, wireless should be a special case, they argue.

Some businesses don't like the idea of having employee phone numbers appear in a 411 database, fearing telemarketing calls. But businesses can protect those wireless phones just as they would any wired line. They can choose not to list the number.

Every cell phone today has Caller ID to screen calls. Call blocking is available. And users can demand new features such as one that allows only calls on an approved phone list through while blocking others or routing them to voice mail. Or users can turn the damned things off when they're driving or don't want to be interrupted. Certainly, plenty of technical solutions exist if the industry wants to implement them.

It's time to stop thinking about wireless as the special case and treat it as just another phone. The fact is, it's just another option in a world of telephony technologies that are rapidly converging. Verizon's own move toward converged service offerings that mix local, long-distance and wireless plans in a single package is evidence of this trend. Not to offer users a choice is to do them a disservice. Instead of telling customers what they want, telephony service providers should offer nationwide 411 service and let users decide for themselves. ● 46752

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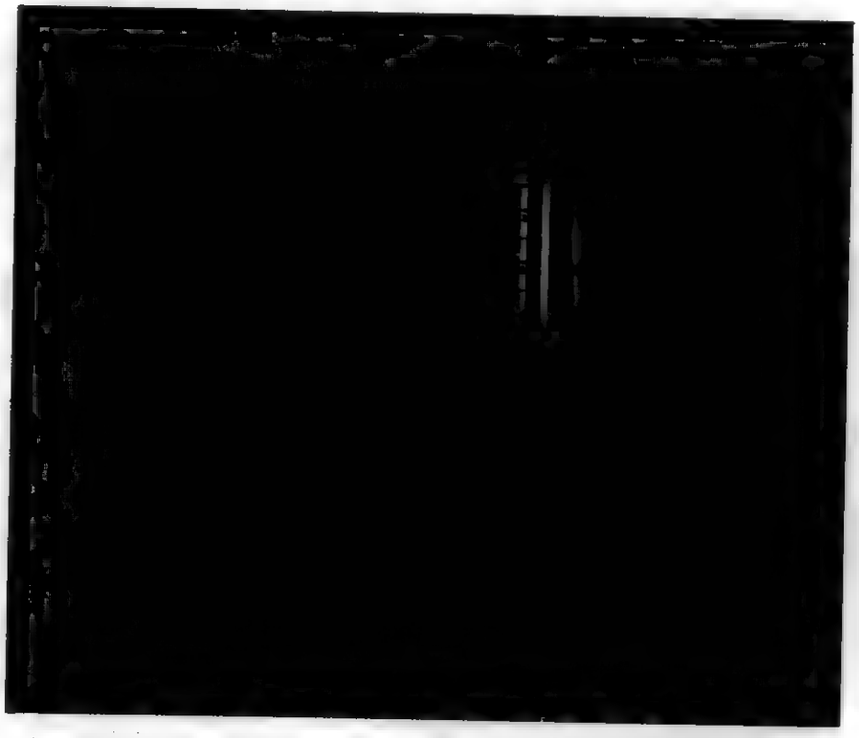
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BUDGETARY Black Holes

10 mistakes that can suck the funds out of your IT project budget – and how to avoid them. By Mary Brandel



ANASTASIA VASILAKIS

IT PROJECTS ARE NOTORIOUS for being over budget. In fact, Gopal Kapur, president of the Center for Project Management in San Ramon, Calif., estimates that 77% of projects blow their budgets, with an average cost overrun of 169%. As for the remaining 23%, Kapur doesn't have a lot of faith in those project managers. "They just lie about it," he says.

Perhaps if project managers knew where the biggest money wasters were, these statistics would improve. With that in mind, we spoke with experienced project managers and other experts to find out where the black holes of project management are and how to avoid them.

1 Scope creep. It can begin early, at the requirements definition stage. "People say, 'We're spending the time and money anyway, let's add this and this,' " says Mark Reilley, director of IT at the Corporation for Public Broadcasting in Washington. "This expands the scope way beyond what you can accomplish or really need."

Even well-planned projects expand up to 2% on their own each month throughout a project's duration, says Capers Jones, founder and chief scientist of Software Productivity Research LLC, a consultancy in Marlboro, Mass. One reason is "technical gold-plating," explains Gregory Fouquet, a consultant at Ouellette & Associates, a consulting firm in Bedford, N.H. "It's where well-intentioned programmers add features and functionality that haven't been specified but are neat or slick," he says. "It eats away at productivity and introduces difficulties in testing." **SOLUTION: Keep to core functionality by defining requirements as "must**

haves," "should haves" and "nice to haves." To keep developers in check, Fouquet advises rigorously specifying must-have requirements and tracking them through the development process. "This is trickier for project managers who come from the business side and don't understand technical complexities," he says. For these managers, enlist the help of a good, credible IT person. Reilley also suggests lowering user expectations by releasing something small in scope that you can add to later. "Usually Version 1 is the prototype, and when users see it, it's good enough," he says.

2 **Building a too-sophisticated GUI too early in the project.** Most graphical user interfaces change dramatically from the requirements definition stage to the final release, says Johanna Rothman, president of Rothman Consulting Group Inc. in Arlington, Mass. And yet developers are always tempted to perfect the GUI in electronic form at early stages in the project. **SOLUTION: Start with low-tech GUI prototypes.** Rothman suggests representing the user interface with either a paper prototype, using colored pens and yellow stickies, or through a drawing program or software such as Photoshop. "If you start off with an electronic representation of the GUI, it's incredibly expensive," she says. Don't do it until you've frozen the final plan.

3 **Lack of negotiation skills.** Few project managers get formal education in how to negotiate the best prices for software or contract labor. "They are like lambs waiting to be fleeced," Kapur says. **SOLUTION: Develop basic skills.** At the Center for Project Management, Kapur asks project managers to give him an offer for a new and a used car. He checks to see if they use the Web to research accident histories and Kelley Blue Book values, as well as how many dealers they contact and how much they find out about financing terms. "I like to see the process they've gone through, and most have just not learned it," he says.

Negotiation skills are also communication skills. For instance, after you've made an offer, Kapur says, don't say a word. "Instead, [silently] count or recite the names of people you know," he says. "Most people can't handle that." Kapur also suggests that project managers spend a week in the procurement department to learn how negotiations are handled. For instance, purchasing software at the last minute can be three to five times more expensive than buying it in advance.

4 **Not understanding project finance, which is different from project accounting.** "People just don't understand what money means — like if I add money to this project, another project can't be done," Kapur says. **SOLUTION: A short course in financial concepts and terminology.** Particularly for complex projects that last longer than six months, Kapur advises project managers to educate themselves and their teams on concepts such as internal rate of return and net present value. [QuickLink 46832] "We're not making people experts, but they should have enough knowledge to recognize both the problem and the solution," he says.

5 **Implementing large, big-bang projects.** Research shows that per-person productivity decreases as the project size goes up, says William Roetzheim, founder of Cost Xpert Group Inc. in Rancho San Diego, Calif. Additional communication overhead, more formal requirements, more detailed design and the increased number of meetings all add expense. With small projects, Roetzheim says, the time spent implementing the project is 60% of the total versus 8% to 10% on very large projects. "The rest of the time is spent on coordinating, communicating and additional testing," he says. **SOLUTION: Break up projects into smaller, more manageable pieces.** Studies have shown a correlation between high failure rates and large projects, Roetzheim says, but smaller projects are also more cost-effective.

6 **Overtesting.** We've all heard of analysis paralysis. Reilley suggests that there's also a phenomenon called testing paralysis. "Maybe it's because you've had a bad experience in the past with bugs popping up at the last moment, so you keep testing and testing," he says. Or developers could just be playing with fonts to impress users. The result: overshot deadlines and a waste of resources. **SOLUTION: Accept it: There are going to be bugs.** At some point, you have to say, "Enough is enough," Reilley says. Tell the users that there will be bugs and that the team will work them out. Shoot for 80% perfection, not 100%.

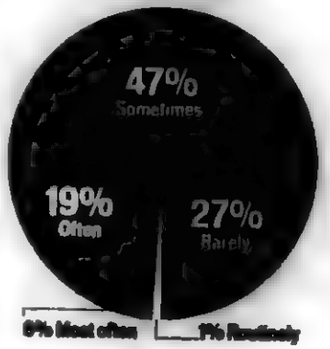
7 **Duplicate or overlapping tasks.** Particularly in large, dispersed companies with no central IT department, you might not know that you could borrow ideas or perhaps even a system from another group that already addressed the same challenge you're facing. **SOLUTION: A searchable project library.** Kapur suggests building a simple word-processor-based system that tracks all projects undertaken in the company, with standard naming conventions and keyword searches.

CLUELESS COSTING

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Do your project managers have the appropriate skills to develop accurate estimates?



Base: 196 individuals representing 144 corporations

SOURCE: CENTER FOR PROJECT MANAGEMENT 2003

8 **Poor estimating.** If costs and schedules aren't well understood in the beginning of the project, when problems arise, it's often too late to reallocate IT resources effectively, Roetzheim says. The worst-case scenario is when a manager realizes halfway into a project that it's behind schedule, and he throws more developers or testers on the job, Rothman says. These latecomers don't understand the problems or how the application works, so they can't come up to speed quickly. "That's completely a waste of money," she says. **SOLUTION: Cut your losses, and next time, use an estimating tool.** The best thing to do when you realize that you didn't estimate resources properly, Rothman says, is to figure out the minimum requirements for finishing the current project and immediately begin planning another project in which you can use your money more effectively. Roetzheim also suggests estimating tools as a means to predict costs and schedules.

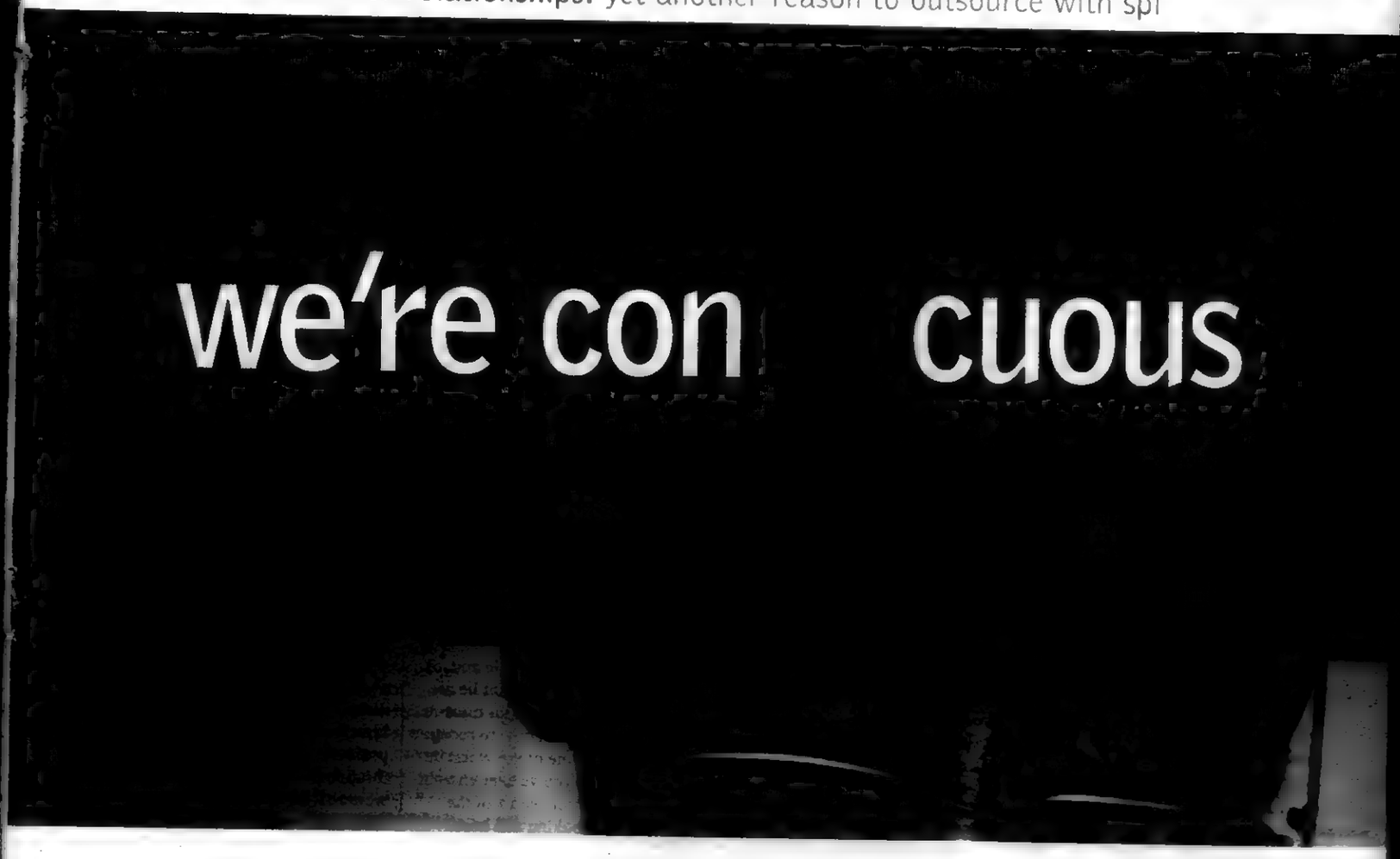
9 **Lack of cost-to-date and estimate-to-complete data.** Too often, team members are completely unaware of whether they're on track with the project budget. At Comdex one year, Kapur asked 160 people in one of his sessions to tell the people seated next to them what their project budgets were and the costs to date, rounded to the nearest thousand dollars. Only 7% were able to do it. **SOLUTION: Develop and monitor cost vital-sign thresholds.** Kapur uses a process where the sponsor and the project manager jointly define cost thresholds. He also recommends telling the sponsor that cost overruns will come out of his own budget or even his paycheck as a wake-up call to track costs.

10 **The project should never have been authorized.** Projects can get assigned that have little business justification or just don't pass the "smell test," as Ouellette's Fouquet puts it. How do you avoid setting something in motion that's destined to be a true money pit? **SOLUTION: Forget the politics; stop the project.** At the very least, says Reilley, "everyone should be able to answer, 'The purpose of the system is *blank*.' If you can't describe it in a few words, maybe your focus is too broad."

It's the project manager's obligation to validate a project's legitimacy, Fouquet says. "It's what distinguishes a professional project manager from a hack," he adds. For instance, if you realize halfway through the project that there's no business-side commitment to a training plan, stop the project, advises Bob Benson, a senior consultant at Cutter Consortium in Arlington, Mass. Adds Benson, "Project managers have to be willing to call it bad news when it's bad." 48381

Brandel is a Computerworld contributing writer in Grand Rapids, Mich. Contact her at mary.brandel@comcast.net.

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EVENTS

Oracle User Group

■ **Sept. 21, New York**
Sponsor: New York Oracle Users Group Inc.

New York Metro Area Oracle User Group Day includes database administrator, developer, application and workshop tracks. Topics include performance optimization, CRM, self-service modules, Web applications and upgrading. **More information:** *www.nyoug.org*

Emerging Technologies

■ **Sept. 29-30, Cambridge, Mass.**
Sponsor: *Technology Review*

The 2nd Annual Emerging Technologies Conference at MIT showcases technologies that are poised to make a dramatic impact on the world. Topics include the pipeline problem, nanotechnology and energy, next-generation search, synthetic biology and the tech job drain. **More information:** *www.tretc.com*

Network Security

■ **Sept. 28-Oct. 4, Las Vegas**
Sponsor: SANS Institute

Network Security Conference 2004 offers instructional training and security certifications. Tracks include boot camps; intrusion detection; hacker techniques; securing Windows, Unix and Linux; auditing networks, perimeters and systems; system forensics; and secure communications. **More information:** *www.sans.org/ns2004*

Data Center World

■ **Oct. 3-6, Atlanta**
Sponsor: AFCOM

Data Center World offers tutorials and educational sessions on data center management, facilities, best practices and contingency planning. Topics include security; managed storage services; threats, viruses and worms; utility computing; and ultra-high-density racks and blade servers. **More information:** *www.afcom.com*

BARBARA GOMOLSKI

Summer Reading

I STRUGGLED TO FIND a meaningful topic this month, which is unusual for me. Then it occurred to me: It's summer, and I've been on vacation. That explains why my mind is less focused on IT management topics and more focused on summer reading. Since we're in the summer doldrums, I thought I'd have a little fun. (I promise to return to the serious business of IT management next month.) I've created a summer reading list that only an IT person could appreciate. Unfortunately, this is a book list we aren't likely to see anytime soon.



Rich IT Guy, Poor IT Guy. Forget what your father told you. Those of us who choose careers in IT rarely get rich doing it. If it's wealth you're looking for, check out another title: *Bringing Down the House: The Inside Story of Six MIT Students Who Took Vegas for Millions*, by Ben Mezrich (Free Press, 2003).

The Da Vinci Coder. A Harvard professor and amateur programmer stumbles on something even more elusive than the Holy Grail when he manages to effectively block spam from his Outlook in-box while on vacation in Paris. Follow the twists and turns as our indomitable hero encounters unexpected and deadly resistance from a cadre of computer industry executives. These IT industry titans, it turns out, will go to any length to keep their secrets intact.

Seven Habits of Highly Sleazy IT Salespeople. While the last person you probably want to think about on your summer vacation is an IT salesperson, this book is worth your time. The bait-and-switch, the hyperexaggeration, the high-pressure sale and, of course, the blatant lie are all covered in this must-read. Learn how to recognize some of the worst behavior you've ever encountered from some of the best-looking and best-dressed people you will ever meet.

The One-Minute Programmer Analyst. Sure, it would be great to spend hours listening to your business management's requests, needs and ideas. But who has that kind of time? This classic handbook will show you how you can become more popular with your co-workers while significantly reducing the amount of time you spend actually listening to them. Guaranteed to make you more productive at your job, so you can move on to what's really important: surfing the Web at work.

Who Moved My Cubicle? How to stay flexible and happy in a world where your cubicle — and your job — are likely to wind up overseas. This is part of a series that includes the wildly successful *Who Moved My Call Center?*

Heads Down: How to Avoid the Arrival of New Management. While I would be the last person to "dis" the heads-up approach to career management, there is a real art to keeping one's head down. This quick-moving narrative is an IT person's guide to detaching, disengaging and simply avoiding the interaction involved in management upheaval. The book's central theme is spot on: Why look up? In six months, there will be a new leader and a new strategy anyway.

R is for Reorg. Our favorite sleuth is at it again. This time, she's chasing after the genius who thought up the latest IT management shake-up. This well-meaning strategist has mysteriously disappeared, along with a whole bunch of the company's money. The problem is that nobody noticed the disappearance or seems to care. Can a woman who drives an old car, eats at McDonald's and uses common sense outwit a savvy management theorist? You betcha.

The Care and Feeding of Users. Your relationship with users is in bad shape, and guess what — it's pretty much all your fault. This book will make you feel guilty, undeserving and incompetent. However, I am confident that by Chapter 5, you will have your priorities in order and everybody will like you again.

The South Beach Programmer's Diet. You may not lose weight on this diet rich in pizza, late-night snacks and full-throttle soft drinks, but your productivity is guaranteed to soar (at least for an hour a day). Includes a recipe book of microwave favorites and a sticker book so you can label your goodies in the company fridge. ◆ 48388

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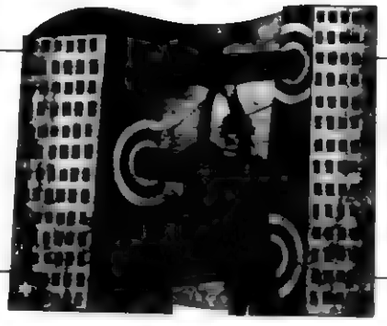
KNOWLEDGE CENTER WEB SERVICES

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OPINION

Blurry Web Services
XML is terrific. It's sliced bread on stilts, says columnist Mark Hall. So, why is it so slow? And why can't it deal with opaque data? PAGE 41

Message Received?
Companies that require a high degree of reliability from Web services are learning to customize their own coding and build in layers of redundancy. PAGE 38



Trouble in Transit
The same design that lets users easily exchange data with Web services also opens holes for hackers. Companies are finding that safeguarding that data exchange is complicated. PAGE 37

EDITOR'S NOTE

LAST YEAR, we boldly predicted a Web services tsunami [QuickLink 38153], with XML and SOAP changing a wide swath of IT development. OK, so it's really more like a rushing river than a tidal wave. But the river is still swelling. A recent IDC survey of 197 IT managers shows that about a third of the respondents have completed one or more Web services projects, and more than a third are either evaluating the technology or doing a pilot project. Much of the activity involves employee portals, e-commerce, back-office applications and even mission-critical work, IDC says.

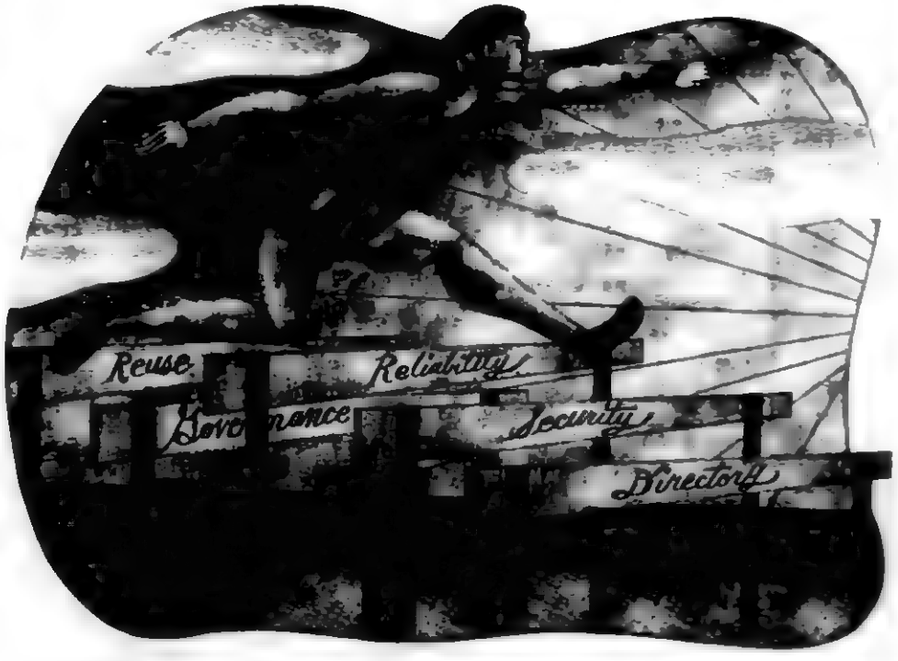
But a tsunami it's not. Why? As usual, the technology is more difficult to implement than the vendors would have you believe. Pilot projects aren't so bad, but even well-funded adopters in the financial services industry have found it tricky to come up with a service-oriented architecture (SOA) for the whole company. So we're taking a more sober look this year. Our first story is about the challenges of SOA granularity, repositories and governance (page 34).



IDC says the top barriers to Web services adoption are a simple lack of money and a not-so-simple lack of security. We can't help you with the budget, but we do have an update on the security issues (page 37). We also cover the topic of message reliability, which doesn't rank as a burning issue yet, but IDC says it will become one as the volume, scale and complexity of projects grow (page 36). **QL 48317**

Mitch Betts is Computerworld's Features editor. Contact him at mitch_betts@computerworld.com.

RICHARD DOWNS



Web Services Hurdles



Developing a service-oriented architecture is full of challenges, such as governance, security and reliability.



RICHARD DUNKS

Managing the Building Blocks

You could have hundreds of Web services. Here's how to make sure you can organize, catalog, find and reuse them. By Carol Sliwa

DANSKE BANK A/S's trailblazing work to build a service-oriented architecture had gotten so advanced that it exposed more than 1,000 services from its mainframes and application servers. But the Copenhagen-based bank found itself in a frustrating predicament.

"We couldn't find them," says Claus Torp, the company's chief architect.

The problem threatened to wipe out one of the main benefits of service-oriented architectures (SOA) — reuse. So Danske set about revising its concept of a service, refining its repository and establishing a governance process to enforce best practices.

The result was a collection of 140 services that is far more manageable.

An in-depth look at several SOA pioneers shows that the steps Danske Bank took are key to a company's ability to reuse code, build applications with greater speed and efficiency — and ultimately save money.

But it's not easy, and the implementation sequence is important. Sun Microsystems Inc., for instance, built a registry and set up an architecture review board. But the IT department is just now circling back to do a closer examination of Sun's 80 to 100 Web services.

Karen Casella, an IT director at Sun, recommends that a company starting down the SOA path first look at its business requirements and identify which Web services are needed. "We learned the hard way," she says. "We put some of the infrastructure in place before we completely understood what we needed to have in play."

The Services

Companies need to figure out which business processes can be turned into services, carefully design and define the services and distinguish them from components.

When Danske Bank began building standard interfaces to expose its legacy programs, it defined a service as "one function." Now it describes a service at a higher level, as a logical grouping of functionality and data, such as "customer" or "account."

The company's 140 services are each composed of about 10 "operations," or components, that are essentially more granular services. There are currently more than 1,365 operations. Danske expects to eventually have 250 services.

How well a company can break down its business processes and application functions into services will determine the level of flexibility and reuse it gets, Torp says.

Danske uses modeling tools to develop logical maps of the functional building blocks and business processes. Then it matches the business processes to the services to make sure it has solved the right problem.

"A lot of doing service-oriented development is making sure you can run different business processes on top of the same service building blocks," says Torp. "If you want to be effective, you have to make sure there is only one place to do the same function."

Cendant Corp.'s Travel Distribution Services division spends a considerable amount of time determining the optimal granularity of its services and service components, according to Chief Technology Officer Robert Wiseman. A service is something that can be called externally through Cendant's business domain model, dubbed Rosetta Stone. A service component, such as logging, is called only internally.

So a "get hotel" service might call several low-level services, such as a latitude/longitude "destination finder" that the company makes available to customers. But Cendant's currency converter is a component, since it currently isn't exposed to customers.

Cendant expects an ongoing project to extract components from monolithic applications to have a big payoff, Wiseman says. For instance, passenger name record (PNR) is a basic unit of data used by booking engines and global distribution systems such as Cendant's Galileo. By making "Super PNR" available as a service, the IT department won't have to maintain six or seven instances of PNR in different applications.

The Hartford Financial Services Group Inc. built pockets of Web and other services over three years ago, but its enterprise-scale SOA work didn't start until 18 months ago.

A good candidate for an enterprise service is one that two or more applications need, says Benjamin Moreland, manager of application infrastructure delivery at the Connecticut-based insurance company. "But not everything should be a service," Moreland warns, noting the potential performance hit from exposing services.

Establishing the Registry

Vendors may have expected Internet-based registries based on the Universal Description, Discovery and Integration (UDDI) standard to spread like wildfire. But early SOA adopters care more about internal registries.

That doesn't mean UDDI is dead, though. UDDI was so important to The Hartford that it chose its registry based on the product's conformance to UDDI 3.0. (Officials declined to name the product due to a company policy against endorsing vendors.) The registry includes metadata describing the services and the means to connect to services via particular transports.

But the UDDI registry isn't meant for everything. Departments continue to maintain local registries for some services they create, because The Hartford is selective about what goes into its enterprise registry.

"We don't want to create a junk drawer of services," says Moreland. "What we feel should be in the enterprise UDDI are services that will give us leverage and flexibility across the enterprise."

Providence Health System uses the Infravio Inc. management framework for its service library, and much to the surprise of company skeptics, its developers are actually reusing services, now that they can find the Web Services Description Language (WSDL) files defining the interfaces.

"We commonly refer to this as 'Google-izing' Web services," says Michael Reagin, Providence Health's Portland, Ore.-based director of research and development. "They can reuse services with minor modifications in a couple of hours. People are more productive. Everyone's happy."

Providence Health's greater concern these days is managing its growing number of Web services and SOA framework from an operational standpoint. The company has close to 50 composite services, each one comprising one to 20 more granular subservices.

Early adopters that couldn't find a registry to suit their needs built their own. Danske Bank maintains separate repositories for components from its mainframes and J2EE- and Microsoft .Net-based application servers. The repositories replicate between each other, forming one logical repository that essentially is a superset of a UDDI registry, adding operational parameters for functions such as load balancing, says CIO Peter Schleidt. A service integrator agent dynamically selects the most efficient way to call a service, using SOAP over HTTP or more efficient, proprietary protocols.

Danske also has a structured library for its services and their corresponding interfaces. The library also houses information about the relationships between its functional and process models. There's even a librarian that developers can call for help. But the library didn't launch until a year ago — "a lot later than we should have been doing that," Schleidt says.

Governance

When push comes to shove, a governance body can help a company stick to its SOA principles. Danske Bank has steering committees in 18 different business areas for product, process and IT development. But when business managers are anxious to beat the competition, they're sometimes tempted to forgo the generic SOA approach if it takes longer to complete.

"You need a governance process where you can handle situations like that," says Schleidt. "We always have the time to change things afterwards, so why not try to turn it around and do it right the first time?"

The quick-hit approach can have long-term consequences. Danske now has two personalization engines, four interactive customer communication services and four payment-handling applications, Torp says.

Two years ago, The Hartford formed a central group called the Property and Casualty Architects Collective to examine how it would adopt a SOA across the enterprise. The group put together a reference architecture outlining recommended approaches, practices and products to be used in a particular context.

"It's about shared architectural thought and reuse of thought processes. That's where the hard work and value is," says James McGovern, an enterprise architect at The Hartford.

A separate application infrastructure delivery group is responsible for selecting and implementing the management platform, business process engine and UDDI registry, as well as making sure the WSDL files used to describe service interfaces conform to standards. An architect not involved with a particular project reviews the project's application design to make sure services aren't duplicated.

At Cendant, project managers have that responsibility. The service name and input and output fields are accessible through an XML-based layer in its Rosetta Stone business domain model. A single group is responsible for updating the business domain model.

"This is how we control reuse," Wiseman says.

If a business domain owner spots a service already in the registry, the service is flagged as a candidate for reuse. A SOA governance board, largely consisting of IT managers, then takes over. Developers need not apply.

"The programmer is the last person that should make the decision," says Wiseman. "They will always want to write something new." **© 48250**

Four Challenges

The development of service-oriented applications requires the following steps:

1 UNDERSTANDING which processes can be turned into services.

2 BUILDING a foundry of application processes. This will come increasingly from business applications that are designed as a set of services.

3 ESTABLISHING the granularity of services at the right level to ensure that services are effectively reusable. Too much granularity makes services too specific to be used; too little granularity makes them too general to be used.

4 FOSTERING a reuse culture is essential to consistent, repeatable success in capturing and using business processes. It enables an organization to deliver processes as a well-defined set of services and to make those services easily available to developers.

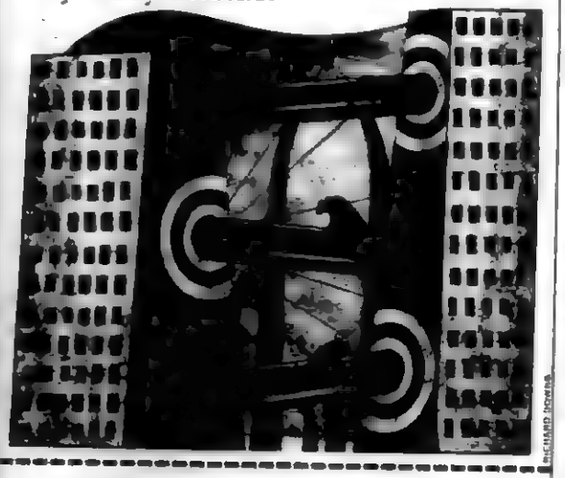
SOURCE: DARYL PLUMMER, ANALYST, GARTNER INC., STAMFORD, CONN.

> "We don't want to create a junk drawer of services. What we feel should be in the enterprise UDDI are services that will give us leverage and flexibility across the enterprise."

Message Received?

Companies that require highly reliable Web services are building in their own guarantees.

By Mary Brandel



RICHARD HOWARD

WHEN PLACING AN ORDER over the Web, it's not unusual for the site to lock up during the transaction — it's all part of the Web experience, and customers know to call a customer service rep to see if the order went through. But take the human factor out of the equation, as in a Web services transaction. Who's 100% sure that their messages got through, unduplicated and in the right order? After all, you're relying on two applications to communicate with each other to complete the order, using standards such as XML, HTTP and SOAP.

"HTTP is a nice, lightweight mechanism to send HTML or almost any type of format. The problem is, there's no guarantee that the message will get delivered," says Anne Thomas Manes, an analyst at Burton Group in Midvale, Utah. "It offers 92% to 96% reliability, but if you need 99.9% reliability, or at the very least notification if a message doesn't get there, HTTP won't do that for you."

Although analysts don't think reliability is the only problem impeding Web services adoption, it certainly casts a pall of uncertainty over the idea of building anything mission-critical on such a platform.

Some users, such as Peter Osbourne, director of Internet research and development at Dollar Thrifty Automotive Group Inc. in Tulsa, Okla., say they do just fine with TCP/IP and HTTP. "We use Web services extensively [for Web-based car reservations] but have not encountered message reliability problems," he says. Dollar has mechanisms to detect message bottlenecks, but Osbourne says the company hasn't lost any messages.

At companies that need a higher degree of reliability, it's a matter of "hacking their way through the jungle with a machete," says Ron Schmeltzer, an analyst at ZapThink LLC. These users build reliability into the business logic of the application or employ a mature messaging platform such as IBM's MQSeries.

Once Isn't Enough

ShopNBC is one organization that has given Web services reliability a lot of thought, according to Steve Craig, chief technology officer and vice president of IT development at the shopping network, which is broadcast into 56 million homes.

ShopNBC relies on Web services to fulfill customer orders over the Web and to receive real-time pricing updates from its participating merchants. Because it's such a mission-critical endeavor, Craig and his group structured a three-layer system that supports three types of Web services messaging: real time, near real time and periodic. Each layer reinforces the others to create message redundancy in case the first message doesn't get through.

"If a real-time transaction fired and was missed, there'd be another job downstream to cover that need," Craig explains. Say, for example, a merchant system sends a message to the Web services system at ShopNBC to take a 10% markdown on a product that's airing on TV. If the real-time message wasn't received, another message sent to another server would eventually lower the price — maybe not while the product was airing, but on the next database sync.

Another example is when customers order products over the Web. The Web server attempts to commit the order in real time with the back-end server, but if the server doesn't respond, the order is sent to a separate server to be synced up later.

Build, Don't Add

As ShopNBC demonstrates, reliability must be considered from the very beginning. "You never add reliability to something after the fact — it's not something you can just slap on top of the application," says Don Reeves, vice president of engineering at Black Pearl Inc. in San Francisco.

Black Pearl's B4 platform uses Web services to collect data from disparate sources to provide real-time customer profiles and data analysis. For instance, it sends financial services agents daily lists of high-priority prospects, as well as real-time alerts on products that might interest particular customers. The system needs to collect data from a variety of sources, such as legacy customer databases, marketing campaign systems and live data feeds on stock prices.

Reeves estimates that half the code that makes up B4 is aimed at functionality, and half is intended for error checking. "Whenever you connect to a data source, you have to assume it will fail and have a planned response," he says.

Another approach is to employ a reliable transport protocol, such as a message queuing (MQ) service, rather than using HTTP to transmit Simple Object Access Protocol (SOAP) messages. The dominant MQ service is IBM's WebSphere MQ, which acts as a mediator to guarantee delivery by storing messages locally until it receives delivery acknowledgment.

"You can send it over SMTP or FTP or an MQ system. Web services is completely independent of the underlying protocol," Manes says. The trouble is, MQ systems are proprietary — IBM's WebSphere MQ doesn't talk with, say, Sonic Software Corp.'s MQ system. This is less of a problem if you're just using Web services internally, but even then, it's an expensive proposition. According to Manes, MQ deployments can reach seven figures.

Using Your Header

To get beyond dependence on a proprietary protocol, companies will have to code specifications into their SOAP headers, Schmeltzer says — such as having a system try to resend a message if an acknowledgment of receipt isn't received within 300 milliseconds.

Today, Schmeltzer points out, individual companies need to do this sort of coding themselves, which can be extremely difficult. However, this coding will eventually be built into standards such as WS-Reliability and WS-ReliableMessaging (see box below).

In the midst of this industry confusion, the lack of a reliable messaging specification is pretty far down the list of what's stopping people from implementing Web services, says Dwight Davis, vice president of Summit Strategies Inc. in Kirkland, Wash. "There's a lot of baggage that comes into play on the list of factors," he says, including the relative newness of the technology and the need to focus on day-to-day crises rather than long-term architectural change. Just the same, before mission-critical Web services applications enter the mainstream, reliable messaging will have to become less complex and costly. **48176**

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Rival Standards

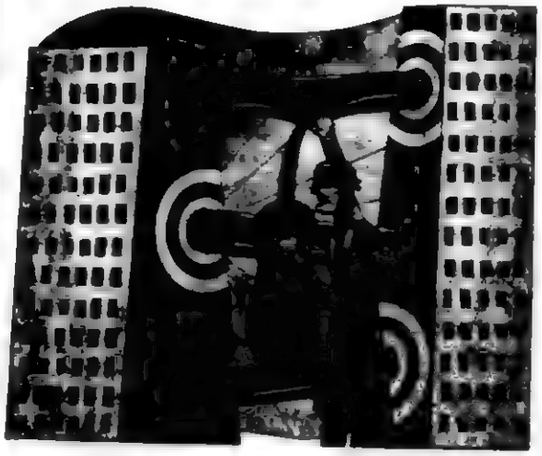
Two reliable messaging specifications are working their way into the industry:

Web Services Reliability (WS-Reliability): A SOAP-based protocol for exchanging SOAP messages with guaranteed delivery, no duplicates and guaranteed message ordering. **Sponsors:** Sun Microsystems Inc., Fujitsu Ltd., Hitachi Ltd., Oracle Corp., NEC Corp. and Sonic Software Corp.

WS-ReliableMessaging: A transport-independent protocol that allows messages to be delivered reliably between distributed applications in the event of software component, system or network failures. **Sponsors:** IBM, Microsoft Corp., BEA Systems Inc. and Tibco Software Inc.

It's still uncertain which specification will become the industry standard, although Anne Thomas Manes, an analyst at Burton Group, is advising clients to bet on WS-ReliableMessaging because it's backed by more industry heavyweights. Users can also begin using WS-ReliableMessaging as a patch from San Francisco-based Cape Clear Software Inc., as well as in U.K.-based Systanet Ltd.'s Systanet Server.

– *Mary Brandel*



Trouble In Transit

Web services put more of your company's data into the ether, offering more chances for someone to snatch it. By Bob Violino

A TRANSPORT COMPANY'S TRUCKS are scheduled for bogus pickups. A financial services firm's investment data is given away for free. A health insurance provider's private patient data is exposed. These are the disastrous situations that can occur when Web services data is nefariously snatched midstream.

The shareable design of Web services, which gives companies the benefit of easily exchanging data and applications with business partners, also makes them vulnerable to security breaches. Hackers have found ways to tweak the XML code used to tag the data so activity that's actually an attack appears to be valid.

"XML standards are being constructed in bits and pieces, and that's the kind of event that leads to holes that someone didn't think about," says Randy Heffner, an analyst at Forrester Research Inc.

According to experts, hackers have three methods for breaching Web services and XML security: identity-based attacks, in which a hacker poses as an authorized user to gain access to Web services; malicious-content attacks, in which an intruder forces a Web server to perform an unauthorized activity; and operational attacks, in which a hacker manipulates an XML message to tie up server resources. But although the methods are known, safeguarding Web services is difficult because multiple elements must be locked down — the servers, the messages and the applications. Companies must first secure their Web servers and then decide which business partners and employees will have access to them, how they'll connect to them and which authentication method to use.

No Small Task

Defense manufacturer Northrop Grumman Corp. experienced that difficulty firsthand. Web services are a major component of its Myngc.com portal, which was expected to take about six months to complete. But because of security requirements such as user authentication, the project took three times as long, says Thomas Shelman, vice president and CIO.



The portal gives Los Angeles-based Northrop Grumman a way to efficiently share ordering and billing data with customers and partners, he says. But while Myngc.com provides greater data access to more people, it also creates vulnerabilities because many users outside the organization have access to business applications.

"[The portal] was a significantly larger task than we thought going into it," Shelman says. "I know a lot of companies that are implementing the same sort of thing, and they don't address the security aspects. They're leaving themselves very vulnerable."

"The need for security goes up exponentially as you're trying to expose applications to your business partners," adds Raphael Holder, vice president of shared services operations at Northrop Grumman. He says the company first grappled with how to provide secure remote access to Web services applications for internal employees and ensure that all users entering the portal were authenticated.

"It sounds simplistic, but we're providing more capability here than we have through remote access in general," says Holder. "We're providing access to portlets that touch business data, not just e-mail."

To secure its data, Northrop Grumman deployed a public-key infrastructure system from RSA Security Inc., issuing tokens to all employees authorized to access the portal. Tokens will also be issued to appropriate partners and customers for different levels of access, Holder says. Eventually, the portal will have more than 120,000 users.

Even with the current technology in place, Holder acknowledges that there are security risks with Web services. "We will have to manage [the portal] very closely, and access will be done on a business-case basis with those partners we highly trust," he says.

Exploring the Options

As it explores Web services, Wyndham International Inc., a Dallas-based hospitality company, is also looking closely at how it can provide tight security. Wyndham's research shows that it endured more than 9.5 million attempts at information security breaches from May 2003 through May 2004. They included hacker attacks, Web site defacements and viruses.

"Obviously, security is a huge concern of ours," says Mark Hedley, the company's senior vice president and chief technology officer. He says Wyndham plans to get Web services from its provider of central reservation systems technology, Micros Systems Inc., using industry-standard protocols. Hedley says his company expects Web services to make it easier for customers to obtain reservations and for Wyndham to share data with suppliers. Wyndham plans to finalize its security plan and implement Web services by the first quarter of 2005.

Heffner notes that there are several ways to approach Web services security. One of the most common is to secure applications at the transport layer, with two-way Secure Sockets Layer connections or a dedicated virtual private network link. SSL can include mutual authentication such as client certificates. Another option, which Heffner says is more suitable for connecting with multiple partners, is to use XML security gateways. These are network appliances that protect XML and Web services from attacks. They feature XML encryption, digital signatures, access control and other capabilities. Many in the industry expect that new standards will also help bolster security.

Heffner says Web services security is improving because of new standards and products. "XML security gateways provide better solutions for attack protection than existed a year ago," he says.

Security concerns shouldn't get in the way of Web services implementations, says Heffner. "You may have to spend more now on security than in three years," when more safeguards are built into Web services products, he says. "The bottom line is, if there's business value for Web services now, you shouldn't be holding it up." **48177**

Violino is a freelance writer in Massapequa Park, N.Y. Contact him at bviolino@optonline.net.

Help on the Horizon

A new industry standard is raising hopes for Web services security. In April, OASIS (Organization for the Advancement of Structured Information Standards), a global standards consortium in Billerica, Mass., announced that its members had approved **Web Services Security Version 1.0**, a status that signifies the highest level of ratification.

WSS builds on security technologies such as XML Digital Signature, XML Encryption and X.509 certificates to provide a standard way of securing Web services message exchanges. The standard provides a framework for companies to apply security technologies such as authentication and authorization in a Web services environment. WSS has garnered broad support from vendors, and proponents say it will lead to increased adoption of Web services.

"[WSS] will become a standard for most Web services," says Ray Wagner, an analyst at Gartner Inc. "I have suggested that organizations developing strategic Web services begin using [the standard] even if they have no current security requirements. This will set the stage for easily adding security as the profile of the service changes."

Raphael Holder, vice president of shared services operations at Northrop Grumman, says his company is tracking the standard.

– Bob Violino

COM

DEFINITION

Component Object Model (COM) is a Microsoft-developed, language-independent architecture created in the 1990s that lets developers build applications from reusable, binary software components.

BY RUSSELL KAY

IN A WORLD OF interconnected networks and Web services, computing workloads are increasingly being split among clients and servers that are far apart in both distance and functionality. This means it's essential for computers to be able to talk to one another and use data generated by another machine as input. This isn't a new situation; in fact, it's the logical extension of how applications have been developed for years.

In their attempts to achieve greater interoperability and efficiency, developers have created subroutines and procedure calls, object-oriented programming and libraries of reusable software. If they can avoid it, developers rarely create applications from scratch. Instead, they try to take advantage of existing hardware infrastructure, tools and software, as well as previously created software components, all to rein in the time and cost of development and deployment. While these approaches go by many different names, we'll refer to them as "component software." Indeed, one can think of Web services as just a more widely distributed form of component software.

Because Windows has become the primary desktop operating system, and because Microsoft Corp. has tried to extend that monopoly to the server world, it's hardly surprising that the company has for years offered its own set of products and standards for component software. Among the oldest of these, and thus the most widely used and best-known, is the Component Object Model (COM) and its network-savvy offspring, distributed COM, or DCOM.

COM's Binary Essence

The real value of component software for developers was that it allowed them to use binary (i.e., machine-code) modules, not source-code libraries, as was the case with most development environments. COM defined an application programming interface that allowed diverse components to interact. As long as components used a Microsoft-specified binary structure, they could be written in different languages and still interoperate after they had been compiled. COM enabled the development of application services using compound documents, custom controls, interapplication scripting, data transfer and other types of software interactions.

QUICK STUDY

What's in a Name?

The history of Microsoft component software is complex because the company tends to change its approach and structure every few years, renaming and rebranding technologies. Here's a quick rundown on how component software has changed over the years:

We begin with a technology for compound documents called Object Linking and Embedding (OLE), which was built on top of Dynamic Data Exchange and Visual Basic Extension (VBX) controls from Visual Basic 1.0. (The abundance of acronyms is an unfortunate byproduct of this subject.)

In 1992, Microsoft introduced Windows 3.1, and OLE came with it onto every desktop. This was followed the next year by OLE 2, and in 1994, OCX controls were introduced to succeed VBX. At that time, Microsoft stated that OLE was the name to be used for all of its component technologies.

However, Microsoft soon renamed some parts of OLE that related to the Internet as ActiveX, a moniker that gradually subsumed all the component technologies. OLE then reoccupied its role as a compound document technology, used mainly in Microsoft Office. COM was first implemented in Windows 95.

In 1996, as networking and networkable applications grew in importance, Microsoft announced its DCOM alternative to the Common Object Request Broker Architecture, or CORBA. DCOM first appeared in Windows NT 4.0 with tools to help build client/server applications that spanned both the corporate network and the Internet. In September 1997, Microsoft once again changed the name of its entire component framework — to COM.

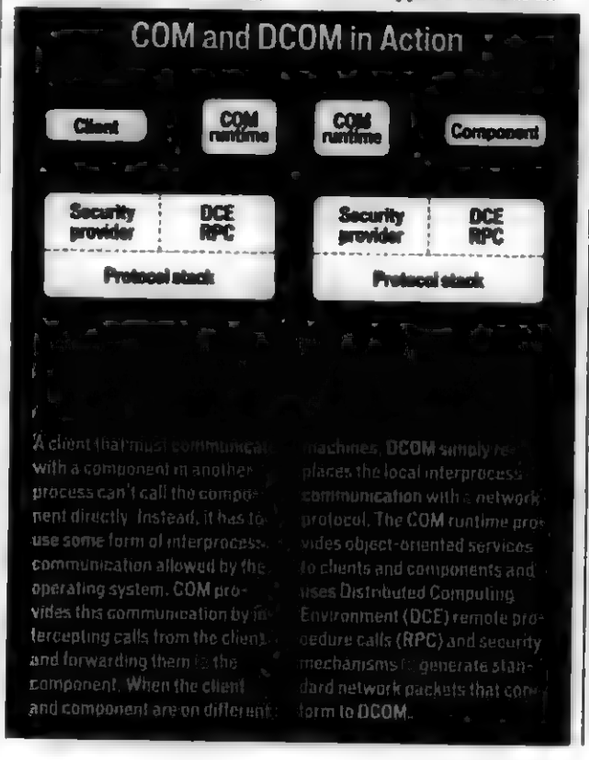
A couple of years later, when it introduced Windows 2000, Microsoft renamed COM to COM+, signifying substantial changes. COM+'s main attraction was that IT could run it in component farms managed by Microsoft Transaction Server. A properly made component could be reused by making new calls to its initializing routine without having to unload it from memory. Components could also be called from another machine, which was previously possible only with DCOM, so Microsoft pretty much dropped DCOM as an independent concept.

But not even COM+ had much longevity. Microsoft soon launched its .Net initiative, a hasty (and often hazy) framework that almost entirely replaced the COM technology. There is limited backward compatibility — .Net can use a COM object by implementing what's called a "wrapper" — but Microsoft made it clear that for new systems, COM was to be dropped entirely in favor of .Net.

.Net includes "smart" client application software and operating systems, smart devices, Web services that can be combined with other Web services or used directly with smart client applications, a server infrastructure and an environment (Visual Studio.Net) that directly supports a number of development languages through .Net's Common Language Runtime.

Recent Changes

Despite their disavowal in favor of .Net, the technologies of COM and DCOM are still alive and well, even at Microsoft. In the forthcoming Service Pack 2 for Windows XP, for example, Microsoft will implement two big changes to DCOM. It introduces computerwide restrictions that provide an additional access check against an access-control list each time a COM server is activated, called or launched. SP2 also introduces more granular COM permissions, giving administrators greater flexibility in controlling a computer's permission policy. **48251**



Kay is a Computerworld contributing writer in Worcester, Mass. Contact him at russkay@charter.net.

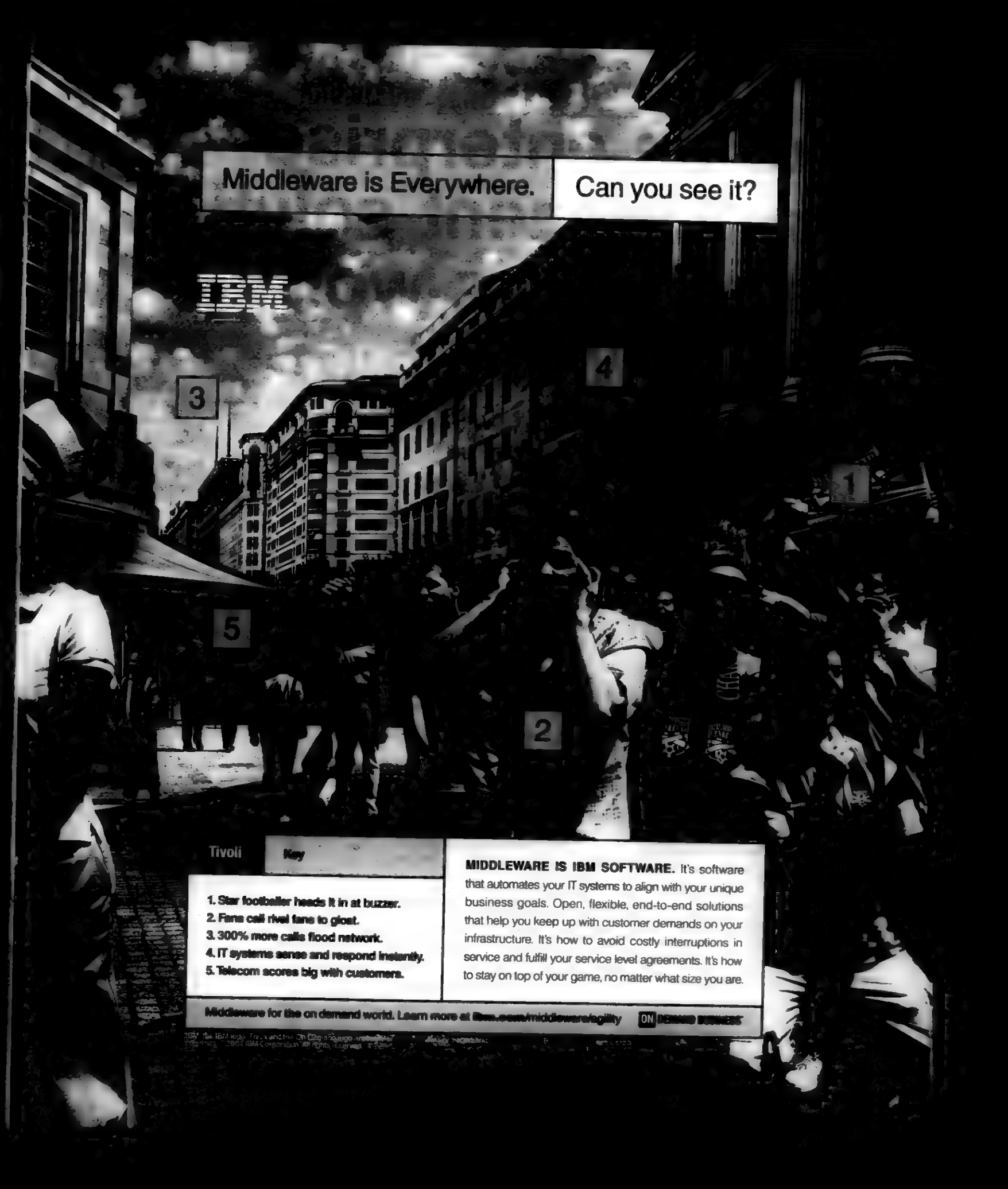
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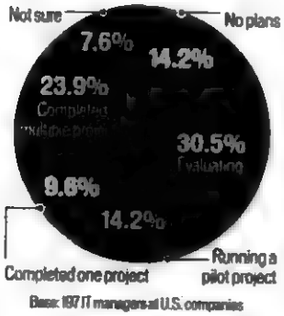
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SNAPSHOTS

Web Services Adoption

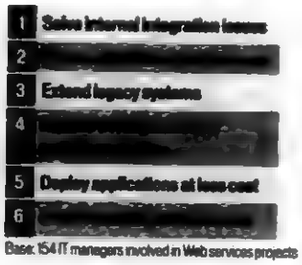
What's your organization's current status on the adoption of a Web services architecture?



Base: 197 IT managers at U.S. companies

Primary Drivers

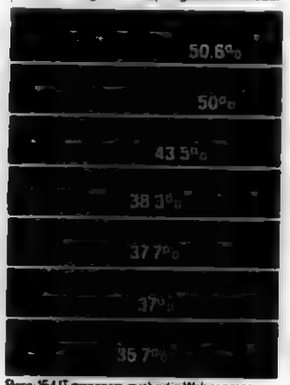
The top six reasons for implementing Web services:



Base: 154 IT managers involved in Web services projects

Top Headaches

The challenges of adopting Web services:



Base: 154 IT managers involved in Web services projects; multiple responses allowed

SOURCE: IDC, FRAMINGHAM, MASS., MAY 2004

MARK HALL

Blurry Web Services

IN THE SUMMER BLOCKBUSTER *Spider-Man 2*, the director signals to the audience that Peter Parker (a.k.a. Spider-Man) has or doesn't have his superhero powers based on the character's ability to see with his eyeglasses. When a powerless Peter Parker looks through them, his vision is clear. When his alter ego, the newly recharged Spider-Man, puts them on, his vision is cloudy.

XML proponents claim that developers of Web services applications are as powerful at exchanging information between systems as Spider-Man is at swinging from skyscraper to skyscraper. But increasingly, these developers must feel like Spider-Man wearing Peter Parker's glasses. Their XML world becomes so gummed up with opaque information that XML just can't handle it.

These difficult bits of data, called opaque data, are binary attachments that XML can't tag effectively. These obstinate files include things like digital signatures and compressed multimedia data, such as MPEG files, and are likely to become a bigger problem for developers in our media-rich, security-conscious Web services application world.



This file-attachment problem is the latest to let the air out of the XML hype balloon that preceded its arrival in the late 1990s. Larger file sizes and vertical-market specifications added performance and complexity problems for XML users. Still, the hype hasn't died down. Today, vendors tout their products' ability to output data in XML formats as if that's all you need to exchange information between programs. They give product buyers a false sense that interoperability issues in the Web services world have evaporated with XML's arrival. That's just not true.

As a general definition for how information can be structured, XML is a giant step forward. But it's not as simple as most vendors would have you and your bosses believe. They want executives to feel warm and fuzzy when they hear that their software uses XML. They want them to think that their products will be compatible with everything already running in your IT shop. Integration, they imply, will be a snap for developers to implement. Return on investment, they suggest, happens almost as soon as you unwrap the software's CDs or download the files. Given the hype, executives might conclude that any integration problems might just be your fault, not the vendors'.

XML's cross-application compatibility hit its first stumbling block in situations where bandwidth was an issue. According to James Kobielus, an analyst at Burton Group, "XML can be a bad thing when you're trying to secure or speed the flow of traffic." It bloats data transmissions by having to send 10 times as many bits as a non-XML data transfer.

"To get the transparency offered by XML," he says, "you have to sacrifice greater performance."

Then the little vertical problem cropped up, as each industry developed more-precise tagging instructions to assure more complete communications among Web services running throughout the supply chain. The chemical industry developed a version of XML, the retail industry created a different one and so on. XML variants spread quickly, and users now have to learn when and where to apply filters to distinguish which ones apply to their markets.

Now vendors are facing up to the problem of opaque data in Web services development. The good news is that there's a serious effort to standardize the way XML works with opaque data. The bad news is that there are five different approaches under consideration, each with its own strengths and weaknesses. Eventually, I suspect, vendors will resolve the problem, either by agreeing to a single standard or by supplying XML parsers that can handle all the existing standards.

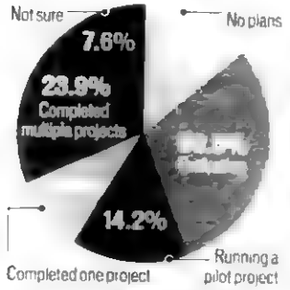
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The promise of Web services is that it will remove most of the stumbling blocks that exist between vendors' software. Yet the most basic building block of Web services, XML, continues to trip up vendors and users.

That's not to say that XML hasn't helped bridge many gaps among products on the market today. Nor does it obviate Web services' promise to vastly improve vendor software interoperability. But the new power these tools put at your fingertips doesn't eliminate your application integration problems. You still need to don your developer superhero outfit and fight those battles one villain at a time. **48222**

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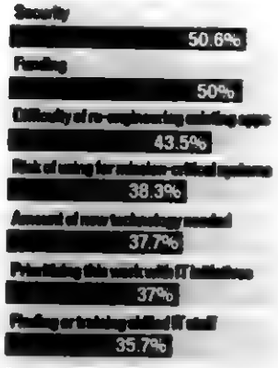
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1. Solve internal integration issues
2. Solve external integration issues
3. Extend legacy systems
4. Reduce development and maintenance time
5. Deploy applications at less cost
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MARK HALL is a *Computerworld* editor at large. Contact him at mark_hall@computerworld.com

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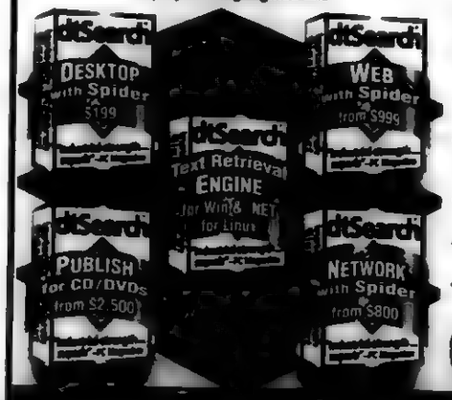
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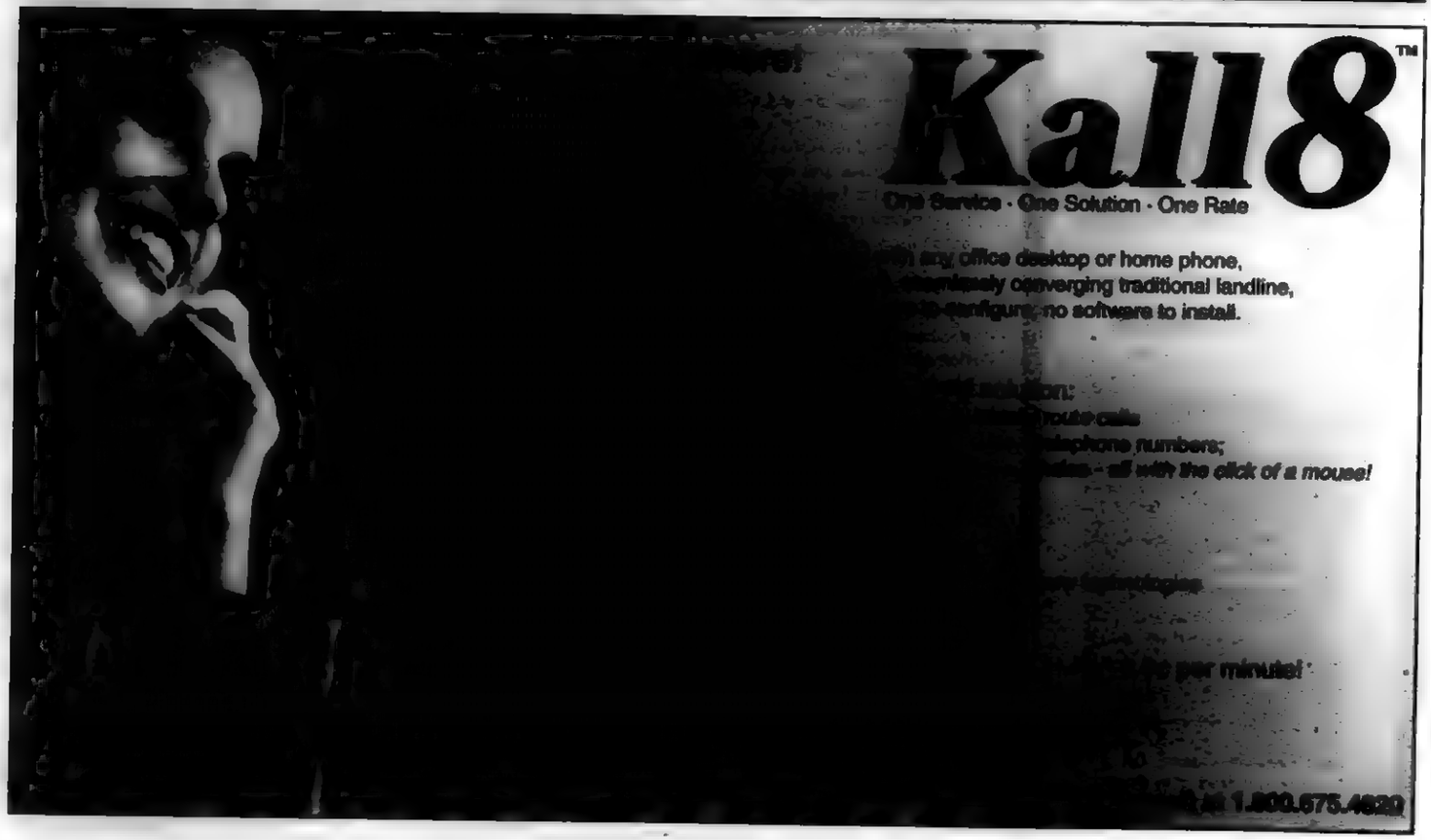
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Software Engineer (Merrimack): Research, design & dev computer software syst in conjunction with hardware product development. Consult with hardware eng & other eng staff to evaluate interface between hardware & software, & operational & performance requirements of overall system. Provide technical guidance on client projects. Will use Win NT/2000, C, C++, Java, J2EE, DB2, Websphere, Unix, Shell Scripts, Perl, HP-UX, Informix, AIX, Silk performance, Load Runner, Clearcase, IBM, Sun Solaris, XML, sED, AWK, Visual Source Safe, PL/SQL, SQL*Plus, Oracle, SCCS, RDBMS etc. Req'd Masters in CS, Eng, Phy, Math, or MIS, 2 yrs exp in job or Prog Analyst or Syst Analyst or Bach's with 5 yrs as Prog Analyst or syst analyst 25% travel req. 40 hr/wk, mon-fri, 9am to 6 pm $102,690/yr. Send 2 copies of resumes to Job Order # 2004-110, P.O Box 969, Concord, NH 03302-0969

IS ANALYST

Resp. for dsgng & dvlpng computer progs for company-wide proprietary data warehouse utilizing various Oracle-based applns. Specific job duties incl (i) applying knowledge of Oracle programming techniques & comp Sys to plan, dvlp, test, implmnt & document comp progs, (ii) evaluating user requests for new or modified progs, (iii) making site visits to gather info & to analyze sys. requmts; (iv) consulting w/users to identify operating procedures, clarify prog objectives & leverage functionality of Oracle-based dbases to address critical rqmnts, (v) applying knowledge of industry best-practices while configuring Oracle-based dbases & dsgng enhancements to optimize processes; (vi) applying knowledge of Java, SQL, Navigator, SAP ABAP & ACTA computer tools to support co's applns; (vii) utilizing Oracle, PL/SQL, OWB, OEM, Discoverer, Forms, Portal, JDeveloper & iAS computer tools to ensure high quality of co's IT systems; & (viii) providing back-up support for Lotus & web applns. M.S. degree in Electrical Engnrg or Comp Sci reqd (or Bach degree in Comp. Sci. or Elec. Engnrg together w/5 yrs of progressively resp. exp. in position offered or as a Software Engnr or Oracle Admin. will be accepted in lieu of MS degree) + 2 yrs of exp. in position offered or as a Proj. Mgr or IS Consultant. Must have exp. dsgng & dvlpng computer progs for data warehousing utilizing Oracle 7/8i/9i, Oracle Applns Server OAS/iAS, APPS INT, ABAP as well as PL/SQL & Windows NT computer tools. 40 hrs/wk, OT as reqd, 8 am - 5 pm, $90,000/yr. Fax resume to Michelle Colley @ 919-549-3949.

Software Engineer. Design, Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Analyze and design databases within an application area, working individually or coordinating database development as part of a team. Will use HTML, Javascript, C, C++, VB, Vbscript, ASP, Powerbuilder, Sybase, Java, Oracle, PySQL, SQL Server, ESSbase Hyperion, EIS, EES, Microstrategy, Cognos, Business Objects, Informatica, Tivoli Webephere, iplanet, WM, VCS, Unix Admin, Win 95/NT,Bach. dep. in Comp Sci, Engr(any) MIS w/5 years exp. in job or as Prog. Analyst, Systems Administrator, Systems Analyst, 40 Hrs./wk., 9-6, $75,067/yr. Must have proof of legal authority to work in the United States. Send your resume to the Des Moines Workforce Development Center, 430 East Grand Avenue, Des Moines, Iowa 50309. Please refer to Job Order IA1101912. Employer paid advertisement.

Computers-Integration Architects needed. Seeking cands possessing BS or equiv. and/or relevant work exp. Duties include: Design, test & code software & Canonical schema for purchase order; Work w/ webMethods, XML, JDBC Adapter, Java. Exp. must include 1 year working w/ Java, XML and webMethods. Mail resume & refs to: Genesis Business Solutions, Attn: HR, 1821 Walden Office Square, #354, Schaumburg, IL 60173.

Project/Analyst: Plan/program network and web appls. for large scale LAN/WAN networks in UNIX/NT envir. using TCP/IP, BGP/OSPF protocols, Cisco Internet Router (1000+), MPLS/VPN, VSAT, SNMP, QOS, Checkpoint, VPN, VoIP and Nokia Firewall; analyze complex circuit / networking / routing issues, direct network testing procedures.

DBA: Impl./upgrade/admin Oracle Appls. for financial/service and 11i ERP/CRP into sys on Solaris, HP-UX, AIX, Compaq TRU64, Unix and Linux. Prepare Instance Strategy and clone instances using manual method, Adcontig, Adclone and Rapidclone utilities. Perform database upgrading with version control and system tuning using DBArtisan, Ticketmark, SQL Navigator,170 systems, PVCS, CVS, DBTuner, RingMaster, TOAD, PL/SQL Formatter and perform backup/disaster recovery.

Busn'l Analyst: Busn processes analysis/project mgmt in large scale Relational Database Systems. Convert busn. objectives into tech. solutions; develop resource plans and set development schedules; develop UAT plans and coordinate the entire UAT phase; establish standards for requirement gathering, use cases, UAT test cases, and documentation; analyze data in Oracle/SQL/Mainframe db; manage development life cycle including issues of production, manual/publication and future enhancement applying MS/VISIO, TestDirector, WinRunner, Rational ClearQuest, Rational Rose, CMF, File Aid, Business Objects, Expert Advisor, and Siebel's GEM; Interface w/all-phone develop centers.

Progr/Analyst and DBA require BS/BA (or equiv. exp.) in Comp. Sc., Engr., MIS or in a related field plus 2 yrs. exp.; Busn'l Analyst requires BS/BA in Busn. Admn or in a related field plus 1 yr. exp. in offered/related position. Must be able to perform all duties on the day of employment. Full-time. Resume to HR, NetEffects, Inc. 500 Chesterfield Ctr., Ste 350, St. Louis, MO 63017. No Call/EOE

DIVISION LEAD WEB DEVELOPER (Lexington, KY) - Design, develop and implement image retrieval services using ASP and server-side Java; design and support SQL and MS Access databases using independent discretion, design and ensure development and delivery of web service projects; supervise and assign work to team members in developing and finalizing projects, coordinate development and production of services with overseas offices, review products and specifications for department; construct data decomposition diagrams, provide data flow diagrams and document processes, write codes for database access and modifications, and guide team members in implementing codes, coordinate testing, implementation, and installation of systems, upgrades and network fixes, regulate software usage and performance, and ensure software compliance with internal regulations.

Requires Bachelors in Computer Science and either 1 yr exp in jobs offered or 1 yr exp in designing, developing and implementing image retrieval services using ASP and server-side Java, design and support SQL & MS Access databases.

Salary $59,940/yr, Mon-Fri, 8AM-5PM, 40 hrs/wk.

Send resume to Ginny Burton #4224, Department for Employment Services, 275 E. Main Street 2-WA, Frankfort, Kentucky 40621. Only persons with authorization to work permanently in U.S. need apply. Equal Opportunity Employer

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Routing/IP Protocols

Enhance existing routing protocols, i.e., BGP, OSPF, ISIS and PIM, and implement convergence and scalability and the supporting infrastructure. Work on TE infrastructure, including extensions and constraint-based routing. Work experience on systems with fault tolerance, development of ISIS, OSPF and GateD required. Requires a BSEE/CS degree or equivalent, 3+ years' experience in C/C++ software development or equivalent combination of education/experience.

MPLS Protocols and Fast Path Data Plane Programming

Architecture, design and develop MPLS LDP, RSVP signaling protocols and QoS, and program MPLS labels in the hardware for the data plane. Experience in POS is required. Experience in Gigabit Ethernet and ATM is highly desirable. Experience in characterization of line card performance with IP and MPLS over POS and ATM data forwarding traffic is desirable. Requires a BS degree in EE/CS and 3+ years' experience in C/C++ software engineering or equivalent combination of education/experience.

Software Quality Test

Plan and execute tests for IP Routing/MPLS/ATM Protocol software. Develop automated test scripts in TCL/TK or C. Expertise with two or more of ATM, BGP, ISIS, MPLS and OSPF is required. Experience testing large network topologies and knowledge of TE or VPN extensions to routing protocols is desirable. Requires BS in EE/CS and 3+ years' experience in the development or SQA of routing protocols or equivalent combination of education/experience. Looking for 1st and 2nd shift candidates.

Applicants must be presently authorized to work in the U.S. on a full-time basis without work visa sponsorship. These jobs are located in our Billerica facility. Relocation assistance is not available. Email resume to: jobs@avici.com or fax your resume to: (978) 964-2680, ATTN: JBPST 0804. Responses by mail can be sent to: Avici Systems, Inc., Attn: Human Resources, 101 Billerica Avenue, Building 2, N. Billerica, MA 01862. No phone calls please. EOE

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IT PROFESSIONALS

Senior Consultant

(Glen Mills, Pennsylvania and other locations throughout the U.S.) Conduct manufacturing industry client engagements providing consulting services in areas of business process transformation and system implementation, troubleshooting, and integrated software solutions to meet business needs. Conduct review and analyses of client business processes and procedures at organizational and operational levels. Interviewing management and administrative personnel to determine optimal integration of business process reengineering with new information technologies and modification of operational procedures. Propose strategic solutions and business process improvements including benchmarking and design analysis. Assess projected timetables, project plans, financial and human capital resources and prepare recommendations. Participate in delivery of system(s), roll-out and implementation modifications. Provide post-implementation support and supervise both technical and functional staff. Participate in client development, including proposal generation. Provide knowledge repository, mentoring and technical liaison role. Provide customization of Oracle Manufacturing Modules using BOM, INV, MRP/SCP, ASCP, WIP/OSFM, COST and Configurator/Applications, Oracle Developer, Oracle Manufacturing and RDBMS.

WAGE: $102,000/year
Hours: Monday-Friday 9:00am-5:00pm

MINIMUM REQUIREMENTS:
Bachelor's degree or equivalent in Computer Science, Business Administration, MIS, IS or a related field + 3 years exp. in the job offered, or 3 years exp. as a Consultant, Project Manager, Project Lead or a related occupation. Prior consulting experience must include Oracle Manufacturing and configuration and customization of Oracle Manufacturing Modules using BOM, INV, MRP/SCP, ASCP, WIP/OSFM, COST and Configurator, as well as Oracle Applications, Oracle Developer, Oracle Manufacturing, Oracle RDBMS.

Please send your resume, referencing Job Order Number WEB443605 to the PA Careerlink, FLC Unit, 235 W Chelten Ave, Philadelphia, PA 19144. EOE

IT PROFESSIONALS

Senior Consultant, Lead Oracle Applications Database Administrator

(Glen Mills, Pennsylvania and other locations throughout the U.S.) Engage in capacity planning, installation, upgrades, setup, & administration of production & development of Oracle Applications 11i instances & Oracle 9i, 8i databases. Build a high performance & load balanced system architecture in consideration of Global Single Instance readiness. Assist the client in utilization of Oracle Applications by transferring knowledge. Maintain & support Oracle 11i (FIN, HRMS, CRM, SCM, & PAY). Build high performance technical architecture to support database backups, recovery, high availability, & disaster recovery. In support of high availability & disaster recovery, implement Oracle's RMAN system in conjunction with Tivoli Storage manger, 9i RAC, & HP Service Guard. Implement automated tools for monitoring, administration, & maintenance of Oracle Applications using UNIX Shell Scripts, BMC Patrol, Kintana, Rapidclone & Autoconfig. Utilize Enterprise Oracle Application Architecture.

The wage offered is $80,000 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The position requires a Bachelor's degree or equivalent in Mathematics, Computer Science, Information Systems, Engineering (any type), or Business Administration + 5 years of experience in the job offered or 5 years of experience as a Senior Consultant, DBA (Oracle Applications), or Information Technology Analyst. Employer regards a foreign degree as equivalent to a US Bachelor's degree as determined by an accredited education evaluation service. Related experience must include Oracle Applications (FIN, HRMS, CRM, SCM, & PAY) Administration and Oracle Database Administration, Enterprise Oracle Application Architecture, High Availability and Disaster Recovery, and at least one year of Global Single Instance (GSI).

Please send your resume, referencing Job Order Number WEB443808 to the PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

Programmer/Analyst needed for Software Development. Services & BPO firm located in S. Burlington, VT. Job duties include: Analyze, design and develop web-based applications using Rational Rose, Java, and C++. Develop core applications using Java and Sun One application Framework. Use SunOne Directory Server (LDAP) for data storage. Applicant must have B.S. degree in computer science, engineering, math, or business. Applicant must also have 2 yrs. exp. in the job duties listed above or in any computer related occupation which must include skills listed above. 40hrs/wk, 8:00am-5:00pm, Mon-Fri. $70,000/yr. Send resumes to: Job No. 27265, P.O. Box 488, Montpelier, VT 05601-0488.

Programmer/Analyst (position in Atlanta, GA). Apply knowledge of network/sys architecture, integration, design, & deployment to formulate, define, design, & maintain network architectures using Win NT, UNIX, OO, Client-server, n-tier environments & RDBMS (Oracle, Sybase, SQL, Mumps, Java & web architecture). Req: BS or equiv in Comp Sci or related w/ 2 yrs. of exp in job offered or as a Sys Analyst or Software Engg. MS degree in Comp Sci or its equiv plus 1 yr exp will be accepted in lieu of Bach deg. plus 2 yrs. exp.; job may require work at unanticipated worksites in the Atl., GA metro area. Send resume to: Iheanulish Kholar, Gen Mgr., Widezone International Co., 6340 N. Lasvitt St., Chicago, IL 60659.

COMPUTERS - SENIOR SYSTEMS ADMINISTRATOR - Financial Management firm seeks Senior Systems Administrator to manage, maintain and upgrade Solaris/Unix-based network's central backup system, including STK L6000 library with STK 9940B tape drives. Duties include: installation/maintenance of the batch system PBS and of Solaris/Linux systems; central LDAP service; internal company webservice; central CUPS-based print service; user support and security. Master's degree in Computer Science or Computer Studies and 2 years exp. in job duties required. Will accept candidates with 2 years experience as Systems Administrator of high speed networks in UNIX environment. Mail resume to RTC, 500 Route 25A, East Setauket, NY 11733. Attn: JR.

PROGRAMMER ANALYST

Using knowledge of steel production & mfg processes, implement enterprise-wide financial & mfg software sys. & determine prgmng & config. AXIOM software to dvlp common work processes for multiple plant locations. Must have 4 yrs of exp as a Prog. Analyst or Sys. Analyst for AXIOM implementations. Exp must incl AXIOM implementations at multiple industrial plant locations. High mobility preferred. 40 hrs/wk, OT as reqd. 8 am - 5 pm. $60,000/yr. Submit resume to: Armstrong County CareerLink, Attn: CL Program Supervisor, 1270 North Water Street, P.O. Box 758, Kittanning, PA 16201-0759. Please refer to Job Order Number WEB 443684.

Sr. S/W Eng. for Device Driver Dev, SAN, Storage Area n/wk, .NET, OOA/D, & Kernel Level Program: develop app level s/w solns on Windows; d/zn & impl kernel modules /device drivers for Windows; dev func specs & d/zn docs; s/w modules in C, C++ & C#; d/base queries in PL/SQL; n/wk protocols on Windows; d/zn & dev multi threaded s/w solns on multi-proc platform; three-tier solns w/ GUI & Middle Tier in .NET, client-server applns; Windows Services in C++/C# in .NET; enhance perf thru better algos; improve perf of low-level kernel subsystems; solns. to cust. issues; maint & bug fixing. MS in Comp Sci + 2 yrs. exp. in job duties. Specify Job Code ST & apply: Unilink, 4625 Alexander Dr., # 110, Alpharetta, GA 30022 w/ proof of perm. wrk authzn.

ProgrammerAnalyst needed for Software Development. Services & BPO firm located in S. Burlington, VT. Job duties include: Analyze, develop, code, implement and test computer software applications/systems for business clients located throughout the U.S. using C++, Linux internals, and VHDL. Also involved in GUI development and developing device drivers. Applicant must have B.S. degree in computer science, engineering, math, or business. Applicant must also have 1 yr. exp. in the job duties listed above or in any computer related occupation which must include1 yr. exp. in the skills listed above. 40hrs/wk, 8:00am-5:00pm, Mon-Fri. $60,000/yr. Send resumes to: Job No. 27260, P.O. Box 488, Montpelier, VT 05601-0488.

Software Engineer (2 positions) various locations - Research, designs and develops computer software systems in conjunction with hardware product development applying principles and techniques of computer science, engineering and mathematical analysis. Requires Master or equivalent in Computer Science, Engineering or Mathematics. *Equivalent is a Bachelor degree plus 5 yrs exp. Requires 3-5** yrs exp in job offered or 3-5* yrs exp as Programmer Analyst, Systems Analyst or Systems Engineer. **3 yrs exp if Master or 5 yrs exp if Bachelor degree. Must have 1-yr exp using Oracle and PL/SQL. 5 day, 40 hr/wk, $75,000/yr. Please mail resumes to Workforce Development Programs, PO Box 46647, Denver, CO 80202 and refer to order number CO5086151.

SENIOR CONSULTANT - OPEN SYSTEMS - Sr. Cons. to d/zn & anlys. d/b admin in DB2 UDB EE/EEE/ESE 7.2 & 8.1 on AIX 4.3.3 & AIX5L on RS/6000 & Sun Boxes; Dev bk/up recov strat w/ Tivoli Stor Mgr, Hitachi True Copy, Physical d/zn of UDB d/b, config & perf tuning d/b appl; monitr & trblsht d/b & appln problms; d/zn, devlp & implmnt sid sority model; install & mntnng in UDB; maint clnt/srvr envrs; SYBASE to DB2 d/b conv; d/zn maint strgy DB2 d/b; prvd 24x7 sys supp; impl DB2 2 Sybase replicn DB2; Info Integrt & direct connect & UNIX Shell scripng KORN, PERL & WAP techn. BS Comp Sci + 2 yr exp job duties OR no BS + 5 years exp. In SW dev. Must be IBM Certified as d/b admin + 1 yr. exp. in WAP tech. Apply: OSI, 4005 Windward Plaza, # 550, Alpharetta, GA 30005 w/ proof of perm work authzn.

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Systems Analysts to analyze, design, implement business processes using SAP, Java, VB, C, C++, Oracle, PL/SQL, etc. under Windows/UNIX OS, perform reqs gathering and gap analysis; prepare functional, technical specifications, develop training material for end users and coordinate system/user acceptance testing. Require BS or foreign equiv. in CS/Engg (any branch) with 2 yrs exp in above skills, or MS or foreign equiv in one of the above fields. Competitive salary, fit position. Travel involved. Resumes to HR, Smartsoft International, Inc., 3985 Johns Creek Court, Suwanee, GA 30024.

Database Administrator wanted by consulting co. in IL to dvlp data model describing data elements & their usage. Test, correct errors & modify changes to prgms or data base. Review, estimate time & cost of projects. Direct prgmrs & analysts, review workflow charts & train d/base users. Must have Bach or equiv in Comp Sci & 1 yr exp in job offd. Employer will accept deg equivalency based on combo of education, training or exp in tech industry in lieu of Bach deg. Respond to: Mr. Mohammad N. Yaqoob, MY Management, 1741 S. Ruble St., Chicago, IL 60616. No calls.

Computer Support & Research Specialist: Design, coordinate activities of computer systems, formulate info for corporate decision making; collect & analyze data; train users, troubleshoot all hardware/software components. Bachelors/Equivalent in Comp. Sc./Engineering w/rel. exp. Resume to HR, Falcon Farms, Inc., 2330 NW 82nd Avenue, Miami, FL 33122.

SYSTEMS ANALYST, Atlanta, GA. Requires B.S. computer science and 2 years experience. Provide system analysis, implementation, maintenance and support using full life-cycle development, Legacy and client/server systems. Interested applicants please submit resume to Attn: HR Dept., Information Technology Resources, 1355 Peachtree St., NE, Suite 110, Atlanta, GA 30309.

OH ins. co. seeks Systems Analyst to assist in preparing detailed technical specs, design code, test, debug docs & maintain programs for automated business systems. Min. req. Bachelor's in Engineering or eqv. & 3 mos. in job or job related exp. including: XML, UML, Visio, VSS, JavaScript, SQL server, J2EE, EJB, WSAD, VisualAge, Oracle, CFML. Resumes to: JK-T64A135, 300 N. Commons Blvd., Mayfield Village, OH 44143. No calls. EOE.



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Software Engineer (2 positions) various locations - Research, design and develop computer software systems in conjunction with hardware product development applying principles and techniques of computer science, engineering and mathematical analysis. Requires a Master or equivalent" in Computer Science, Engineering or Mathematics. "Equivalent is Bachelors plus 5 yrs exp. Must have 3-5** yrs experience in the job offered or 3-5 yrs as a Systems Analyst, Programmer Analyst or Systems Engineer. **Three yrs exp if Masters or 5-yrs exp if Bachelors. Must have 1-yr exp using Vignette. 5 day, 40 hrs/wk, $100,000/yr. Please mail resumes to Workforce Development Programs, PO Box 46547, Denver, CO 80202 and refer to order number CO5086145

Programmer/Analyst needed for Software Development, Services & BPO firm located in S. Burlington, VT. Job duties include: Analyze, design and develop Forte based software applications in a client/server environment for clients located throughout the East Coast using middleware-programming including Forte, Forte Express, Forte Conductor, Rational Rose, Oracle, and DB2. Applicant must have B.S. degree in computer science, math, engineering or business. Applicant must also have 2 yrs. exp. in the job duties listed above or in any computer related occupation which must include skills listed above. 40hrs/wk, 8:00am-5:00pm Mon-Fri. $60,000/yr. Send resumes to: Job No. 27262, P.O. Box 488, Montpelier, VT 05601-0488

ADVENT GLOBAL SOLUTIONS, INC.

SOFTWARE ENGINEERS: to research, design, develop computer software systems and lead new product development projects to timely completion. Ability to evaluate and design SAP software as required. Needs a Masters in CS/MIS or any related degree combined with 1 + years experience or Bachelors with 5 years experience in designing and developing computer software systems.

SYSTEMS ANALYSTS: to analyze, design and develop operational procedures to automate processing and to develop new systems to improve production. Knowledge of SAP, Oracle, and other business related software is essential. Needs a Bachelors in Engineering/CS or in any related field combined with 5 years relevant experience in designing and developing computer software systems.

COMPUTER PROGRAMMERS: to design, develop, identify and implement solutions within SAP systems. Design, develop, write, test programs and perform SAP implementations. Knowledge of SAP, Oracle, and other business related software is essential. Needs Bachelors in Engineering, CS or in any related field with 3 years relevant experience in designing and developing SAP systems.

Please send resumes to Advent Global Solutions, Inc., Human Resources, 3419 N. Kennicott Avenue, Suite C, Arlington Heights, IL 60004.

IT PROFESSIONALS

Senior Consultant

(Glen Mills, Pennsylvania and other locations throughout the U.S.). Assist in the analysis, development and implementation of systems, or business processes for state governments/agencies. Utilize technical expertise and knowledge of public sector welfare regulations and policies including Temporary Assistance to Needy Families (TANF), Food Stamp (FS), and Health Insurance Portability and Accountability Act (HIPAA) to create systems compliant with federal regulations. Responsible for defining systems strategy, developing system requirements, designing, prototyping, testing, training, defining support procedures and implementation. Perform needs assessment and /Gap analysis between client requirements and functionality. Create detailed design specifications for system and technical requirements (e.g., business processes, infrastructure, interfaces, reports, enhancements, and/ or conversion), prepare technical documentation, and develop and test applications. Create database models and data dictionaries. Develop work plans and work with project team members to complete assigned project tasks within time constraints. Design, develop, test and implement interfaces between the client's systems. Utilize Unisys Mainframe Legacy System (2200) and MAPPER. Perform accurate analyses and effective diagnosis of client issues and manage day-to-day client relationships at peer client levels.

The wage offered is $79,000 per year. Work schedule: Mon-Fri, 9:00 am to 5:00 pm. The position requires a Bachelors degree or equivalent in Engineering (any type), Computer Science, Math, Information Systems and Business Administration + 6 years of experience in the job offered or 6 years of experience as a Consultant, Senior Consultant, Senior Software Engineer or Software Developer. Employer will regard a foreign degree to be equivalent to a U.S. Bachelors degree as determined by accredited U.S. evaluation service. Related experience must include public sector welfare program regulations and governing statutes including TANF and Food Stamps. Unisys MAPPER based management information systems, case management, eligibility determination, payment distribution and inter-agency interfaces.

Please send your resume, referencing Job Order Number WEB443781 to the PA Careerlink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE

Non-profit S/W org in SF looking for S/W Dev Mgr to head/direct S/W Release and QA teams, install & administer web apps, integrate crypt srvcs to enable secure storage & xchange of information, ensure corp s/w security by utilizing s/w dev methods and best practices to protect against programming errors & hacker activity; enhance s/w dev processes and tools. Req: MS or equiv + 3 yrs in s/w dev\mngt. Exp in lrg scale s/w dev projects; OO s/w dev; C & C++, Perl, open source projects; mass market, client/desktop apps dev. x-platform dev exp (Linux, Mac OS X, Windows); installing and managing LXR & Bonsai. Send res to: devmngr-job@osafoundation.org

Software Engineer (Mammoth): Design & develop Computer software systems using C, C++, Java, Servlets, JSP, JDBC, EJB, AWT, Swing, Perl, Shell Scripts, Expect, Rational tools (Clearcase, Multisite, Clearquest, ODTS) administration, SCM training and support. Release engineer (GNU make, cygwin, shell scripting) for large-scale multi-platform (UNIX, NT, Linux, VXWorks) development environment. Installation, Maintenance, support, Administration, Troubleshooting, Recovery. Worked on Cobol, CICS, JCL, DB2 on MVS. Req'd Bach's in CS, Eng (any), Math or MIS. 5 yrs exp in job or Prog Analyst. 25% travel is req. 40 hrs/wk, mon-fri, 9am to 6 pm. $102,690/yr. Send 2 copies of resumes to Job Order # 2004-151, P.O.Box 989, Concord, NH 03302-0989

Lead Network Software Engineer - Lead dvlpmt, maintenance & deployment of Red Hat NAwork s/ware applics products; perform product engg functions for ERP products, using distributed computing infrastructure; lead s/ware & d/base deployment & operating systems upgrades on large nAworks of Red Hat Linux servers; dvlp system mgmt & systems admin features to function as part of Red Hat NAwork's managed services component; lead dvlpmt of new s/ware applics & enhancements of existing applics by integrating SOAP & XML-RPC communication protocols for linking into an object model & a collaboration infrastructure; lead dvlpmt of applics & modules to handle distributed applics using XML-based data exchange protocols (i.e., SOAP, XML-RPC), & of object model infrastructure based on SOAP & XML-RPC; enable new & existing applics as part of Web Services infrastructure for Red Hat Linux clients using SOAP & XML-RPC, function as project Lead & dsgn & dvlp modules for Web Services infrastructure using SQL d/base backends (i.e. Oracle, Sybase, Postgres SQL), Red Hat Package Manager (RPM), d/base-backed XML representations & protocols for exchange of info in decentralized distributed enwrmt like SOAP & XML-RPC; lead dvlpmt of applics & modules to run Red Hat NAwork client tool (up2date) & systems registration support tools, & of availability & performance monitoring agents for Red Hat Linux systems; function as tech lead & advise subordinates & peers in identifying, localizing, & correcting applics problems & defects. Req: Master's (or equiv) in Comp Sci, 3 yrs in job offd (only where exact duties listed above were performed) or 3 yrs as S/ware Dvlpr or S/ware Engr; & 1) Min 5 yrs theoretical & applied exp w/Red Hat Linux; 2) Min 3 yrs theoretical & practical exp in following: a) dsgng & dvlpg s/ware applics in C & Perl; b) nAwork applics dvlpmt; c) UNIX; 3) Min. 2 yrs theoretical & practical exp in skill/attributed applics dvlpmt, & unskilled/computing protocols (SOAP & XML-RPC) implemented in C, Python & Perl; b)dsgng & dvlpg applics utilizing Oracle & Postgres SQL, among other SQL d/bases; c) dsgng & dvlpg s/ware applics in Python. Hrs: 40+, Salary: $ 80K/yr. Interested applicants apply at nearest Employment Security Commission office or send resume to Employment Security Commission, 3351 Carl Sandburg Ct, Raleigh, NC 27610. All resumes & applications must incl SS# & refer to JO#: NC7251048 & DOT code: 030.062-010

Head IT Professionals like Software Engineers, Programmer Analysts, IT Business Managers for company based in Bristol, PA. MS/BS Degree or equivalent in C.S, CIS, MIS, Engg (any), Math, Phy / rel field and/or rel work exp. All positions may involve travel &/or relocation to project sites throughout the U.S. Mail resumes to HR at Surya Systems Inc., 1200 New Rodgers Road, C 7A, Bristol, PA 19007. State the post applied for.

Sr. Quality Eng. wanted by company engaged in graphics and multimedia technology design, manufacturing and marketing. Requires Bach. in CS or EE plus 5 yrs exp. including audio/video software. Reply to ATI Research, Inc. H.R. Dept., Attn: K.B., 62 Forest Street, Marlborough, MA 01752.

Software Quality Assurance Engineer

PCTEL Inc. a global leader in simplifying mobility seeks an experienced Software Quality Assurance Engineer to evaluate and test computer software systems according to specifications and standards. Will develop and write test scripts, initiate the test and analyze and results. Will perform testing of wireless mobility solutions products, write and execute test plans, test cases and scripts. Develops new test strategies, improve processes for incident handling, test development, automated testing, and release control. Develop and maintain detailed test plans of each product line in test. Reviews functional specifications and design documents for accuracy, testability, and to test customer usage scenarios. Requires, min. of two years product exper with Windows 98/ME /2000/XP, MS Office, MS SQL Server, Pocket PC, Embedded Knowledge of 802.11 A/B/G. Working knowledge of GPRS, UMTS and CDMA. a B.S. degree in Computer Science or equivalent and a min of two years exper in the job offered. Requires travel to Eastern Europe approx. 20% of the year. Candidate must be legally eligible to work in the U.S for any employer.

Send resume directly to jobs@pctel.com. Please include **Job code 249** QA Engineer in the subject line. Or mail directly to HR Dept., PCTEL, Inc. 8725 W. Higgins Rd. Suite 400, Chicago, Il 60631. PCTEL Inc. is an equal opportunity employer.

Time Warner Cable seeks applicants for the position of OLAP Application/Administrator in Charlotte, NC. Under close supervision, engage in moderately complex tasks regarding system and data administration. Requirements include bachelor's in Information Systems or Computer Science and working knowledge of administering computer system and working knowledge of Cognos Upfront/ Powerplay, Informatica ETL, Peoplesoft EPM, Tidal and Orbiase. Respond by resume to Paul Santos, Time Warner Cable, 7910 Crescent Executive Drive, Charlotte, NC 28217.

Software Engineer needed w/Masters degree or Foreign Equiv. & 1 yr exp in job offered or 1 yr exp as Programmer Analyst or Technical Lead. 1 yr. exp in using Weblogic Portal for backend integration w/Oracle, JMS, XML, JSP, Servlets, JavaScript, Dream Weaver, Java & J2EE on Unix OS. Develop EJBs in Weblogic Cluster environment. Send resumes to: Algomod Technologies Corp., 101 Southhall Lane, Suite 400 PMB #401, Maitland, FL 32751.

Software Engineer (Mammoth): Research, design & dev computer software syst in conjunction with hardware product development. Consult with hardware eng & other eng staff to evaluate interface between hardware & software. & operational & performance requirements of overall system. Provide technical guidance on client projects. Will use Win NT/2000/XP, C, C++, Java, Cobol, Unix, EJB, Linux, Sun Solaris,Shell Scripts, Perl, Visual Source Safe, WebLogic, Rational Rose, Clearquest, JMS, JDBC, JSP, HTML, VB, PB, Jbuilder, Visualstudio, Clearcase, VxWorks, etc. Req'd Masters in CS, Eng, Math, or MIS, 2 yrs exp in job or Prog Analyst or Syst Analyst or Bach's with 5 yrs as Prog Analyst or syst analyst. 25% travel req, 40 hrs/wk, mon-fri, 9am to 6 pm, $102,690/yr. Send 2 copies of resumes to Job Order # 2004-104, P.O.Box 989, Concord, NH 03302-0989

Software Engineer (Mammoth): Research, design & dev computer software syst in conjunction with hardware product development. Consult with hardware eng & other eng staff to evaluate interface between hardware & software. & operational & performance requirements of overall system. Provide technical guidance on client projects. Will use Win NT/2000/XP, 95/95, Oracle, UNIX, XML, UML, WebLogic, WebSphere, Java, EJB, JDBC, JNDI, J2EE, JSP, HTML, HTTP, TCP/IP, WAP, HDML, UPSDK, RMI, Rational Clear Quest, Sun Solaris, Jbuilder, Visual Cafe, Rational Rose, VB, SQL, PL/SQL etc. Req'd Bach's in CS, Eng, Math, or MIS, 5 yrs exp in job or Prog Analyst or Syst Analyst or Masters with 2yrs as Prog Analyst or syst analyst, 40 hrs/wk, mon-fri, 9am to 6 pm, $102,690/yr. Send 2 copies of resumes to Job Order # 2004-588, P.O.Box 989, Concord, NH 03302-0989

Programmer/Analyst with experience in time and attendance software and biometric timeclocks, relational database design and implementation, to work in various locations throughout US. Send resume to SAIC, 8301 Greensboro Dr., Mail Stop E 12-1, McLean, VA 22102. Attn: SAIC HR. Must reference job code #CEL089312. EOE.

Computer eTechnocraft Corporation has multiple openings for Programmer/Analyst, Software Engineer, Project Lead/ Managers. Send resume to: 8700 W. Bryn Mawr Avenue, Suite 800 South, Chicago, IL 60631 or email to: resume@etechnocraft.com

Computer Programmer III, experience to include analysis of programming procedures using MicroSoft Access and SQL in a financial area including knowledge of accounting cycle, debits/credits and adjustment of entries to work in our Cleveland, Ohio office. Send resumes to: Lapine Truck Sales and Equipment Co., 3131 E. Royalton Rd., Cleveland, OH 44147. Attn: HR. Must reference job code 1221

IT PROFESSIONALS

Senior Technology Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.). Conduct manufacturing industry client engagements providing consulting services in areas of business process transformation and system implementation, troubleshooting and integrated software solutions to meet business needs. Conduct review and analysis of client business processes and procedures at organizational and operational levels, interviewing management and administrative personnel to determine optimal integration of business process reengineering with new information technologies and modification of operational procedures. Propose strategic solutions and business process improvements including benchmarking and design analysis. Assess projected timetables, project plans, financial and human capital resources and prepare recommendations. Participate in delivery of system(s), training, roll-out and implementation modifications. Provide post-implementation support and supervise both technical and functional staff. Participate in client development including proposal generation. Provide knowledge repository, mentoring and technical liaison role. Provide customization of Oracle Manufacturing Modules utilizing BOM, INV, MRP/SCP, ASCP, WIP/OSFM, COST and Configurator Oracle Applications.

The wage offered is $100,000 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Computer Science, Math, Engineering (any), Management Information Systems or Information Systems + 3 years of experience in the job offered or 3 years of experience as a Principal Consultant, Software Engineer Consultant, Technical Staff or related occupation. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials evaluation service. Related experience must include at least 3 years of Oracle Manufacturing and configuration and customization of Oracle Manufacturing Modules using BOM, INV, MRP/SCP, ASCP, WIP/OSFM, COST and Configurator, as well as Oracle Applications.

Please send your resume, referencing Job Order Number WEB443619 to the: PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE

IT PROFESSIONALS

Manager

(Glen Mills, PA and other locations throughout the United States) Responsible for leading definition design, and implementation of technology based solutions. Manage teams of technical and functional resources in systems integration, custom application development and business IT strategy. Responsible for systems analysis, technical architecture and project management. Lead communication of project methodology and development/implementation processes and manage the selection and implementation of various technologies and commercial off the shelf software. Utilize Enterprise Application Integration tools such as TIBCO and WebMethods/ActiveWorks to allow clients to share data among packaged applications, custom developed applications and legacy systems. Design and manage development of interfaces to various systems including databases (Oracle and Informix), CRM Systems (Siebel), ERP Systems (SAP) and application servers/portals (Broadvision). Manage the design and development of custom built applications using programming languages such as Visual Basic and Perl. Assist clients in leveraging their information assets for improved operational efficiency and business performance.

$105,000/year. Mon-Fri 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree in Computer Science, Information Systems, or Engineering (any) plus 4 years of experience in the job offered or 4 years of experience as a Manager, Senior Consultant, Consultant, or Systems Analyst. Related experience must also include at least 2 years of Enterprise Application Integration software (TIBCO or WebMethods/ActiveWorks); Relational Databases (Oracle and Informix); ERP Systems (SAP); CRM Systems (Siebel); and, Programming languages (Visual Basic and Perl).

Please send your resume, referencing Job Order Number WEB443613 to the: PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE

IT PROFESSIONALS

Senior Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.). Responsible for solving business problems for clients through Information Technology investments. Solutions include creating information systems strategy, defining system requirements, designing, prototyping, testing and implementing enterprise applications. Responsible for designing and implementing PeopleSoft Enterprise Performance Management (EPM) and PeopleSoft Financials Systems and its subcomponents, PeopleSoft Activity Based Management (ABM) PeopleSoft Enterprise Warehouse (EW). Cognos PowerPlay, PeopleTools, PeopleSoft nVision and PeopleSoft Projects in order to define, track and report financial and operational performance of organizations. Perform process redesign and process reengineering.

The wage offered is $84,000 per year. The work schedule is Monday-Friday, 8:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree Bachelor's degree in Computer Science, Engineering (any), Math, Business Administration, Information Technology or Management Information Systems + 5 years of experience in the job offered or 9 years of experience as a Senior Consultant, Consultant, Analyst or Supervisor. Related experience must include at least 2 years of experience with the design and implementation of PeopleSoft Financial Suites, PeopleSoft Enterprise Performance Management (EPM), Enterprise Warehouse (EW) and Activity Based Management (ABM), as well as PeopleSoft delivered and supported tools, including Cognos PowerPlay, PeopleTools and PeopleSoft nVision and process redesign.

Please send your resume, referencing Job Order Number WEB443790 to the: PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE

IT PROFESSIONALS

Manager

(Glen Mills, Pennsylvania and other locations throughout the U.S.). Manage information technology (IT) consulting projects involving design, development & implementation of complex IT systems for large public sector organizations. Apply knowledge of IT systems & Public Sector business processes to guide business and technology teams during software development & systems integration activities. Develop project work plans & implement projects within budget, scope & scheduling constraints. Pursue contracting opportunities for large scale IT projects & negotiate contracts within scope & in compliance with the local and federal IT procurement rules. Manage teams during various phases of the Software Development Life Cycle (SDLC), including, analysis, design, testing, user acceptance, and system cut-over. Identify & resolve systems integration issues during implementation of business critical systems, such as, Public Transportation Mgmt. Systems, Financial Mgmt. Systems, Data Warehouse & Business Intelligence systems. Manage business and technology professionals during the implementation of a Transportation Asset/Maintenance Mgmt. IT System (a $22,000,000 client/server COTS System on an Oracle DBMS with Mainframe COBOL based custom software) & Maintenance/Operating Expenditure Tracking IT System (a web based custom developed financial Data Warehouse & a custom client/server financial application on Oracle DBMS).

Salary $105,000 per year. Mon-Fri, 9:00 am to 5:00 pm. The position requires: Bachelor's degree in Computer Science, Math, Information Systems, MIS or Engineering(any). Business Admin.+ 3 years of experience in the job offered or 3 years of experience as Manager, Senior Consultant, Consultant or Business Analyst. Related experience must include at least two years of IT consulting and IT system implementation in large public sector organizations, experience in various areas of the Software Development Life Cycle (SDLC), including, analysis, design, testing, user acceptance, and system cut-over, the management of teams during large-scale ($5,000,000) systems implementation projects, and pursuing contracts for large scale IT projects. Experience must also include the implementation of financial systems, Data Warehouse systems, Commercial-off-the-Shelf (COTS) and custom developed applications, Client/Server and Web based systems, Oracle DBMS systems, and Mainframe systems.

Please send your resume, referencing Job Order Number WEB443628 to the: PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

IT PROFESSIONALS

Consultant

(Glen Mills, PA and other locations throughout the United States). SME (Subject Matter Expert) responsible for scoping, designing, building and deploying messaging solutions utilizing TIBCO Active Enterprise, IBM Websphere Portal Server, IBM MQ platform and Web Services with SOAP over HTTP (XML). Develop, configure and deploy interfaces using TIBCO Integration Manager and IBM Crossworlds Interchange Server to enable real time transaction processing on distributed operating systems. Responsible for scoping, designing, building and deploying integrated enterprise content management and portal solutions utilizing J2EE-based (Java) portal platforms (IBM Websphere Portal Server). Evaluate and assess business requirements in middleware/messaging and application server/portal server software selection. Communicate and present findings of assessments and make recommendations to upper management on technical best practices in design, development and deployment of applications using middleware/messaging and/or application servers.

The wage offered is $74,752/year. The work schedule is Monday-Friday 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree in Engineering, Business Administration, Information Systems or Computer Science plus 2 years experience in the job offered or 2 years experience as a Consultant, Systems Analyst, Subject Matter Expert or Lead Developer. Related experience must also include at least 1 year of TIBCO Active Enterprise, IBM Websphere Portal Server, IBM MQ Platform: SOAP and XML; TIBCO Integration Manager; IBM Crossworlds Interchange Server; and, J2EE (Java) portal platforms.

Please send your resume, referencing Job Order Number WEB 443468 to the: PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE

Senior Consultant

(Glen Mills, PA and other locations throughout the United States). Conduct review and analysis of client business processes and procedures at organizational and operational levels, interviewing management and administrative personnel to determine optimal integration of business process reengineering with new information technologies and modification of operational procedures. Propose strategic solutions and business process improvements including benchmarking and design analysis. Assess projected timetables, project plans, financial and human capital resources and prepare recommendations. Participate in delivery of system(s), roll-out and implementation modifications. Supervise technical consultants and analysts. Technical tools utilized include: SQL Server, Oracle, Visual Basic, COBOL, Unix, Windows NT, MS Office, PowerPoint, and DBMS.

$61,000/year. Mon-Fri 9:00am-5:00pm. The minimum requirements are as follows: Master's degree in Computer Science, Computer Information Systems, Information Systems, Management Information Systems, Information Management, or Business Administration + 1 year experience in the job offered or 1 year experience as an Associate, Financial Services Officer, or related. Prior experience must include conversion of system(s) to automated database involving redesign, analysis, process re-engineering, operations management, and business profitability and risk analysis. Prior experience must also include SQL Server, Oracle, Visual Basic, COBOL, Unix, Windows NT, MS Office, PowerPoint, and DBMS.

Please send your resume, referencing Job Order Number WEB 443732 to the: PA CareerLink, FLC Unit, 235 W Chelten Ave., Philadelphia, PA 19144. EOE

IT PROFESSIONALS

Senior Consultant

(Glen Mills, PA and other locations throughout the United States). Assess, design, and implement business processes for clients in the Financial Services industry with emphasis on developing process models, enabling functionality, and transforming business processes in the banking sector. Design and re-engineer business processes in mortgage origination and servicing and develop and implement activity-based cost accounting models in the mortgage industry, including the creation of process models, definition of cost drivers and cost objects, resource allocation, and creation of cost model reports. Develop custom design requirements for the implementation of Customer Relationship Management (CRM) systems and processes that enable clients to efficiently manage relationships with their customer base. Identify organizational, market, and industry opportunities for strategic cost reduction and performance improvement and conduct cost & profitability analysis of operational processes to implement recommended solutions focusing on clients in the Financial Services industry. Design transactional and functional requirements supporting ERP (Enterprise Resource Planning) system implementations, including SAP FI/CO (Financial Management and Controlling) to meet client objectives for managing the financial aspects of their business. Ensure that the delivery and implementation of client solutions meets requirements and industry standards through the development and use of project work plans, direct supervision of project team members and stakeholders, as necessary. Provide input to project budgeting, staffing, and change leadership requirements, assist in the development of risk mitigation strategies, knowledge transfer, supporting communication and educational materials and develop post-project debriefing/"lessons learned" documentation. The wage offered is $93,503/year.

Mon-Fri 9:00am-5:00pm. The minimum requirements are as follows: Master's degree in Business Administration, Finance or Financial Management plus 3 years of experience in the job offered or 3 years of experience as a Consultant, Senior Consultant or Manager. Related experience must also include at least 6 months of Analyses & design of business processes in the financial services industry; Design & re-engineering of business processes in mortgage origination & servicing and implementation of activity-based cost modeling systems; Design & implementation of CRM solutions and systems; Cost & profitability analysis of operational processes focusing on the Financial Services industry and identification & analysis of opportunities for strategic cost reduction and performance improvement; and, Implementation of ERP (Enterprise Resource Planning) systems including SAP FI/CO.

Please send your resume, referencing Job Order Number WEB443674 to the: PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE

IT PROFESSIONALS

Middleware Product Engineer/Solutions

(Glen Mills, Pennsylvania and other locations throughout the U.S.). Responsible for technical client engagements involving business applications and technology products supported by solutions Network with primary focus on Real Time Enterprise Application Integration (EAI), integrating Middleware applications with other Systems specifically using IBM Websphere, IBM MQSeries, Tibco and WebMethods. Conduct integration of business needs and technology solutions, supporting client projects and sales teams in configuration, customization, and implementation of selected packages and applications for sales demonstrations and client based project implementations.

The wage offered is $ 87,150 per year. The work schedule is Monday-Friday, 8:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Computer Science, Engineering (any type), Management Information Systems, Computer Information Systems, or Math + 2 years of experience in the job offered or 2 years of experience as a Programmer Analyst or Senior Consultant. Prior consulting experience must include Real Time Enterprise Application Integration (EAI), and integrating Middleware applications with other systems specifically using IBM Websphere, IBM MQ-Series, Tibco and Webmethods.

Please send your resume, referencing your Job Order Number WEB443819 to the: PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.



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Software Engineer - Develop, create, modify computer systems/apps software & specialized utility programs. Analyze, design databases within an application area. Analyze user needs, develop software solutions using Siebel CRM & related software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as a computer professional in lieu of Bachelor's degree. Degree must be in CS/CA or Eng. Must have 1 yr exp using Siebel CRM. Extensive travel. Frequent relocation. $66,800/yr. 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to Site Manager, PA CareerLink - Westmoreland County, 300 East Hills Street, Youngwood, PA 15697-1808. Job Order No WEB 442758.

IT ERP Programmer/Engineer II (with Bachelors degree and 4 years experience or Associates degree plus 6 years of experience) - Job entails and requires experience in analysis, design, configuration, testing, maintenance and support commercial solutions using SAP R/3, FI-GL, FI-SGL, CO, ECCS, CCA, PCA, FI-AM, FI-AR, FI-AP, ABAP query and SAPscript Design. Experience must include team leadership. Attractive compensation package. Post resume on www.discovery.com, click on About our Company.



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Software Engineer - Develop, create, modify computer systems/apps software & specialized utility programs. Analyze, design databases within an application area. Analyze user needs, develop software solutions using Graphical User Interface (GUI) & internet apps. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as a computer professional in lieu of Bachelor's degree. Degree must be in CS/CA or Eng. Must have 1 yr exp using A) Windows 00, Windows NT, Windows XP, Oracle 8i Visual C++, C, C++, PowerBuilder, Crystal Reports, Visual Basic. Extensive travel, frequent relocation. $66,800/yr. 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to Site Administrator, Greene County CareerLink, 4 West High Street, Waynesburg, PA 15370-1324. Job Order No WEB 442774.

Software Engineer, Appls. Job location: Tampa, FL. Duties: Design, develop & customize software using Oracle & Microsoft tools. Modify Oracle appls & analyze & design databases w/in fin Appls. using Oracle methodology. Coord database develop & modify gen comp. appl software or specialized utility progs. Implement, configure & customize Oracle Financials & Enterprise Data Warehousing & Business Intelligence modules. Requires: B.S. in Comp. Sci., Eng. or a related field (will accept any comb. of educ. & exp. equiv. to a B.S. degree) & 3 yrs exp. in the job offered or 3 yrs. exp. as a Systems Analyst, Prog/Analyst or Prog. Concurrent exp. must incl 3 yrs. exp. designing & customizing software & 3 yrs exp. using Oracle. Mail resume (no calls) to: Tim Howe, CTG, Inc., 550 North Reo St., Ste 300, Tampa, FL 33609-1037.

IT CAREER OPPORTUNITIES

CALIFORNIA - (Corporate HQ. Employment is throughout US) - Sr. UNIX Administrator.

VIRGINIA - Application Engineer - Develop and test application software.

Positions require a BS and relevant experience, a combination of experience and college level education may be accepted. The flexibility to travel and be on-call may be necessary. Proof of legal authorization to work in the U.S. is required. Please forward your resume to Computer Sciences Corp., Attn: J. Le, 2100 E. Grand Ave., Mail Code A209, El Segundo, CA 90245. Please indicate the specific job title and location for which you are applying.

PROGRAMMER/ANALYST to analyze, design, develop, implement and maintain client/server and web-based application software for the insurance industry using Java, C++, JavaScript, Servlets, JSP, SQL, Oracle and iPlanet Web Server under Windows and UNIX operating systems. Require B.S. degree in Computer/Info. Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered. A M.S. with a demonstrated ability to perform the stated duties gained through academic coursework/previous work exp will be accepted in lieu of the B.S. and 2 yrs of exp. Competitive salary offered. Send resume to: Infinity Insurance Company, P.O. Box 444, Birmingham, AL 35299. Fax at: 205-803-8406; or E-mail at: Jobs@infinity-insurance.com; Attn: Job OX.

ENGINEERING
UNIX Admin, Framingham, MA. Resp. for day-to-day operation component of the INSITE UNIX environ. Ensure daily backups are successful scripting, SUN hrdwr support, sys admin., basic ntwrk admin., NMS applic. admin., Solaris admin - file systems & Linux admin., Address INSITE tech issues w/ INSITE Sr. Tech Engr & Ops. Mgr. Keep up to date w/ Sr. Tech Engr in terms of prod. dvlpmt, new services, technical issues, etc. Participate & contribute to INSITE Services Forum. Req's: Bach.'s (or equiv. combo. of educ. & employmt exp.) in CS/Comp. Tech./Engr., plus 2 yrs exp in job off'd or as Engineer Exp., which may be concurrent, must incld. 2 yrs exp working w/ UNIX on a daily basis. Mail resume to D.Schofield, DDNA, 135 Newbury St., Framingham, MA 01701.

Software Engineer - Develop, create, modify computer systems/apps software & specialized utility programs. Analyze, design databases within an application area. Analyze user needs, develop software solutions using Enterprise Resource Planning/ related software's. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad. study & 3 yrs exp as computer professional in lieu of Bachelor's degree. Degree must be in CS/CA, Eng., Chem., Math, Physics, or scientific/business field. Must have 1 yr exp using SAP BAAN, PeopleSoft, Oracle Apps/Finances/Manuf/ctrg/HR. Extensive travel, frequent relocation. $66,800/year, 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to Mon Valley Regional CareerLink, ATTN: Actg CL Program Supervisor, Donora Industrial Park, 570 Castille Drive, Donora, PA 15033. Job Order No. WEB 442799.

PROGRAMMER/ANALYST to analyze, design, develop, implement and maintain client/server and web-based application software for the insurance industry using Java, C++, JavaScript, XML, UML, J2EE, EJB, Servlets, JSP, SQL, Oracle and iPlanet Web Server under Windows 98/2000/NT/XP, UNIX and SUN Solaris operating systems. Require: B.S. degree in Computer/Info. Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered. A M.S. with a demonstrated ability to perform the stated duties gained through academic coursework/previous work exp will be accepted in lieu of the B.S. and 2 yrs of exp. Competitive salary offered. Send resume to: Infinity Insurance Company, P.O. Box 444, Birmingham, AL 35299. Fax at: 205-803-8406; or E-mail at: Jobs@jpsic.com; Attn: Job OX.

CG Roxane, LLC, a leading French water bottling company, is in search of a Systems Analyst for its Olancha, CA office. Position requires an Associate's or foreign equivalent in Comp. Sci., MIS, CIS, IT or related field of study & 2 years of experience in systems analysis or computer programming. Experience must involve work with EDI, AS2, Gentran, and AS400. Also requires fluency in French in order to conduct business with French parent company counterparts. Send resumes and cover letters to Sharon Dohrn, HR Manager-CA, 1630 Kellogg Drive, Weed, CA 96094. EOE.

Senior Software Engineer to design, modify and develop full-life cycle carrier-class and enterprise-class Voice Over IP software/solutions using H.323 Gatekeeper/Gateway which are implemented using H225 RAS, H225 (Q931) and H245 protocol suite. Ensures integration of software for SIP User Agents with SIP Registrars, SIP Proxy Server and Redirect Servers. Develop IP Call Signaling applications and protocol signal conversion to allow calls from H.323 domain to interoperate with SIP domain. Debug VoIP software application modules using tools such as SIP/H.323 protocol analyzers/monitors. Performs software requirement analyses for VoIP applications and innovate customized VoIP solutions. Test IP-Telephony software to ensure compliance with IETF protocol standards and compatibility with third party vendors. Requires Bachelor's Degree in Software Engineering, Electrical Engineering, or Electrical and Electronics Engineering and three years direct experience. Send resumes only, no calls, to: 1603 Orrington Ave. Ste 1190, Evanston, IL 60201. Fax: 847-864-4423.

Senior Systems Engineer
Gesac Enterprise Solutions, Inc., a leader in software solutions, seeks qualified candidates for the position of Senior Systems Engineer to develop and test technical migration strategies, modify company software products for utilization in Web-based architectures, train technical support staff in new migration strategies, and contribute to the pre-release testing and configuration of company products installed at client sites. Requires: Bachelor's degree or equivalent experience in Computer Science, M.I.S. or Electrical Engineering, and experience with SQL Server 8.5, and POS systems support and engineering. Also requires expertise with install packages including InstallShield and InstallScript, and software development in VB and InstallScript. Position located in Nashua, NH. Submit resume to: jobs.nw@gsec.com. EOE.

ORACLE DBA/DEVELOPER
Utilizing commodities market knowledge, responsible for overall design, development and support of the company's data-base system using ORACLE 8i/9i and Java Application Servers (BEA, JBoss, and Tomcat). Develop application code using Advanced PL/SQL. Responsible for production support for existing database systems including backup, setup and maintenance. Require Bachelor's degree in Computer Science, Information Systems, or closely related field, with 4 years of experience in the job offered or as a Database Architect. Prior experience must include 2 years in ORACLE, PL/SQL and Java. Must have ORACLE 8i or 9i certification. 8 am to 5 pm M-F. Send resume to HR, Intercontinental Exchange, Inc., 2100 RiverEdge Parkway, Atlanta GA 30328 - (No Phone Calls Please)

COMPUTERS--Ea Inc., a leading IT consulting firm with exciting job opportunities, is looking for IT professionals to add to its fast growing team. We have openings for Software Engineers, Programmer Analysts, Systems Analyst and in particular, SAP professionals. Qualified candidates will have a bachelor's degree in computer science, science or engineering and/or relevant industry experience. Positions may req relocation to client sites throughout US. Send resumes to HR Manager, ea inc., 1130 Iron Point Rd. Ste. 280, Folsom CA 95630.

Systems Integration Specialist - Plans, coordinates, and implements software application development and integration activities in a team environment. Deploy third-party software products. Works closely with customer representatives to establish customer requirements. Translates high-level requirements into system design and creative solutions. Performs system design, development, and installation of complex multi-system applications in a geographically diverse environment. Performs system customization, testing and error correction. Develops conversion plans and procedures, and documents all phases of system development. Will utilize lead requirements during the course of duties. Requires Bachelors Degree in Computer Engineering plus four years of experience in job offered or four years of experience in Application Software Development. Experience must include LDAP in schema modeling, design and programming, JNDI, MS access and / SQL Server, Visual Basic, Visual C++, MFC, Java Servlets, Crystal Reports and ActiveX. Web programming using multiple languages, object oriented analysis/design and in software development life cycle for enterprise application implementations. Experience with Peregrine AssetCenter and Web-Server component skills. Salary: $80,482/year, 40 Hours/ week, M-F, 8:00am to 5:00pm. Job Location: Mechanicsburg, PA. Job Order #: WEB 442662. Send resumes with reference to job order # to Attn: M. Bixler, Cumberland County CareerLink, 1 Alexandra Court, Carlisle, PA 17013.

Software Engineer - Develop, create, modify computer systems/apps software & specialized utility programs. Analyze, design databases within an application area, analyze user needs, develop software solutions using Relational Database Management Systems/related software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as computer professional in lieu of Bachelor's degree. Degree must be in CS/CA, Eng., Chem., Math, Physics or scientific/business field. Must have 1 yr exp using Informix, Oracle, FoxPro, Sybase, SQL Server or Progress. Extensive travel, frequent relocation. $66,800/yr. 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to Armstrong County CareerLink, ATTN: CL Program Supervisor, 1270 North Water St., PO Box 789, Kittanning, PA 16201-0758. Job Order No WEB 442794.

Software Engineer- Develop, create, modify computer systems/apps software & specialized utility programs. Analyze, design databases within an application area. Analyze user needs, develop software solutions using SAP, CRM & related software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as a computer professional in lieu of Bachelor's degree. Degree must be in CS/CA or Eng. Must have 1 yr exp using SAP, CRM. Extensive travel, frequent relocation. $66,800/yr. 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to Fayette County CareerLink, ATTN: CareerLink Program Supervisor, 135 Wayten Smith Drive, Uniontown, PA 15401. Job Order No WEB 442764.

Programmer. Convert project specifications and statements of problems and procedures to detailed logical flow charts for coding into computer language. Develop and write computer programs to store, locate, and retrieve specific documents, data, and information. May program web sites. Analyze, review and rewrite programs. Develop programs from workflow charts or diagrams, considering computer storage capacity, speed, and intended use of output data. Prepares or receives detailed workflow chart and diagram to illustrate sequence of steps to describe input, output, and logical operation. Compiles and writes documentation of program development and subsequent revisions. Assigns, coordinates, and reviews work and activities of Jr. Programming personnel. Trains subordinates on programming and program coding. Uses a variety of software tools including but not limited to: Cobol, CORBA, Fortran, Visual Basic, Oracle, PeopleSoft, Crystal Reports, J2EE, C++, Servlets, XML, SQL & Weblogic. BS degree or foreign edu equiv and 1 yr exp req. Will accept any suitable combination of edu, training or exp in lieu of the stated edu. Travel and/or relocation required.

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U.S. Banks

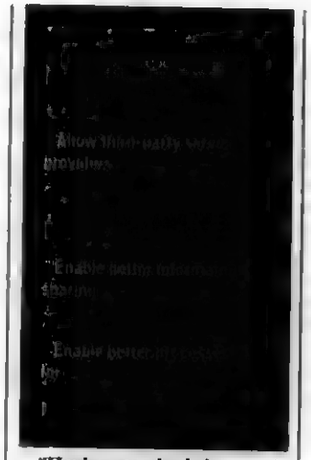
help service providers, but will also allow banks to more efficiently retrieve data for regulators — something that today is an arduous and expensive process, said Richard DeLotto, an analyst at Gartner Inc.

The question is, "How would you pull that off in the U.S.?" said Steven Schutze, director of e-strategies at the American Bankers Association in Washington.

The Canadian initiative will give banks and third parties, such as market research companies and check-processing firms, a standard way of labeling and protecting public, internal, regulated and highly sensitive data, Garigue said.

Unlike in Canada, where the country's five major banks are regulated only by the federal government, dozens of major U.S. banks fall under the regulatory purview of state and federal agencies, making it far more difficult to develop standards, DeLotto said.

An executive-level source within a large U.S. financial services consortium, who spoke on condition of anonymity, said the topic of a common data-classification scheme has been widely discussed within the banking industry over the past year. But he said banks are unwilling to speak openly about it for fear that regulators will take over the initiative and force it on the industry.



"Having standards in security practices between our industry and service providers is something that's viewed pretty universally as an area that needs to advance," the source acknowledged.

"It doesn't seem to me that the financial sector here would embrace a single standard unless it was something mandated by the government," said Adam Stone, a security management analyst who asked that his company not be named.

Bob Foster, staff director for the House Financial Services Committee, said it's likely that the issue of data classification for banks will be debated once Congress is back in session next month. "It's safe to say if we're talking about consolidating oversight, then we'll be talking about the mechanisms to do that," Foster said.

"The compliance obligations that banks will have as it relates to managing and measuring operational risk under Basel II" international financial regulations make it a good idea to have a data classification standard, Stone said.

According to Garigue, an agreed-upon industrywide data-classification scheme will enable better interoperability, integrated services and use of data. For example, common business-to-business applications across several banks can be standardized with respect to password management and role-based access to client information, he said.

"We know a lot of banks also have a lot of problems getting their [CRM] programs together because of bad data hygiene," DeLotto said, which makes data classification standards a necessity. **48810**

Continued from page 1

Linux POS

registers is The Pep Boys. The Philadelphia-based automotive retail and service chain in June disclosed plans to partner with IBM and Austin-based 360Commerce Inc. on Linux-based POS systems at its 595 stores.

Michael Jones, CIO at Richmond, Va.-based Circuit City, said his company's decision to migrate to IBM hardware and 360Commerce POS software running on Linux was based on total cost of ownership and a desire to move to a less-customized POS system from a single vendor.

Jones said IBM recommended Novell Inc.'s SUSE Linux for its POS hardware, which can also run Windows and IBM's 4690 operating system. He said IBM will handle any dealings with Novell, as well as the collaboration with 360Commerce and Yantra Corp., which is providing the integration engine. IBM Business Consulting Services will help Circuit City plan the migration.

Since 1999, Circuit City had been transitioning from the homegrown proprietary POS systems it had built in the mid-1980s to Hewlett-Packard Co. hardware running Microsoft Corp.'s Windows XP Embedded and a heavily customized version of 360Commerce's POS software.

But five years into the project, the retailer had migrated to the Windows-based HP hardware at only 100 stores, or roughly 2,000 of its 12,000 registers. Circuit City IT executives said the impetus to switch to IBM hardware had nothing to do with dissatisfaction with HP or Microsoft, both of which the company continues to work with on other projects.

"The previous solution would work and did work, but in five years, a lot of advancements had occurred, and we didn't need the customized POS environment," said Bill McCorey, vice president of business applications at Circuit City. "Five years ago, Linux was a test environment. Now, it's truly production-ready."

"It's a TCO evaluation," said Jones. He estimated that support and postdeployment costs will be cut by at least 30% with the new system. "Our TCO has been significantly reduced, and we owe the organization and the shareholders that," he said.

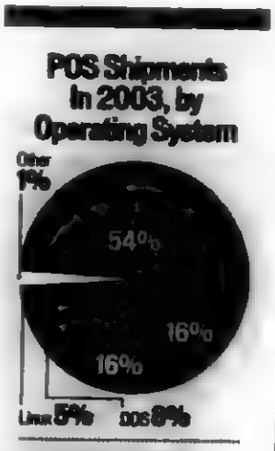
Maintaining Focus

Jones said Circuit City wants to move to a more "vanilla" version of the latest edition of 360Commerce's POS software so it can focus on its retail business rather than on software development. Instead of customizing the 360Commerce software, Circuit City plans to sit on the vendor's retail standards advisory committee to try to influence the future direction of the commercial product.

Seeking to reduce annual support costs, Circuit City is exploring the possibility of running the 360Commerce software on central servers and distributing it through gateway servers located closer to or at the stores. The cash registers will access the POS application from the server — a significant change over the existing, thicker client footprint.

Circuit City isn't worried about the servers or network going down, since the cash registers will be able to run and store information locally in the event of a problem. The retailer also plans to eventually have wireless handheld devices, but it hasn't decided on the technologies.

With planning assistance from IBM Business Consulting Services, Circuit City hopes to complete its migration to the Linux-based IBM POS hardware within 18 months.



Interestingly, another major retailer, Sears, Roebuck and Co., recently opted for the IBM SurePOS/360Commerce combination, but it's in the process of finalizing a deal with Microsoft for the operating system. CIO Gary Kelly said IBM gave SUSE Linux "a good, strong push," but his company chose Windows XP Embedded for security, stability and its overall capability.

Although Windows takes hits on the security front, Kelly said Microsoft has been improving its response to vulnerabilities. He added that he thinks Linux will ultimately become a target too. Kelly also cited the prospect of legal disputes as another factor against Linux.

Jones said a half-day meeting with an IBM attorney convinced him that intellectual property will not be an issue. And where security is concerned, Circuit City thinks it's on safer footing with Linux.

"To date, you don't have quite the security risks and concerns," said McCorey. "The Microsoft environment is the largest target for hackers." **48812**

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Lite a Fire

IT'S OFFICIAL: You're now paying much more for Microsoft Windows than some of your potential competitors. Last week, Microsoft confirmed that starting in October, it will offer Windows XP Starter Edition, a cheaper, scaled-down XP, to PC customers in Malaysia, Indonesia and Thailand, with two other not-yet-named countries soon to join that list [QuickLink 48757].

How much cheaper? Microsoft won't say yet, but published reports quote retail prices of $40 for a still-very-functional version of Windows XP. The version you're using retails at $499.

Are you getting hosed? Maybe so. But it *is* the right thing for Microsoft to do. And you should be glad it's happening.

According to Microsoft, this "XP Lite" is both more affordable and easier to use and support than regular XP. It won't handle multiple user logons, PC-to-PC home networking, printer sharing or having unlimited windows open at once. It *will* support Web browsing and security.

Sound like something you could use? You can't have it. Why? Because you're willing to pay for full-blown XP, that's why.

Look — Microsoft has said for years that it wouldn't offer a Windows Lite. It's doing so now only because people in some markets simply aren't buying Windows XP. With the threat that Linux could start displacing Windows in those markets, Microsoft had to do something radical.

Will it work? It may, though there's no guarantee. Remember, XP Lite isn't something Microsoft's customers demanded. Microsoft's customers were already buying XP. XP Lite was created because of people who *weren't* Microsoft's customers. By refusing to buy, they forced Microsoft's hand.

And Microsoft wisely did what the market required — even though those could-be customers *still* may not go for XP Lite. It's a gamble that might not pay off. But for Microsoft, it's worth a shot.

What does that mean for the rest of us, half a world away? Well, if you [illegible] against companies in Malaysia, Indonesia or Thailand, it [illegible] those competitors just got an [illegible] over you: a cheaper, simpler version of Windows XP. It may [illegible] advantage, but in a global [illegible] every little bit matters. That's the downside.

The upside is that Microsoft is [illegible] what was once unthinkable: trimming down a product to what users need. After two decades of bloating Windows and insisting that one size fits everyone, Microsoft is finally acknowledging that not all users require all that expensive complexity.

And that's cause for optimism, even if it's based on something that exists only on the other side of the globe. After all, if Microsoft debloated its software for them, why not for us?

You already know the answer to that question. XP Lite happened only because Microsoft was forced into it by people who wouldn't buy the existing product.

And as long as you're still willing to buy what Microsoft is selling, that's what you'll get.

So if you want products like XP Lite — tighter, less expensive, and easier to train for, use and manage — you'll have to demand them. And you'll have to back up that demand by refusing to buy software that isn't what you want.

That may mean putting off that next round of upgrades. Or using open-source software. Or getting products from vendors so desperate for sales that they'll deliver what customers need. Or building smaller, more targeted applications yourself. It won't be easy, and it could get ugly.

But we've been lamenting bloatware for years. Now, finally, we're seeing the first moves toward cleaner, more affordable Microsoft software. It may not offer much hope, but it's worth a shot.

After all, people in Malaysia, Indonesia and Thailand got Microsoft to listen to what they need. Who knows? If we work hard enough at it, maybe Microsoft will listen to us, too. 48783



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

Unclear on the Concept

This user wants the latest upgrade he's read about, and he wants it *now*! Help desk pilot fish explains that it's a maintenance-only release, that it won't improve his performance, that the upgrade is already on the schedule – but the user howls that he's got to have it or he'll have fish's head. The help desk prioritizes problems from 1 – most urgent – to 4, so fish asks, "What priority do you want for this? The scale runs from a 1 all the way up to a 4." Gimme a 4! user demands. Says fish, "That's what he got."

Help!

Help desk supervisor is joking with a newly hired IT pilot fish about how so many users are lacking in basic knowledge about the software they use. "So many questions about Microsoft's operating systems and applications can be solved with a press of the F1 key," fish comments – to which the supervisor replies, "What does the F1 key do?"

Emergency, Redefined

This server installation is an emergency, pilot fish is told, so he flies 1,000 miles overnight to get it set up Monday morning. "I found the server and associated software with no problem, then asked where the server was to be located and where the Token Ring hubs would go," fish reports. "My contact pointed to a blank wall and said, 'They'll be installed there in about two months – when the union electricians put the office on their schedule.' "

In a Word, Yes

Systems analyst asks support pilot fish to make a configuration change on her PC but tells fish she's about to leave for lunch. "I explain that I will remotely control her PC to make the change," fish says. Her response? "She asks if I will still be able to see the screen if she turns off the monitor."

Time for a More Formal Password Policy, Maybe?

User to support pilot fish: "What did your T-shirt say yesterday?" Pilot fish: "Why?" User: "Because that was my password, and I've forgotten it."

Probably Not

Business student asks IT instructor why fiber-optic networking cable isn't used everywhere. "Is it because glass is so breakable?" he asks. No, fiber is quite flexible, fish says. Would you like to see a sample? "That's OK," student says confidently. "I have a fiber-optic Christmas tree." When fish brings in a sample of fiber cable, student is puzzled. "That's not what my Christmas tree looks like," he tells fish. "I must have a coaxial Christmas tree."

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FRANK HAYES ■ FRANKLY SPEAKING

Lite a Fire

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Sound like something you could use? You can't have it. Why? Because you're willing to pay for full-blown XP, that's why.

Look — Microsoft has said for years that it wouldn't offer a Windows Lite. It's doing so now only because people in some markets simply aren't buying Windows XP. With the threat that Linux could start displacing Windows in those markets, Microsoft had to do something radical.

Will it work? It may, though there's no guarantee. Remember, XP Lite isn't something Microsoft's customers demanded. Microsoft's customers were already buying XP. XP Lite was created because of people who *weren't* Microsoft's customers. By refusing to buy, they forced Microsoft's hand.

And Microsoft wisely did what the market required — even though those could-be customers *still* may not go for XP Lite. It's a gamble that might not pay off. But for Microsoft, it's worth a shot.



What does that mean for the rest of us, half a world away? Well, if you compete against companies in Malaysia, Indonesia or Thailand, it means those competitors just got an advantage over you: a cheaper, simpler version of Windows XP. It may be a small advantage, but in a globalized economy, every little bit matters. That's the downside.

The upside is that Microsoft is now doing what was once unthinkable: trimming down a product to what users need. After two decades of bloating Windows and insisting that one size fits everyone, Microsoft is finally acknowledging that not all users require all that expensive complexity.

And that's cause for optimism, even if it's based on something that exists only on the other side of the globe. After all, if Microsoft debloated its software for them, why not for us?

You already know the answer to that question. XP Lite happened only because Microsoft was forced into it by people who wouldn't buy the existing product.

And as long as you're still willing to buy what Microsoft is selling, that's what you'll get.

So if you want products like XP Lite — tighter, less expensive, and easier to train for, use and manage — you'll have to demand them. And you'll have to back up that demand by refusing to buy software that isn't what you want.

That may mean putting off that next round of upgrades. Or using open-source software. Or getting products from vendors so desperate for sales that they'll deliver what customers need. Or building smaller, more targeted applications yourself. It won't be easy, and it could get ugly.

But we've been lamenting bloatware for years. Now, finally, we're seeing the first moves toward cleaner, more affordable Microsoft software. It may not offer much hope, but it's worth a shot.

After all, people in Malaysia, Indonesia and Thailand got Microsoft to listen to what they need. Who knows? If we work hard enough at it, maybe Microsoft will listen to us, too. ● 48783





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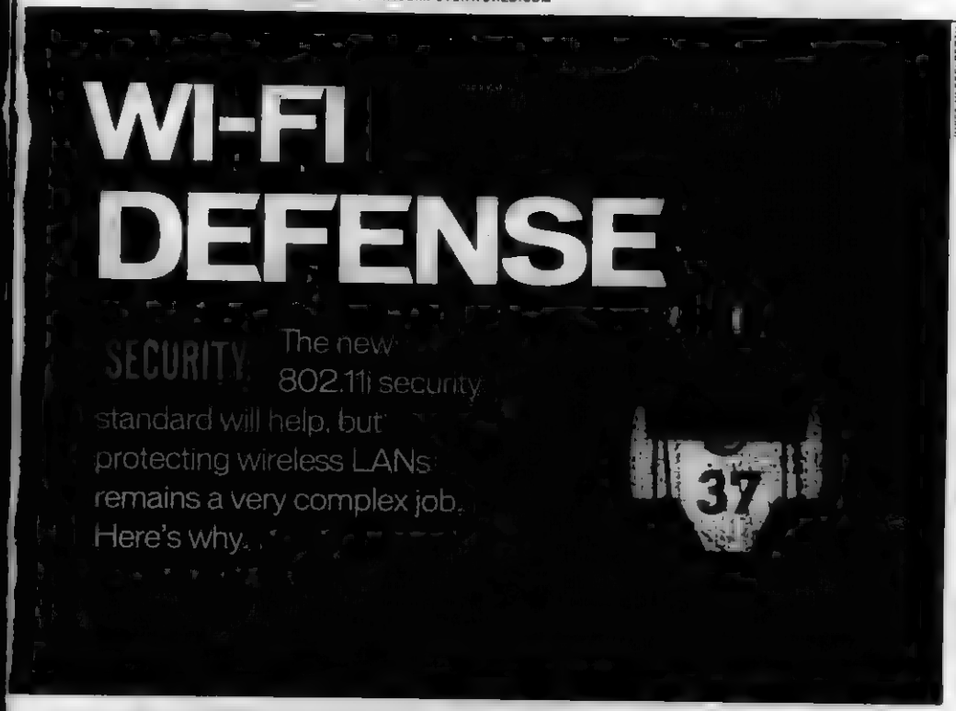
2004

IT challenges could trump the benefits of consolidating U.S. intelligence agencies.
A lawsuit filed by former client BSkyB could give EDS another black eye.

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JOYCE HESSELBERTH

HP Rushes to Fix Order System, Reassure Users

Vendor says 'worst is behind us' on shipment snafus caused by rollout of supply chain apps

BY PATRICK THIBODEAU
CHICAGO

Hewlett-Packard Co. engaged in damage control at HP World last week, telling users it's working in "war room" fashion to fix the order-processing problems that have affected its shipments of servers and storage devices. HP also said its weak third-quarter results aren't a harbinger of any changes in its technology road map.

ONLINE
Sun postpones its SunNetwork conference

Joe Nadler, a director in HP's enterprise systems unit, told customers at one conference forum that the company expects its server and storage supply chain "to be just about fully recovered by the end of August."

"There's aggressive plans in place to make sure we catch up on late customer orders, and unfortunately, we did have some significant delays," Nadler said. But he added that the problems have been identified. "We're now completing the fixes," he said.

Among the users on the receiving end of the order-processing problems was Patrick Slattery, a systems manager at IDX Systems Corp. in South Burlington, Vt. Slattery ordered two Intel-based ProLiant servers from HP last month. But IDX, which develops software for health care providers, is still awaiting the delivery of the systems.

HP World, page 41

J.D. Edwards Users Still Aren't Sold on PeopleSoft's Takeover

Customer base cites 'mixed bag' one year into new ownership

BY MARC L. SONGINI

Twelve months after it paid $1.8 billion to buy business applications rival J.D. Edwards & Co., PeopleSoft Inc. has yet to get a big sales boost from the deal or anything close to the kind of acclaim it had hoped to receive from the users it inherited.

Based on interviews with 15 J.D. Edwards users and an informal poll of 48 IT managers that was conducted last week, PeopleSoft is far from winning over its new customer base.

Five of the users who were interviewed said unequivocally that life with PeopleSoft is better than it was under J.D. Edwards. But several said it's worse in at least some aspects, and the others indicated that they're still on the fence about the acquisition.

The poll of *Computerworld* subscribers reflected even sharper attitudes toward the buyout, which PeopleSoft completed last Aug. 29 by purchasing the remaining J.D. Edwards shares that it didn't already own. Twenty-one of the J.D. Edwards users who responded said PeopleSoft's takeover has had a negative effect on them, while six said the deal has been positive. In addition, 29 of the respondents said they would have preferred that J.D. Edwards remain independent. Ten voiced support for the company being acquired.

"It's a mixed bag," said J.D. Edwards user Fredrick Pond, referring to PeopleSoft's ownership. "They are our key ven-

PeopleSoft, page 13

PeopleSoft's Viewpoint
PeopleSoft's Ram Gupta says J.D. Edwards customers will get more support

Utility to Make IT Framework Open-Source

Hopes other users will improve its work

BY CAROL SLIWA

Duke Power Co. plans to go from consumer of open-source software to contributor on Sept. 1 by making an internally developed application framework available to other companies through the SourceForge.net Web site.

The Charlotte, N.C.-based power company spent about 1,000 hours over the course of a year building its framework, which supports development of applications built around Microsoft Corp.'s .Net technology. By turning the framework over to the open-source community, Duke hopes that other corporate developers will improve on its work.

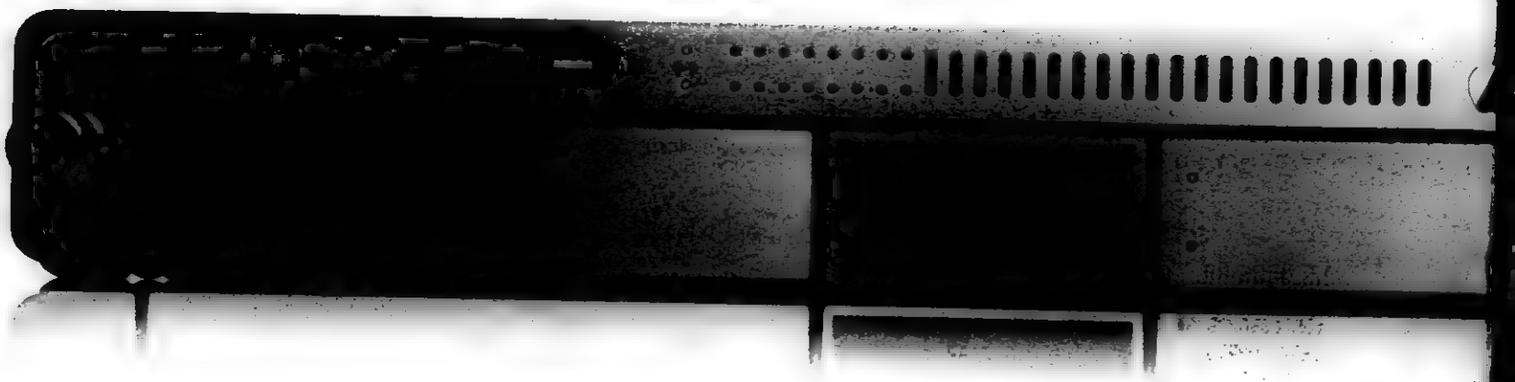
"This is somewhat of an experiment to see how much

Duke, page 9

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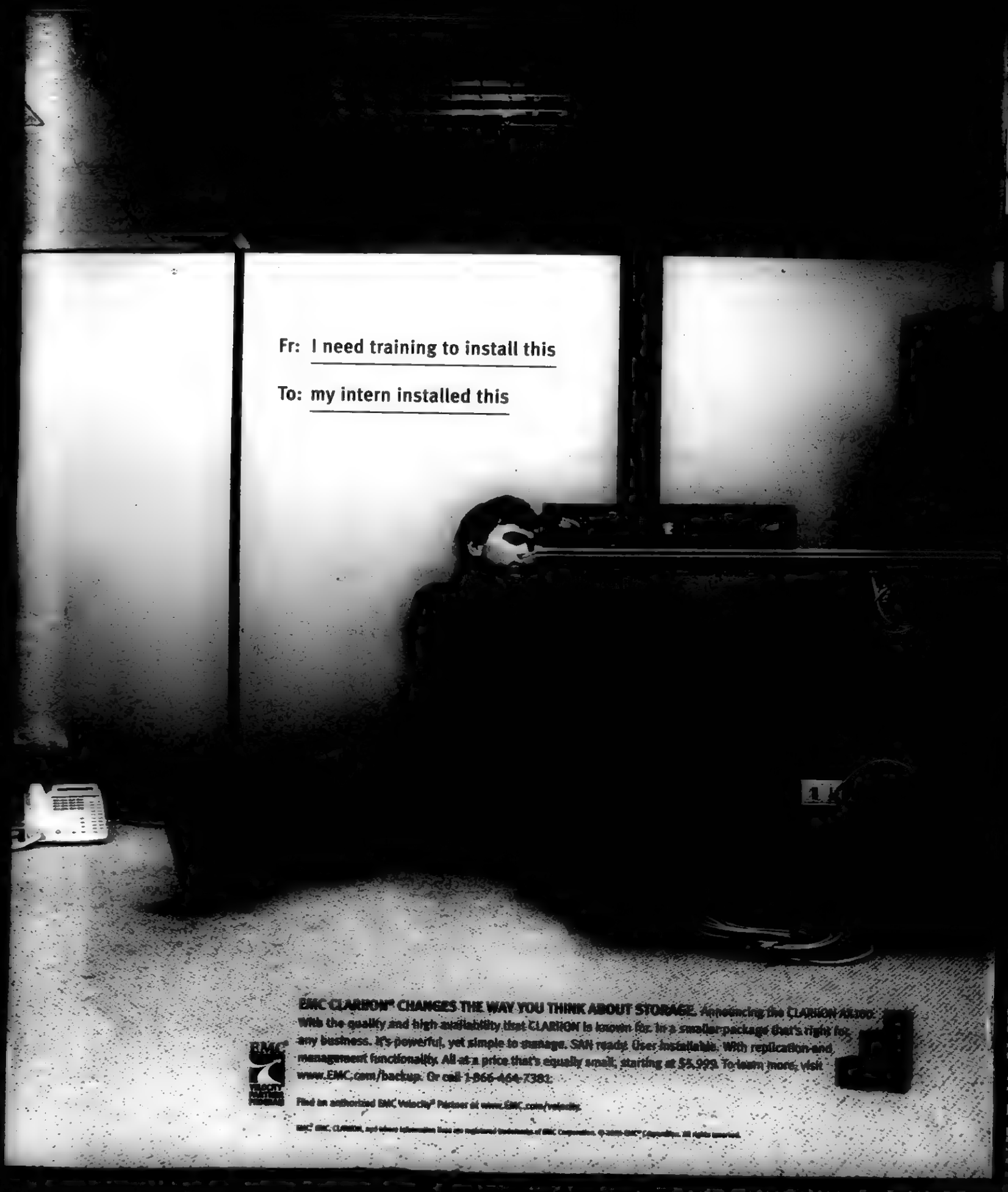
With dual 2GHz 64-bit G5 processors, it achieves blazing speeds of up to 30 gigaflops. It's so powerful, in fact, that the U.S. government is deploying* 1,566 Xserve G5 servers to create one of the world's fastest supercomputers, capable of up to 25 trillion calculations per second.

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Of course, its most impressive feature may be its price, starting at just $2,999†. The new Xserve G5.



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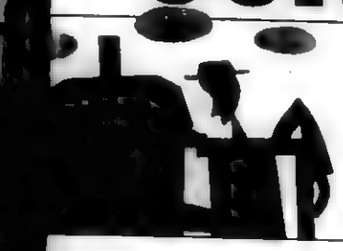
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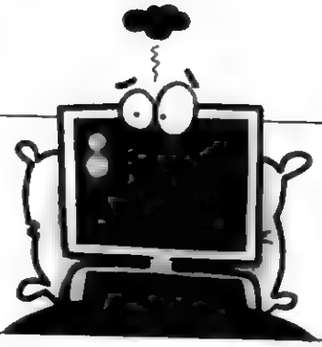
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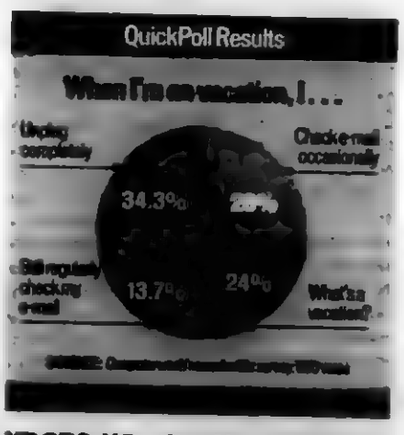
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XP SP2: What You Need to Know
SOFTWARE: Windows XP Service Pack 2 could have some unexpected effects on your company's applications, mobile workers and more. Two Avanade consultants offer advice on how to prepare. QuickLink 40854

Seven Habits of Highly Effective ID Management
SECURITY: These identity management must-haves can help you choose the best system for your company, says Computer Associates' Bilhar Mann. QuickLink 40102

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AT DEADLINE

Nortel Plans Job Cuts, SAP Rollout

Nortel Networks Ltd. reported estimated financial results for the first half of this year and said it will lay off 10% of its workforce, or about 3,500 employees. To further cut costs, Nortel plans to install SAP AG's business applications throughout its operations and eliminate some of the 100-plus systems it now uses. The company also said CIO Albert Hitchcock now reports directly to President and CEO Bill Owens.

Brampton, Ontario-based Nortel, which is restating its earnings back to 2001, said it expects to file full financial reports for the first two quarters of 2004 and revised figures for all of last year by the end of September. The networking equipment vendor also disclosed that it has fired seven finance executives and that the Royal Canadian Mounted Police is launching a criminal investigation into its accounting practices.

Oracle to Adopt Monthly Patching

Oracle Corp. said it's moving to a monthly release cycle for software patches, similar to the approach that Microsoft Corp. adopted last fall. In a statement announcing the plan, Oracle said that switching to a more predictable patching schedule "is the right thing for our customers." The company didn't say when it expects to begin the monthly patch releases.

Short Takes

SAP today will announce that the U.S. Postal Service plans to install its human resources software to support the agency's 700,000 workers. The SAP applications will replace homegrown systems that are 25 years old. . . . ORACLE said it expects within the next three months to roll out a delayed set of business applications tailored for midsize users in the U.S. The software was initially due to ship last year.

IT Hurdles Complicate Intelligence Overhaul

Technology blueprint, better integration needed to support melding of agencies

BY DAN VERTON

APPROXIMATELY one year after the formation of the Department of Homeland Security — which was the largest reorganization of the federal government in 50 years — the U.S. intelligence community is facing a similar overhaul that some fear could threaten the meager progress made so far on information sharing and IT integration.

The recently released *9/11 Commission Report* outlines a stinging indictment of the government's information-sharing efforts and calls for the appointment of a national intelligence director with full budgetary authority over the country's 15 intelligence agencies and departments. A series of congressional hearings last week focused on the long-term impact that major organizational changes might have.

In conjunction with the possible creation of a Cabinet-level intelligence director's post, the Bush administration is preparing to establish a National Counter Terrorism Center, which could incorporate the CIA's Terrorist Threat Integration Center and other personnel from that agency. But questions about lines of authority, IT systems integration and a host of other issues have TTIC Director John Brennan concerned.

Any information-sharing system must be "based on a clear understanding of who is responsible for what," Brennan told members of the House Select Committee on Homeland Security. There also has to be an overall blueprint for IT investments, including strategic prioritization, interoperable hardware and software, and role-based data access, Brennan said.

Even without the confusion that might arise from organizational changes, homeland security and intelligence agencies are struggling to overcome IT problems, Brennan added. The issues he cited include "a plethora of legacy information systems and networks . . . [that] impede interoperability."



DAN VERTON says the DHS will finish the rollout of a homeland security information network this year.

Brennan noted that TTIC analysts use 22 federal networks that are divided into "sanctums," which let them access data only on a need-to-know basis. Smashing organizational stovepipes is important, but "it's not sufficient to share hard-copy information," he said.

Some members of Congress also fear that the proposed changes might complicate the DHS's ongoing effort to connect state and local officials to the new Homeland Security Information Network.

Two weeks ago, the DHS hosted a gathering of more than 300 state and local officials in Washington to train them to handle classified federal information that will be made available on the network, said Patrick Hughes, assistant secretary for information analysis at the DHS. The network is currently being deployed and should be fully in place by year's end, he added.

Even so, "I don't think we have licked the problem of complete coordination between the federal government and with the state and local government and private-sector customers for finished intelligence," said committee chairman Rep. Christopher Cox (R-Calif.).

At the FBI, there is still a basic need for secure communications, said Maureen Baginski, the agency's executive assistant director for intelligence. "Our biggest need is secure communications to our field offices and for secure [communications facilities]," she said. "In order to join this large intelligence community and be a healthy node on this network, we have to be able to operate in the environment." **48983**

Two Reports Criticize DHS For Lack of Progress on IT

As the debate about adding a national intelligence director proceeds, two government reports are shedding new light on an existing dilemma: If DHS CIO Steven Cooper can't wrestle that agency's sprawling bureaucracy into submission, can any IT manager be expected to help fix the nation's problems with sharing of information about terrorism?

In July, the DHS inspector general issued a report concluding that Cooper didn't have the political clout needed to develop an enterprise architecture integrating the IT systems of the 22 agencies within the DHS.

Cooper "is not a member of the senior management team with authority to strategically manage departmentwide technology assets and programs," the inspector general's report said. It added that there is no formal reporting relationship between Cooper and the CIOs of major DHS divisions.

In another report that was submitted to Congress on Aug. 6 and made public last week, the Government Accountability Office (GAO) found that the DHS "does not yet have the necessary architectural blueprint to effectively guide and constrain its ongoing business transformation efforts and the hundreds of millions of dollars that it is investing in supporting information technology assets."

According to the GAO, the DHS's IT blueprint "is missing most of the content necessary to be considered a well-defined architecture." The GAO described it as "the result of an amalgamation of the existing architectures that several of DHS's predecessor agencies already had."

In a written response to the inspector general's report, DHS deputy secretary Adm. James Loy disagreed with the recommendation that Cooper should be part of the senior executive team reporting directly to him. The CIO is "already an integral member at each level of the IT investment review process," Loy wrote.

The DHS acknowledged the problems with its enterprise architecture in a response to the GAO's report. But the agency added that the GAO had measured its progress against "unrealistic" expectations of how comprehensive the first version of the architecture would be.

Sateesh Lele, a former CIO at Avon Products Inc. and General Motors Corp.'s European operations, said the federal government desperately needs a cultural change. Lele, who is chairman of San Jose-based IT services firm Global Data Systems USA, noted that he has seen the same problems in the private sector.

"I have seen innumerable examples of this organizational malaise in extremely large organizations, and I have also seen some tough actions from the top which have fixed the problem," he said. "This is not an IT problem. It is a cultural problem."

– Dan Verton

In Storm's Wake, Fla. IT Managers See Need For Telecom Upgrades

Communications problems complicate recovery efforts after Hurricane Charley

BY LUCAS MEARIAN

As Hurricane Charley blew through Port Charlotte, Fla., on Aug. 13, Kathleen Russell stood in a dark closet 15 miles away with a flashlight in one hand and a cell phone in the other. She was trying to find out if the databases at the insurance agency where she works could be restored in time to handle claims from its 15,000 customers.

Russell's company, Key Agency Inc. in Englewood, Fla., had contracted with a disaster recovery services firm to replicate its customer data to a backup facility in Massachusetts. Workers there were able to restore the agency's data within 10 hours. "That to me just boggles the mind," said Russell, Key's office manager.

IT managers in the areas hit by Charley said last week that although the storm took an unexpected path through the center of the state, they weren't wholly unprepared because of lessons learned from Hurricane Andrew 12 years earlier. For example, they said, Andrew taught them to geographically disperse their data center operations.

But Charley taught some new lessons, such as the need to improve communications.

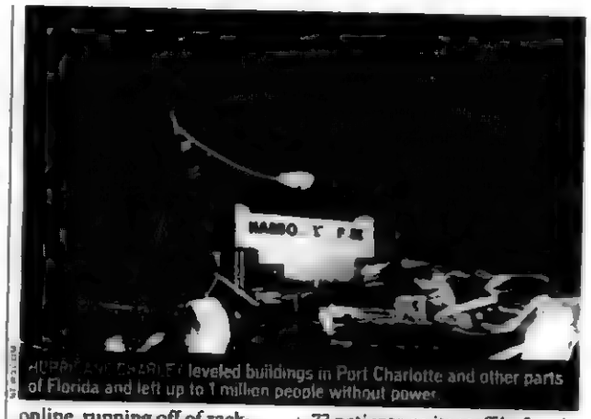
Dennis Klinger, CIO at Florida Power & Light Co. in Juno Beach, said 800,000 of the utility's 4.1 million customers in western and southern Florida were without power last week. Recovery operations were going remarkably smoothly because of an abundance of planning and past experience, Klinger added.

But there were some things that Klinger hadn't counted on. "We use various cell and wireless providers," he said. "All of them experienced some very serious damage." Broken connectivity between cellular towers hampered the ability of the utility's emergency crews to communicate, he said.

Florida Power & Light's 800 IT workers had several means of communication, including radios, cell phones and satellite-based phones. But Klinger said they experienced bandwidth-clogging traffic levels, particularly with the satellite phones. "We need to look at more reliable and wider-bandwidth satellite communications that we can implement more quickly," he said.

Marvin Shumacher, director of information systems at Heart of Florida Regional Medical Center in Davenport, just outside Orlando, said last-mile network issues affected communications at the hospital. The electric-powered copper wires running into the building were knocked out of service by the storm, he said.

But the hospital's network, data center and radiology imaging systems remained online, running off of rack-mounted battery units from American Power Conversion Corp. in West Kingston, R.I., while backup power generators kicked in.



HURRICANE CHARLEY leveled buildings in Port Charlotte and other parts of Florida and left up to 1 million people without power.

Heart of Florida's parent company, Health Management Associates Inc. in Naples, Fla., also operates Charlotte Regional Medical Center in Punta Gorda — the area that was hit hardest by Charley.

Because of the storm's erratic path, the Charlotte facility didn't have time to evacuate 73 patients or its staff before it hit, Shumacher said. Charlotte Regional lost power as well as its roof and the windows on its second and third floors.

But Health Management Associates replicates data from its hospitals to backup data centers in Atlanta and Boulder, Colo., according to Shumacher. Company workers used the backup data and portable generators to restore Charlotte Regional's systems by the middle of last week, he said. 48958

Ford Abandons Oracle Procurement System

Switches back to mainframe apps

BY MARC L. SONDINI

Ford Motor Co. is pulling the plug on a 4-year-old procurement system based on Oracle Corp.'s software and switching all purchasing operations back to the mainframe applications that the newer technology was designed to replace.

Ford has invested unspecified millions of dollars in the system, which was dubbed Everest and built around Oracle's databases and business applications. But Ford spokesman Paul Wood last week confirmed that the automaker has decided to shut down Everest and return the purchasing processes that were being run on the system to a set of custom-written mainframe applications. "We completed an evaluation of all the production and nonproduction procurement systems and made the decision to transition back to the proven, current system," Wood said.

Dot-Com Era Origins

The development of Everest began in 1999, at the height of the dot-com era. According to Wood, the project was separate from Covisint Inc., a Web-based business-to-business exchange for the automotive industry that Ford and Oracle helped create. Covisint is now owned by Compuware Corp.

Wood said Ford started to go live with the system in 2000. He declined to say how many suppliers or internal business units the system supports, but he noted that the technology is widely used in some form throughout Ford.

Wood also wouldn't comment about any problems with the system. But sources indicated that Everest was hampered by poor performance.

Ford now plans to migrate some features from Everest to its mainframe system, using in-house developers. Wood said the company had continued to run the mainframe-based procurement software in tandem with Everest.

Oracle issued a terse statement about Ford's decision to send Everest to the scrap heap. "Oracle continues to support Ford on its back-to-basics strategic initiatives and IT projects," the statement said. "Given our desire to honor a nondisclosure agreement in effect, it would be inappropriate for Oracle to comment on any specifics." 48938

Wi-Fi Hot Spots Keep Users Online

Public-access Wi-Fi hot spots have become a key alternative for business and personal communications in the wake of Hurricane Charley's devastating rampage across Florida.

For example, the Florida franchisee for Panera Bread Co. last week reported a 50% increase in traffic on the free Wi-Fi wireless LAN service offered in its 34 restaurants in the state. John Wetzel, director of operations in Florida for Warren, Ohio-based Covelli Family LLP, said he thinks that about seven in 10 of the Wi-Fi users at Panera Bread outlets in Florida are using the Internet connections for business.

"We have people holding business meetings in our stores," Wetzel said, noting that the loss of electricity and phone service has forced companies to resort to such measures.

People looking for Internet access are also seeking out independent Wi-Fi hot spot operators. Lee Lorenzo, general manager of the Village Inn in the Orlando suburb of Winter Park, said her restaurant had its power turned on last Thursday. Four customers were already using the restaurant's Wi-Fi connection, and Lorenzo had fielded calls from several other people wanting to know if the service was operational.

Nate Williams, who works as an event planner for an unidentified company, said he had just finished a three-hour Wi-Fi session at the Village Inn – the first time he had been able to log onto the Internet since the storm struck on Aug. 13.

T-Mobile USA Inc., which provides paid Wi-Fi hot spots for several national retail chains, offered free services in Florida through last Monday. But a T-Mobile spokesman wasn't able to provide usage data for the company's Wi-Fi outlets in the state.

– Bob Brewin

Broadcaster Sues EDS Over CRM Contract

U.K. satellite TV company claims firm failed to fulfill system development deal

BY MARC L. SONGINI

THE U.K.'S LARGEST satellite TV broadcaster sued Electronic Data Systems Corp. last week over a $109 million CRM development contract that was signed in late 2000 and then terminated two years ago.

London-based British Sky Broadcasting Group PLC said it had filed a legal claim against EDS for "deceit, negligent misrepresentation and breach of contract" during the implementation of a CRM system designed to support operations at BSkyB's call centers. A company spokesman declined to disclose the amount of money that BSkyB is seeking from EDS.

BSkyB severed its relationship with EDS in early 2002 after the IT services firm "failed to perform its contractual obligations," according to a statement issued by the broadcaster last week. After the deal was ended, BSkyB subsidiary Sky Subscribers Services Ltd. took over integration work on the CRM project, which is expected to be completed "in the near future," the company said.

Contract Troubles

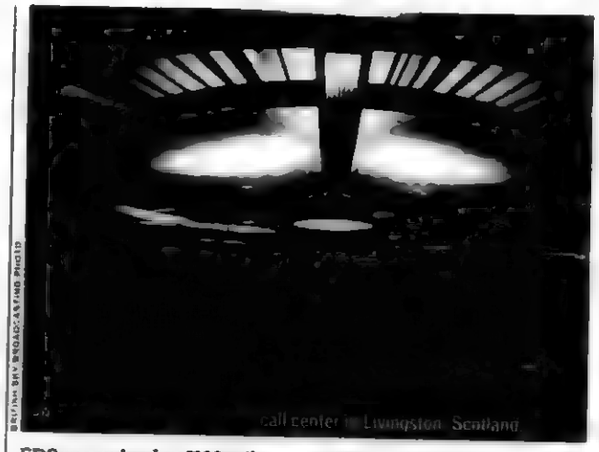
The lawsuit is another potential black eye for EDS, which has been struggling with problematic contracts such as its intranet deal with the U.S. Navy and an agreement to develop a voice-over-IP network for The Dow Chemical Co. Dow and EDS agreed to end their contract in July, and Dow this month named IBM to take over as lead contractor [QuickLink 48668].

EDS spokesman Malcolm George said the Plano, Texas-based company had yet to receive BSkyB's lawsuit. But he added that EDS denies its former client's claims and is ready to fight in court. "We're going to vigorously defend our position, and there will be a counterclaim in the several millions of [British] pounds for unpaid bills," George said. "It's absolutely outrageous."

BSkyB said it filed the lawsuit after settlement discussions between the two companies failed. At issue is a system that was to be built around hardware from Sun Microsystems Inc. and CRM software from Cupertino, Calif.-based Chordiant Software Inc., which specializes in business-to-consumer applications.

The BSkyB spokesman confirmed that the Chordiant software is still being used, but he declined to offer further details about the project. When the deal with EDS was announced in 2000, BSkyB said it planned to use the CRM system to integrate disparate data sources and create more comprehensive customer profiles. In addition, the company's subscribers would be able to access information such as account and billing data via phone calls, the Web or interactive TV services.

Although the contract with EDS was valued at $109 million, BSkyB said in its statement that it has spent a total of $310.8 million on software, systems integration, infrastructure costs and a revamp of its call center facilities. The company expects to spend another $91 million during the next four years to finish the rollout and maintain the CRM system for its subscriber base, which now stands at about 7 million. 48922



BRITISH SKY BROADCASTING PHOTO

call center in Livingston, Scotland

CASE CLOSED

EDS and the U.K.'s National Health Service settle a dispute over another contract

QuickLink 48880
www.computerworld.com

HP to Offer Vulnerability Scanning Service as Part of IT Security Push

Tools to let users find, fix flaws in network devices

BY JAIKUMAR VIJAYAN AND PATRICK THIBODEAU

Hewlett-Packard Co. last week said it plans by year's end to offer a security vulnerability scanning and remediation service that's designed to help companies identify and fix weak spots on their networks.

The as-yet-unnamed service will be based on technology called Active Countermeasures, which HP has been testing internally for more than two years, according to Tony Redmond, vice president and chief technology officer at the HP Services business unit.

The scanning tools will allow IT managers to identify flaws in any devices on their networks, including servers, PCs and "transiently" connected products such as handheld computers, Redmond said. It can also protect networks via measures such as installing patches, imposing network access restrictions or quarantining vulnerable or infected systems.

The move by HP will put it in a crowded field. IBM, Computer Associates International Inc. and IT security vendors such as Internet Security Systems Inc. and Qualys Inc. offer similar services or products for automated vulnerability assessment, discovery, remediation and reporting.

Whether HP would have an advantage over its rivals will depend on the specifics of its offering, said Rusty Robinson, a technical manager at Intrado Inc., a Longmont, Colo.-based provider of 9-1-1 infrastructure systems and services. HP "would just be one more company in the marketplace to get those services from," he said.

> **"HP seems to wax and wane in the security space."**
>
> PETE LINDSTROM, ANALYST, SPIRE SECURITY

The fact that HP is among the larger vendors to offer such a service is noteworthy, said David Krauthamer, director of information services at Advanced Fibre Communications Inc., a maker of telecommunications equipment in Petaluma, Calif. "The market has been pretty niched so far," Krauthamer said. "HP can certainly bring their clout and scale to the market."

Broad Access Needed

But the "fairly wide access" to internal systems that HP or other providers of such services would need makes the offering a no-go at Danfoss A/S, said Brian Andersen, a systems programmer at the Denmark-based manufacturer of hydraulic systems, compressors and other industrial equipment. Danfoss does its own vulnerability testing, a job it wants to keep in-house "so we know ourselves what's going on and how to fix it," Andersen said.

The new service isn't HP's first foray into IT security. Since last September, it has bought security tools through acquisitions of Baltimore Technologies Inc., Novadigm Inc. and TruLogica Inc.

But so far, HP has done a poor job of articulating how it plans to use the technologies to benefit users, said Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa.

"HP could probably be a formidable player if they wanted to," Lindstrom said. But, he added, "HP seems to wax and wane in the security space." Less than a year after the Baltimore Technologies purchase, for instance, "you just don't hear about the technology anymore," he said.

Raymond said HP plans to roll out a suite of identity management tools next year based on technology from Baltimore and TruLogica. It also is setting up a Trusted Computing initiative designed to deliver securely configured hardware and software to users, he said. 48967

Motorola Uses ILM Tools to Control Database Growth

Software migrates data off its servers to cut capacity needs, boost performance

BY LUCAS MEARIAN

Motorola Inc. last week said it has completed the second of four phases in a planned companywide rollout of information life-cycle management (ILM) software that has cut the size of production databases by as much as 50% in some business units.

The database reductions are enabling Motorola to stave off additional server and storage purchases as the company consolidates its hardware infrastructure by moving systems from remote locations to a data center in Chicago, said Bill Brewer, global IT configuration manager at Motorola's Personal Communications Sector (PCS) business unit.

The ILM rollout should also help Motorola better meet the financial reporting requirements of the Sarbanes-Oxley Act by keeping data online and easily accessible without eating up space on application servers, according to Brewer.

He declined to disclose the cost of the project, other than to say that it's a multimillion-dollar initiative.

Schaumburg, Ill.-based Motorola is using OuterBay Technologies Inc.'s Application Data Management software to manage data growth in ERP systems built around Oracle Corp.'s databases and E-Business Suite applications, Brewer said. Historical customer account information is automatically migrated from production databases running on Sun servers to EMC Corp.'s Symmetrix disk arrays.

"As Oracle applications mature, you use more disk space . . . so you will be taxing your database at a higher level," Brewer said. "There's only so much tuning you can do. So it's either rip the data out or do something else."

Motorola has set the ILM software's policy engine to migrate data that hasn't been accessed by end users for 15 months. The PCS business unit initially rolled out Cupertino, Calif.-based OuterBay's software in its China operations in 2001 and was able to cut database sizes in half there.

The company completed the North America rollout of the software in mid-July and plans to finish similar projects in European and South American operations by the end of 2005, Brewer said.

He added that the rollout in North America has boosted performance on the PCS unit's Oracle database servers by 62%, mostly as a result of the reduction in data.

At the Bleeding Edge

Ray Paquet, an analyst at Stamford, Conn.-based Gartner Inc., said database archiving products from companies such as OuterBay, Princeton Softech Inc. and Applimation Inc. are still on the bleeding edge of technology. But they're prompting a flood of inquiries from prospective users, he added.

Slow database throughput due to a glut of data is "a business problem, not a technology problem," Paquet said.

IT managers need to get the business side involved early on to decide issues such as what data should be archived, how long it should be kept and who can access it, Paquet advised. **48044**

Reasons for adopting ILM and database archiving tools

SOURCE: GARTNER INC., STAMFORD, CONN.

Continued from page 1

Duke

value can be gained from the open-source community," said Charlie Ward, the utility's manager of technical architecture. He added that because Duke's developers have been active users of open-source software, they now want to give something back to open-source developers.

It's difficult to gauge how many other user companies have turned significant application development initiatives into open-source projects.

Patrick McGovern, director of SourceForge.net, said the site gets about 70 new open-source projects each day, but it doesn't track their lineage. He said what Duke is doing is "certainly not unique," but he couldn't provide an estimate of how many similar projects have been launched.

Earlier this year, Brunswick Corp.'s Web Den Interactive (WDI) technology subsidiary used SourceForge.net to release an open-source business-integration engine that it had built to help connect WDI's independent dealers. But Vernon Hills, Ill.-based WDI has now released its application integration tool as a commercial product, called Redberri, said a WDI spokesman.

Mark Driver, an analyst at Gartner Inc., said he has heard about individual programmers getting permission from their employers to make software components available under open-source licenses. But Driver said he hasn't seen any major companies make significant portions of their custom development work open-source.

Many companies have been hesitant to release their work on an open-source basis because of intellectual property concerns, Driver said. He added that service and support are also issues because open-source projects require commitments of time and money. "What doesn't work is just dumping the software onto a developer portal," he said.

Thomas Murphy, an analyst at Meta Group Inc., also said that lots of companies have released pieces of their code to the open-source community. But he doesn't think many will push out frameworks like the one Duke is releasing. "Sharing your competitive differentiators normally is seen as a bad idea in commercial entities," Murphy said.

Seeking Support

But Duke doesn't view the framework as a competitive advantage. "Duke Power is not a software company. We're an energy company," Ward said. "We're more interested in getting continued support from the open-source community to improve our software."

The idea for the open-source contribution took shape as Duke began to define an enterprisewide architecture to support its business needs and reduce development costs, according to Ward. Duke wanted a common framework to enforce consistency, reduce the amount of work its developers need to do and help them transition from Microsoft's Visual Basic 6 to the object-oriented development tools they will use with the newer Visual Studio .Net technology.



... designed its application framework to support business needs and reduce IT development costs

The framework that Duke will release under the open-source Common Public License includes a data abstraction and data access layer; exception logging (built on Log4net open-source technology); EncryptionHelper, which aids in encapsulating encryption/decryption sequences; XMLHelper for serialization and deserialization of objects to and from XML and XML schema validation; SecurityHelper, for authenticating and authorizing against an Active Directory domain; and an XMLMessage object.

In addition, Duke will release models and Unified Modeling Language diagrams that describe how the pieces can be used with .Net applications. Demonstration applications will also be included, as will Microsoft's freely available SQL Helper Data Access tool.

To spread the word about its open-source contribution, Duke plans to make a presentation next month before the 750-member Enterprise Developers Guild in Charlotte. Marc Ginns, a lead application developer at Duke, said the company already has received four pages of suggested additions and changes to the framework from guild members.

Bill Jones Jr., president of the guild and a software architect at Charlotte-based MetaLogix Inc., said a group of developers in the local Microsoft community are excited about the Duke project's potential to increase productivity. He said the "reference architecture" will let the developers focus on business logic instead of low-level plumbing.

"They've put together several key components common to most projects, whether Web or Windows," Jones said about Duke. "They worked out the architecture and thought through how things should work together. I won't say they've solved every problem, but they've solved a lot of the big ones." **48080**

BRIEFS

Microsoft Delays SP2 Updates . . .

Microsoft Corp. postponed the start of automatic distribution of Windows XP Service Pack 2 to corporate users after IT managers told the vendor that they needed more time to configure systems to block the update. Many companies, including IBM, want to delay installations of SP2 until they can test its compatibility with their applications [QuickLink 48777]. Microsoft pushed back the launch of automated SP2 updates for Windows XP Professional from Aug. 18 to this Wednesday.

. . . And Discloses Possible App Issues

Microsoft has also published a list of nearly 50 applications and games that may not work properly after users install SP2. The list includes Microsoft products such as Systems Management Server 2003, plus software from Symantec Corp., Macromedia Inc. and Computer Associates International Inc. The conflicts involve a firewall built into SP2, Microsoft said.

CA Buys PestPatrol To Target Spyware

Computer Associates said it has acquired PestPatrol Inc., a Carlisle, Pa.-based developer of antispyware software, for an undisclosed price. CA plans to incorporate PestPatrol's products into its eTrust Threat Management software suite, which includes tools designed to protect corporate networks against viruses, spam and inappropriate use of the Web by employees.

McAfee to Acquire IT Security Vendor

In another security-related acquisition, McAfee Inc. in Santa Clara, Calif., said it's buying Foundstone Inc. for $86 million in cash. Mission Viejo, Calif.-based Foundstone sells software for detecting and remediating software vulnerabilities.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FAULKNER

Remote App Testing Comes Home . . .

. . . for Starwood Hotels and Resorts Worldwide Inc., which is in the first phase of automating software testing for remote users of its homegrown and commercial applications. According to Mark Badeau, manager for enterprise QA, his quality assurance team was "challenged by the testing environment." That's an understatement. Software that was created or integrated centrally at the White Plains, N.Y.-based company often was destined to operate remotely at one of the 750 properties in 80 countries that Starwood manages. Getting the end users to put the programs through their paces without major logistics hassles was a pain. Enter Austin-based Surgient Inc. Its VQMS technology lets remote users access and work with an application through a browser as if the code were running locally. Pam Thornton, Starwood's director of software engineering, says she "was comfortable working with a young company because they had seasoned folks who understood and leveraged best practices for testing." In addition to the remote user access, Badeau praises VQMS because it lets him provision a test machine and lock it down, run the tests and then automatically reset the system for the next operation. Reconfiguring and preparing a computer for a test once took hours but now takes just a moment or two, he says. Surgient CEO Bill Daniel says that later this year or early next, Starwood and others can use an upgraded VQMS with out-of-the-box integration with testing tools from Seque Software Inc., IBM's Rational division and Mercury Interactive Corp. Pricing starts at around $25,000. But think of the money you save by not having to reprovision machines for every test. And those hotel bills from end users visiting the testing center will disappear.

Apple's Resurgence in Life Sciences May . . .

. . . polish its image for Wall Street IT users. That's a scenario painted by Jeff Augen, CEO of TurboWorx Inc. in Shelton, Conn. He contends that Apple Computer Inc.'s high-end Macs have "a technological head start" over Intel-based machines because they're fully 64-bit and "really, really fast." That head start appeals to organizations that demand high-performance, clustered systems. In the life sciences market, Augen foresees clusters of Macs (and Linux systems) using his company's TurboWorx Enterprise technology displacing multiprocessor Unix servers from Sun Microsystems Inc. and IBM. Michael Swenson, an analyst at Life Sciences Insights, an IDC company in Framingham, Mass., agrees. "We see an uptick in interest in Apple" among life sciences users, he says. But Augen thinks Apple might leverage one success for another. He claims that financial services companies with high-performance computing needs are showing serious interest in TurboWorx Enterprise to deploy and manage CPU-cycle-sucking applications — even on clustered Macs with the Unix-based OS X operating system. That doesn't surprise Tom Barton. He's the CEO of Rackable Systems Inc. in Milpitas, Calif., whose clustered, high-performance computers appeal to the technically sophisticated users on Wall Street. And while he doesn't have a deal now for Macs to be used in his advanced low-power, thermal-managed racked systems, he "sees an opportunity to cooperate with Apple for the financial market."



envisions Macs on Wall Street

Industrial Controls Meet IT . . .

. . . in a new managed service from Betrusted Inc. The New York-based security service provider is teaming with industrial controls monitoring company Verano Inc. in Mansfield, Mass., to offer the latter's Industrial Defender as a managed service. Industrial Defender is a security-hardened Linux appliance that monitors the health of industrial machinery such as turbines. Verano CEO Brian Ahern says speculation about a "combination 9/11 plus the East Coast blackout is more than a bad dream." He argues that the nation's critical infrastructure suffers from "a gap as to who's responsible" when industrial control systems can be sabotaged over the Internet. Is it plant operations personnel or staff in the IT data center? Ahern suggests combining the roles through a managed security service. The integration of Industrial Defender's data and alerts into Betrusted's 10 global data centers will be complete in Q4.

Rackable Scales Out . . .

. . . its server line with up to 184 64-bit Intel CPUs in a single rack. Late this month, the Scale Out Server Series from Rackable Systems will add Intel Corp.'s Xeon 64-bit dual-processor chip sets to the 32-bit Xeon processors from Intel and the 64-bit Opteron chips from Advanced Micro Devices Inc. that are already available. Rackable's unique cooling technology through the center of the rack lets you pack more processors per system than most. Pricing starts at $2,800. **ID 48638**



Rackable's 184 well-cooled processors



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BRIEFS

SAP Warns Users About Phony Calls

SAP AG warned users of its applications not to provide confidential IT information to people who call them claiming to work for its technical support group. An SAP spokesman said several customers have received calls seeking data such as system access codes, on the promise that the information was needed to correct IT problems. He said SAP has little information about the callers.

IBM Asks Judge to Dismiss SCO Claim

IBM asked a U.S. District Court judge in Utah to dismiss breach-of-contract charges that The SCO Group Inc. made in the Linux-related lawsuit it filed against IBM last year. Lindon, Utah-based SCO, which claims that IBM breached a Unix System V licensing deal, didn't return calls seeking comment. In May, IBM asked the judge to dismiss a claim that it had violated Unix copyrights held by SCO; a decision on that request is still pending.

Gartner Lowers PC Sales Forecast

Gartner Inc. reduced its worldwide PC shipment forecast for this year, saying that the market won't grow as much as it had predicted because of continuing economic concerns in the U.S. and other regions. Gartner now expects shipments to increase 12.6% year over year, down from its previous projection of 13.4% growth. Rival market research firm IDC said it's still forecasting 13.5% growth in PC shipments.

Short Takes

IBM said it has agreed to buy two Danish IT services firms as part of a series of deals that includes a 10-year IT outsourcing contract with Danske Bank AS in Copenhagen. . . . NETSCAPE COMMUNICATIONS CORP. released Version 7.2 of its Web browser.

Attorney Says Sloppy IT Deals All Too Common

Final contracts often don't include 'guarantees' made during sales pitches

BY THOMAS HOFFMAN
NEW YORK

Most IT contracts "are atrocious, poorly written and short on details," according to attorney Mark Grossman. In short, he said at a conference here last week, "they're a breeding ground for litigation."

The breakdown in writing effective contracts is largely the fault of technology buyers, said Grossman, chairman of the technology law group at Becker & Poliakoff PA in Coral Gables, Fla. He added that IT and contract managers often fail to apply critical negotiation techniques, such as ensuring that system performance promises made by vendors in response to requests for proposals (RFP) are included in final agreements.

Grossman led several sessions on the legal aspects of IT contracts at the conference, which was held by Share Inc., a Chicago-based user group whose membership is primarily drawn from IBM's mainframe customer base.

Part of the problem is that vendors' responses to RFPs are usually drafted by their sales forces to help clinch deals with users, Grossman said. Performance and support guarantees offered during the RFP process are often omitted from contracts written by the legal staffers of vendors, he noted.

Vendor Advantage

It's a common occurrence, agreed several IT managers.

"We do it all the time," said Earl Johnson, an application programming manager for the city of Dallas, referring to the failure to fully incorporate RFP terms into contracts. The main reason that happens, he said, "is the need for expediency and to maintain good relations with the vendor."

Software licensing managers and other technology buyers usually are less prepared for negotiations than vendors are, said William Snyder, an analyst at Meta Group Inc. "If you're in negotiations with a software vendor, in 75% of the cases, they know more about your company than you do," Snyder said.

Grossman said it doesn't help that most companies begin negotiations at an immediate disadvantage because contract drafts are typically crafted by vendors, unless the customer is a Fortune 100 company with considerable purchasing clout.

"We've taken a different approach," said an IT manager at a major auto manufacturer who requested anonymity. Last year, his company hired Gartner Inc. to create a master service-agreement template that it has begun using in negotiations with a group of four offshore application development vendors.

"Historically, our 15 application development managers each had the authority to negotiate such deals on their own," the IT manager said. The master service agreement "should give us more unanimity on contracts," he added.

But the new approach hasn't been a silver bullet, the IT manager cautioned. Since the offshore vendors returned the contract proposals with suggested changes five months ago, little progress has been made toward finalizing the agreements.

"The IT department is ready to go," he said, but he added that a busy workload for the company's contracts and legal team is "holding up the whole process." 48923

What You Should Do

Conference speakers and attendees offered the following negotiating tips:

- **Align the finalization of contracts** with the end of vendors' fiscal quarters to get the best deals possible.
- **Include provisions for acceptance testing** to ensure that products meet performance and functionality expectations.
- **Make sure that software doesn't contain** intellectual property that's owned by another vendor and isn't licensed.
- **Put in writing that source code must** be accessible to your company through a source-code escrow firm.

Microsoft Tries to Cozy Up to Mainframe, iSeries Users

At the Share conference last week, Microsoft Corp. announced an upgrade of its Host Integration Server software that's designed to make it easier for users to link Windows systems with IBM's mainframes and iSeries midrange servers.

Host Integration Server 2004 includes new Transaction Integrator development tools that are integrated with Microsoft's .Net Framework and Visual Studio .Net technologies. The tools can be used to turn mainframe and iSeries applications into XML-based Web services, said lead product manager Steven Martin.

The upgrade, Microsoft's first in four years, is due Sept. 1 and will be available in both standard and enterprise editions. Pricing is $2,499 per processor for the standard edition and $9,999 per CPU for the enterprise package, which includes full support for Transaction Integrator plus a bridge between Microsoft's message-queuing software and IBM's WebSphere MQ product.

Martin said about 30 users took part in a "high-touch" testing program while others tested beta versions of the upgrade.

One of the high-touch users was Tom Taglianetti, a platform architect at Fiserv LeMans, a King of Prussia, Pa.-based unit of Fiserv Inc. that sells software for the automobile financing industry. "Our interest in the product is primarily for its application integration capabilities with CICS technology," he said, referring to one of IBM's transaction management systems.

Mainframe Data on PCs

Total System Services Inc. (TSYS), which provides electronic payment processing services, uses Host Integration Server to provide up to 4,000 employees with access to mainframe data on their Windows PCs. Tim Kelly, director of distributed technologies at TSYS, said the .Net integration capabilities built into the new release let the Columbus, Ga.-based company "spool our apps into thinking mainframe-based data is native."

Host Integration Server has been a sleeper in Microsoft's product line but is becoming more interesting with the upgrade, said Peter O'Kelly, an analyst at Burton Group in Midvale, Utah. "The additional features may not be glamorous, but they're important," he said.

O'Kelly added that he expects "very healthy competition" between Microsoft and IBM, which offers similar functionality in its WebSphere product line.

– Laura Rohde, IDG News Service

Continued from page 1

PeopleSoft

dor, and our business depends on them, but there is still a lot of evolution for the merged organization that has to go on."

Pond is director of information services at Schnitzer Steel Industries Inc. in Portland, Ore., and the new president of Quest International Users Group, an independent organization for J.D. Edwards customers. He said the customer support and software development operations for the applications he uses are running at about the same levels as they did under J.D. Edwards.

However, like some other users, Pond has had to change sales representatives and has raised concerns about PeopleSoft's software licensing policies [QuickLink 47778].

Differences in corporate culture have also affected user perceptions about PeopleSoft, according to Pond. "J.D. Edwards was very relationship-oriented — almost to a fault," Pond said, adding that he thinks PeopleSoft is more sales-oriented.

"The warm, fuzzy feeling is gone," said Mari Jo Moody, manager of customer support at Batesville Casket Co. in Batesville, Ind. She added that her company has lost some of the prominence it had with J.D. Edwards, which catered to midsize users such as Batesville Casket. "We used to have a close connection with J.D. Edwards, but now we're no longer the big fish in the pond," Moody said.

Despite such comments, PeopleSoft sees the acquisition as a big success, said Ram Gupta, the vendor's vice president of products and technology and its point man on the integration of the two companies.

"My experience in 16 acquisitions tells me that in 17 months, this acquisition has gone absolutely pretty much as planned or better," Gupta said. "We've added more products, increased the research and development, and are getting cultural benefits from the companies' similarity, and we're adding better support."

Gupta acknowledged that PeopleSoft is "a more businesslike company" than J.D. Edwards was. But he said that approach is necessary because PeopleSoft has many banks and other large companies in its user base (see interview above).

Users said one plus is that PeopleSoft has upheld its commitment to continue enhancing the product lines developed by J.D. Edwards, including its World green-screen applications. PeopleSoft has released new versions of both the World software and the more modern J.D. Edwards 5 applications, which are now called EnterpriseOne.

"As a World user, life is infinitely better under PeopleSoft than it was during the last days of J.D. Edwards," said Dave Hyzy, director of IT at Benderson Development Co., a real estate developer in Buffalo, N.Y. "World is now a viable software product again."

But a huge rift has developed between Quest and PeopleSoft, which decided not to take part in the Lexington, Ky.-based user group's conferences after talks between the two broke down late last year.

There also is the looming issue of Oracle Corp.'s hostile takeover bid for PeopleSoft, which was launched in apparent response to the deal with J.D. Edwards. PeopleSoft fell short of both its initial revenue forecast and a subsequent reduced target in this year's second quarter, a showing it blamed primarily on publicity about the U.S. Department of Justice's attempt to block Oracle's bid.

"Without a doubt, the world would have been vastly different for PeopleSoft without the Oracle [offer]," said Josh Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif. "Had they been more free to operate, there would have been much more hand-holding and more careful attention to the details that would have made the J.D. Edwards customers happy."

PeopleSoft has shown promise but remains on "probation," said David Hilmer, director of IT at GrafTech International Ltd. in Wilmington, Del. Hilmer will be paying close attention to PeopleSoft at its Connect 2004 user conference next month in San Francisco. "I'm still watching to be sure I'm serviced and supported as a customer and have the commitment from this company like I had from J.D. Edwards," he said.

ID 46945

Users Have More Choices, Better Support, PeopleSoft Exec Says



As vice president of products and technology at PeopleSoft, **Ram Gupta** has worked very closely on the integration of its applications and the software developed by J.D. Edwards. He spoke with *Computerworld* this month about the merger of J.D. Edwards into PeopleSoft.

Do you view the merger as a success? The customer has more choice [now]. On the product side, we increased research and development in the World line by 10%. In the second quarter, we got done shipping the latest release of the EnterpriseOne family with 16 new products and 250 enhancements. In the last 12 months, we added more products to EnterpriseOne than was done in the two years before the merger. We took the Total Ownership Experience initiative going on in the PeopleSoft side of the house, and that's available to J.D. Edwards customers in terms of better supportability and a higher quality of code.

On the support side before, a large number of J.D. Edwards customers were on a five-day-by-eight-hours support model for their maintenance. The J.D. Edwards users got migrated upward to a seven-day-by-24-hour model.

For the financial dimension, we paid $1.8 billion and still put $89 million in the bank [in the second quarter], and we're clearly the No. 2 applications provider after SAP.

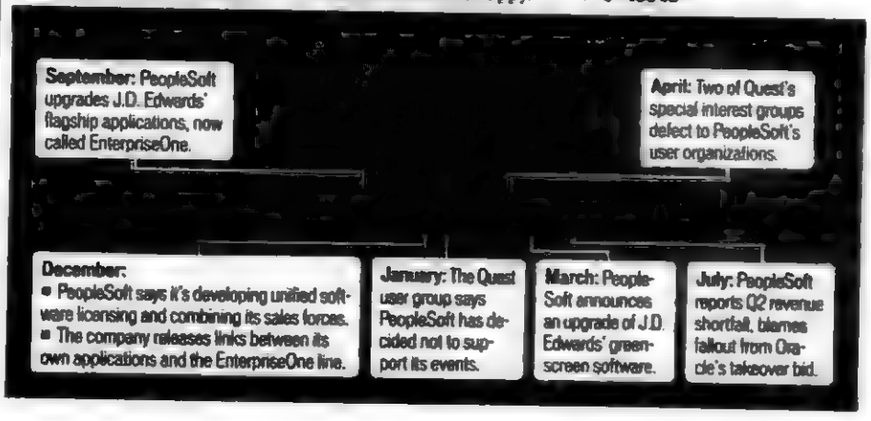
Some J.D. Edwards customers complain that they're being forced to migrate to PeopleSoft's licensing scheme or face pricing penalties. Is that true? You can have a value-based or user-based license. We didn't force customers to choose any model. That's not the objective, and that's an absolutely documented policy.

Another user complaint is that PeopleSoft is a more aggressive company than J.D. Edwards was. I think that's an interesting observation, unfortunately, that leads some to decide that PeopleSoft is a sales and marketing machine, when we spend a higher amount of research and development dollars as a percentage of total revenue than Oracle or SAP, or J.D. Edwards did for that matter.

PeopleSoft is a more businesslike and professionally run company. Our customer profile was kind of bigger, and they needed a different kind of attention when we visited them: Wall Street or banking CIOs wanted people in suits and ties. J.D. Edwards had smaller customers – a $200 million manufacturing plant in Idaho, for example.

PeopleSoft had a bad quarter. Is Oracle's takeover bid delaying purchases? Yes, it does make selling a little more challenging, as in the last quarter, but look at the numbers: We signed 160 new customers in the last quarter. I find that outstanding for a sales organization in such a tough environment.

– *Marc L. Songini*



MARYFRAN JOHNSON

Checklist for Success

A CIO FRIEND OF MINE once confessed, somewhat sheepishly, that he simply can't resist a good checklist. Whenever and wherever he comes across a numbered list of any kind (a lineup of check boxes is a particular thrill), he has to stop and read it. Tips, tactics, random advice — almost any top 10 list is grist for his mental mill. "Most of the time I know all the stuff on the list; often it's just common sense," he admits. "But every now and then I find a really great idea."



I was thinking of that list-hungry CIO as I looked over our "IT Survival Guide" (page 30, and online at QuickLink 48479). It's not a complicated or daunting list by any means, coming as it does from that cheerful guy holding the shovel, Ace Hardware CIO Paul Ingevaldson. What's his claim to fame? He not only lasted at Ace for 25 years ("a long time in this day and age of the portable CIO," he notes); he also logged four decades in IT. Imagine being able to boil down 40 years of IT experience to 10 core pieces of advice.

But no matter how fine a list it is, you won't remember 10 things. So I've boiled them down further into three enduring truths about IT and business. Almost any list you'll ever encounter about IT management could be parsed into the following mantras:

1. Whatever connects IT more closely to the business is worth doing. The first piece of advice Ingevaldson offers is to get out of the IT department and work in a business unit, a recommendation I've heard echoed by so many management consultants that I've lost count. But coming from a CIO (and one who's rooting for you to return to IT), it carries substantially more weight.

He also stresses the importance of grasping the corporate business strategy and then mobilizing IT to support it. Not just *implementing* a strategy, he warns, but getting IT involved as part of the process. And to all those companies trying to charge out IT as a business-unit expense, this veteran CIO says to cut it out. "Operate it as an expense center," he recommends, explaining that if top business execs are part of the prioritizing process, they'll know that IT is "working on the important applications." Operating IT as a utility means it will never be strategic.

2. Whatever improves communication about IT is worth repeating. (Read that again.) This is one of the toughest sells to introverted IT folks because it entails talking up (a.k.a., marketing) the value of IT to end users. And that means actually speaking to those people. "Don't keep IT in the closet," Ingevaldson says. "Spread the word, create excitement and convince people to get on the IT bandwagon." (There's got to be at least one extrovert in your IT department, right? Put her to work.)

3. Whatever encourages good IT management practices is worth trying. Using a hands-off management style with smart, motivated staffers ("Get out of their way") is another of Ingevaldson's tips, alongside classics like learning to delegate and setting high expectations for meeting project dates and budgets. "Missed deadlines and busted budgets are the things that give IT a bad name," he notes.

Of course, after 40 years of dealing with end users, this CIO knows there will be simply god-awful days when none of his management mantras will help. That's when he gets really sensible: "Tough days are why they invented single malts." 48027



VIRGINIA ROBBINS

Not All Employers Play Fair

RECENTLY, my extended family joined me for an all-too-brief summer get-together in San Francisco. On one particularly foggy day, Samantha, my 12-year-old niece, turned to her 20-year-old cousin, Matthew, and announced that while they were waiting for lunch they would play keep-away. Speaking with a great deal of authority, Samantha announced the rules that would make the game fair. Six-foot-three Matthew would need to sit on the carpet in the middle of the room, while she would go to the other end of the room and kneel. Kathryn, age 6, would stand by the door with plenty of room to throw, and Ashley, 4, would sit in the big chair by the door and catch. Matthew, having met his equal in the world of keep-away, agreed. Samantha began by tossing the green Nerf ball over Matthew's head to her sisters, and the girls managed to keep the ball away from him until the PB&J and chocolate milk were ready.



As I prepared the sandwiches in the next room, I couldn't help but think about Samantha's view of fairness. The game was clearly equalized, with tall, skinny Matthew, seat plastered to the carpet, straining to reach the ball. I was impressed with Samantha's ability to command a room and keep the game fun for her little sisters. And I had to smile, since as an adult I know that life isn't fair, no matter how well we command the room.

When it comes to outsourcing, whether that involves shipping work elsewhere in the U.S. or overseas, the employers that we choose to work for don't always seem to play fair. Of course, what's fair to you may not be fair to me, so to illustrate what I think is fair, I will use words that rely on a time-based viewpoint. I will define *fair*

as a balanced, long-term perspective, and *unfair* as a short-term, less-balanced perspective.

Short-term companies are those that focus on how much money can be made as soon as possible. In the most extreme cases, short-term companies are only about today's cash position. For these companies, outsourcing, especially overseas outsourcing, isn't an investment — it's a way to cut costs today. For employees working in these companies, it's sometimes frighteningly obvious that domestic workers are an undesired expense.

Other companies have a long-term perspective and see costs, including employee costs, as an investment. These companies may still choose to outsource, but if they do, they'll structure the work and the agreements to reflect a long-term strategy, developing disciplined processes over time that change in response to their experiences. If you've worked only in short-term companies and are curious as to what attributes a long-term company displays, read Jim Collins' books *Good to Great* and *Built to Last*.

Some believe that short-term thinking is what capitalism is all about. As an economist, I don't agree. A free market allows companies to look to the short term and to profit or not accordingly. It also allows those that look to the long term to profit or not as well. It's fabulous that we live in a country that allows companies and employees to choose, and then to act accordingly. Life isn't fair, but that doesn't mean you need to work for someone focused only on the short term. **48832**

DAVID MOSCHELLA

Keeping Up With Your IT Consumers

DO THE EMPLOYEES in your organization ever complain that they have better technology at home than in the office? Do you require them to access corporate systems via a dedicated PC as opposed to any Internet-connected browser? Do they ever use their personal Internet e-mail accounts for business and laugh at the limitations of Microsoft Exchange or Lotus Notes? Do they sometimes shake their heads wondering why, if they can set up a wireless LAN at home in a few hours, corporate IT says wireless systems in the office are too complex and risky?



While IT professionals can often give perfectly valid answers to these and similar questions, you know before you give them that they will mostly fall on deaf ears. The reality is that employee expectations of IT are now being shaped outside of the workplace. It's all part of the increasing consumerization of corporate IT.

Consumerization is happening in two main ways. First, many employees are now active consumers of IT. They're becoming increasingly familiar with broadband, multimedia applications, wireless systems, digital cameras, smart phones and browser-based computing. They're also becoming increasingly intolerant of workplaces that still treat them as passive users. Moreover, the laptops and mobile phones they carry are almost always dual-purpose devices used extensively for both business and personal applications.

The ramifications of this are now becoming clear. IT departments have become accustomed to treating employees like children who must be told what they can and cannot do. But many employees want to be treated like consumers, given choice and flexibility in their use of IT. If they are going to work at home and lug around dual-use work/personal devices, these devices will have to meet their personal standards, not just for functionality but increasingly for style and fashion as well. Requiring every employee to accept the same generic IT capabilities will become almost as absurd as requiring that every employee drive the same car.

The second aspect of consumerization will in the long run prove even more important and disruptive. Increasingly, the public infrastructures that are emerging to support consumers will be fundamentally better than the private infrastructures that companies have traditionally built for themselves.

Just look at the price/performance of today's consumer-oriented Wi-Fi, videoconferencing, storage, messaging, Internet telephony and broadband services. While Google's advertising-based plan to give consumers a free gigabyte of e-mail storage won't be for everyone, it is certainly indicative of the enormous service improvements to come.

Similarly, while large enterprises have generally looked askance at the idea of utility computing, the reality is that this is the way most of the market already works. Consumers and many small businesses already buy their networking, storage, hosting and telephony capacity by the month, based on what sort of service requirements they expect to have. They don't build infrastructure; they simply use it.

Therefore, the big question is whether large organizations will continue to have their own unique style of computing, with a heavy emphasis on their own private infrastructures and the rules needed to support them, or whether at some point consumer and business computing will effectively merge, with everyone increasingly sharing a common public infrastructure. That's the long-term promise of consumerization, and although it's still a long way off, that's the direction the market is moving in. **48846**

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READERS' LETTERS

Doomed Projects Are Nothing New

YAWN! Another IT project delayed or doomed ["Australian Firm Wrestles With ERP Delays, $11.5M Overrun," QuickLink 48068]. "Dog bites man" would be a more newsworthy story. If there were fraud or other malfeasance, there might be some reason to run a small piece on this. But if this is just another level-zero customer dealing with a level-zero contractor bumbling along and hoping to eventually hack together some software system, why bother killing a tree for it? What the readers of *Computerworld* should be told is the root cause of this problem.

In the same issue, the story "IT Governance Is on the Hot Seat" [QuickLink 48025] echoes the same problem. Portfolio management is routine in well-run companies. It is just an extension of project/program management, and unless the company is exceptionally large, there should be no need for a separate committee. In a truly large company, an integrated product team, or IPT, as these committees are commonly called, would be a routine part of normal decision processes. Such teams consider not only the cost and value added but also the impacts on other areas. They consider constraints such as budgets and delays to other projects if shared resources are diverted. In short, they make decisions that will optimize the enterprise within the real-world constraints of time and budget.

William Adams
Consultant, Springfield, Va.

Waiting for What's Next in E-mail

MARK HALL'S COLUMN "The End of E-mail" [QuickLink 47526] was intelligent, factual, readable and made complete sense. Hall will be attacked by the techies, but they're no different from the people who said that the Pony Express was the greatest communication tool that would ever be developed.

Andrew H. Olson
Managing director, TEAM International Group, Gainesville, Fla.

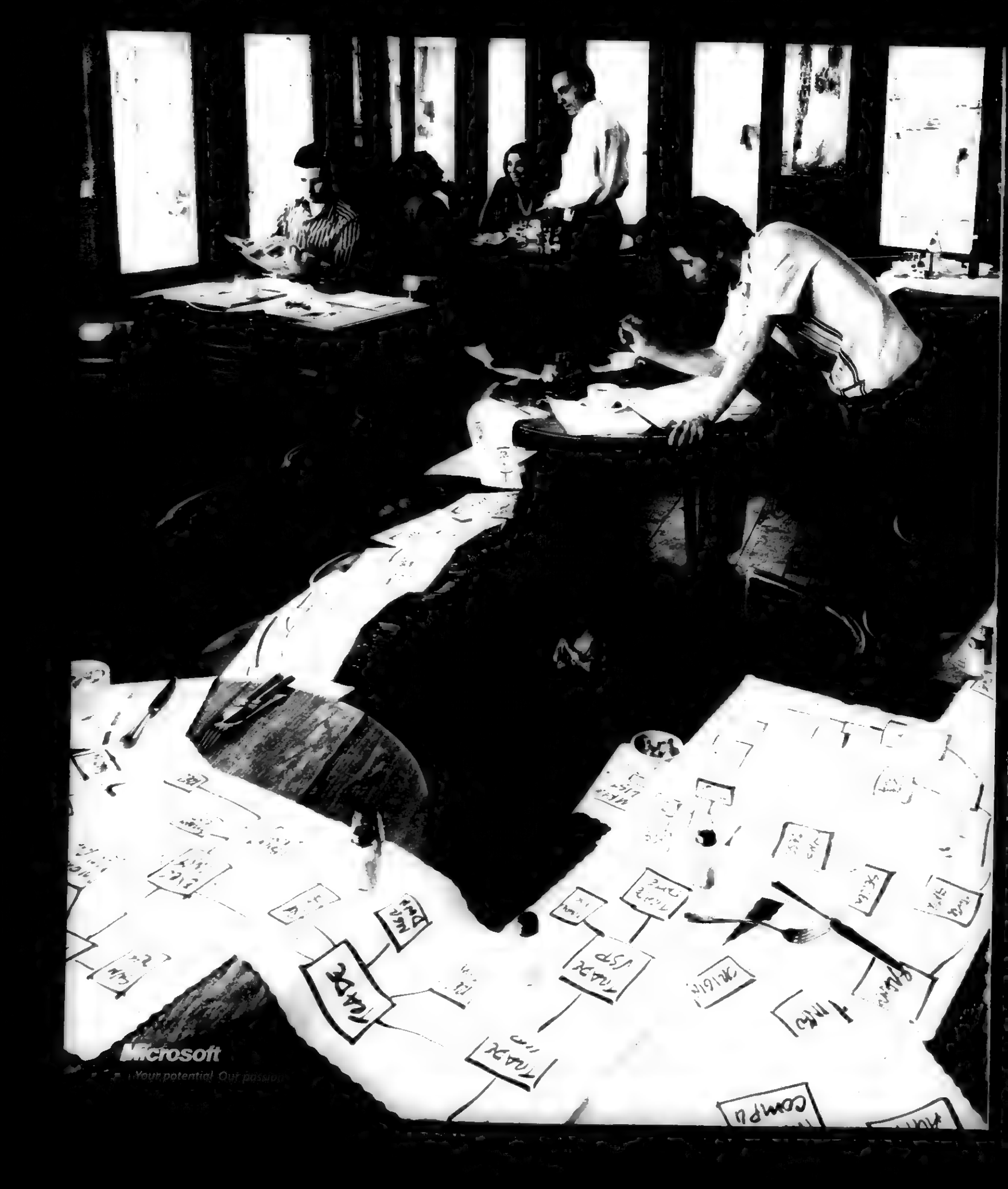
I KEPT WAITING for the punch line in Mark Hall's column, but I was left high and dry. *What* is going to replace e-mail? Of course messaging will evolve, as it has from newsgroups to e-mail. But I disagree that it will evolve because of spam and viruses. It will evolve because a new alternative will be easier, more reliable and more flexible.

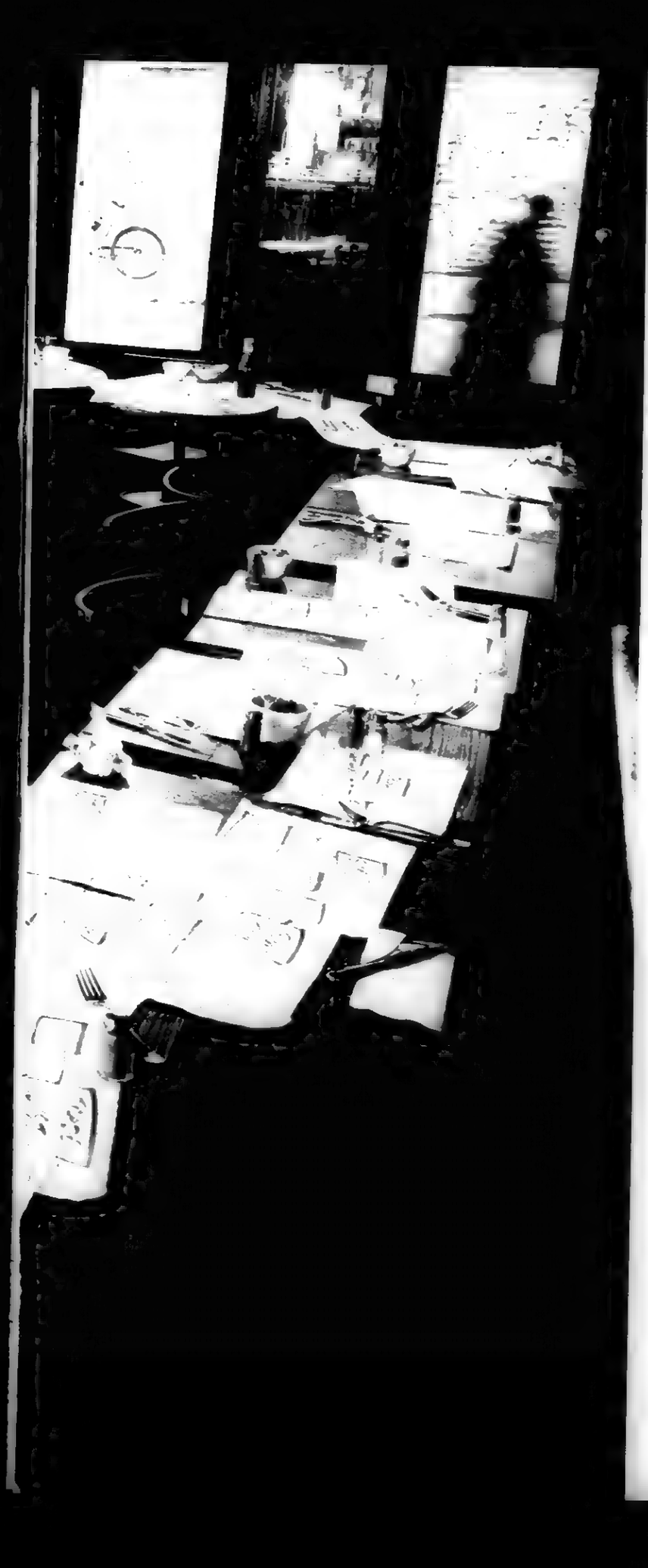
It's true that handhelds don't have the problems commonplace in e-mail, but those problems arose only when usage levels made it worthwhile for spammers. When handhelds catch up, you can be sure that the spam marketers and virus aficionados will reset their sights on that next-generation mass platform. That is also a natural evolution. For handhelds (or whatever the next generation is) to catch up, their architectures will have to become more open to enable third-party development to provide applications, data/information and other integration, and those are the same tools that enable spammers and hackers to thrive. And then the cycle will begin again!

Dan Leichtenschlag
CTO, Diets.com, Deerfield Beach, Fla.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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8:45am to 9:15am	**Industry Analyst Perspective**
9:15am to 9:45am	**Virtualization at CIGNA Corp.: Balancing Tactical IT Goals with Business Strategy** Ben Flock, VP of Virtualization and Application Frameworks, CIGNA
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Update from the Enterprise Grid Alliance**
10:45am to 11:15am	**The View of Grid Computing from Iron Mountain** Bill Olsen, VP of Engineering, Iron Mountain
11:15am to noon	**Key Considerations in Grid Computing Projects: An IT Executive Roundtable** Panel Moderator: Patrick Thibodeau, Senior Editor, Computerworld
Noon	Program Concludes

Selected speakers include:



Maryfran Johnson
Editor in Chief, Computerworld



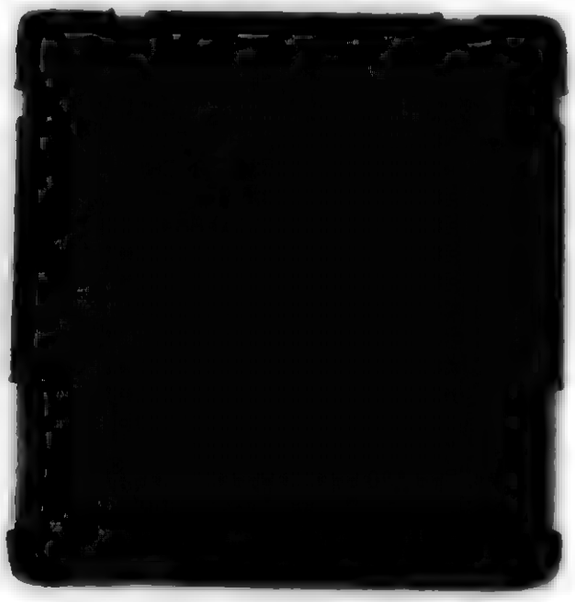
Ben Flock
VP of Virtualization and Application Frameworks, CIGNA



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FUTURE WATCH

Software Flight Plan

Paul D. Nielsen, the new CEO of Carnegie Melon's Software Engineering Institute, explains how his experience running a $3 billion military research lab will help the university develop commercial applications. **Page 24**



OPINION

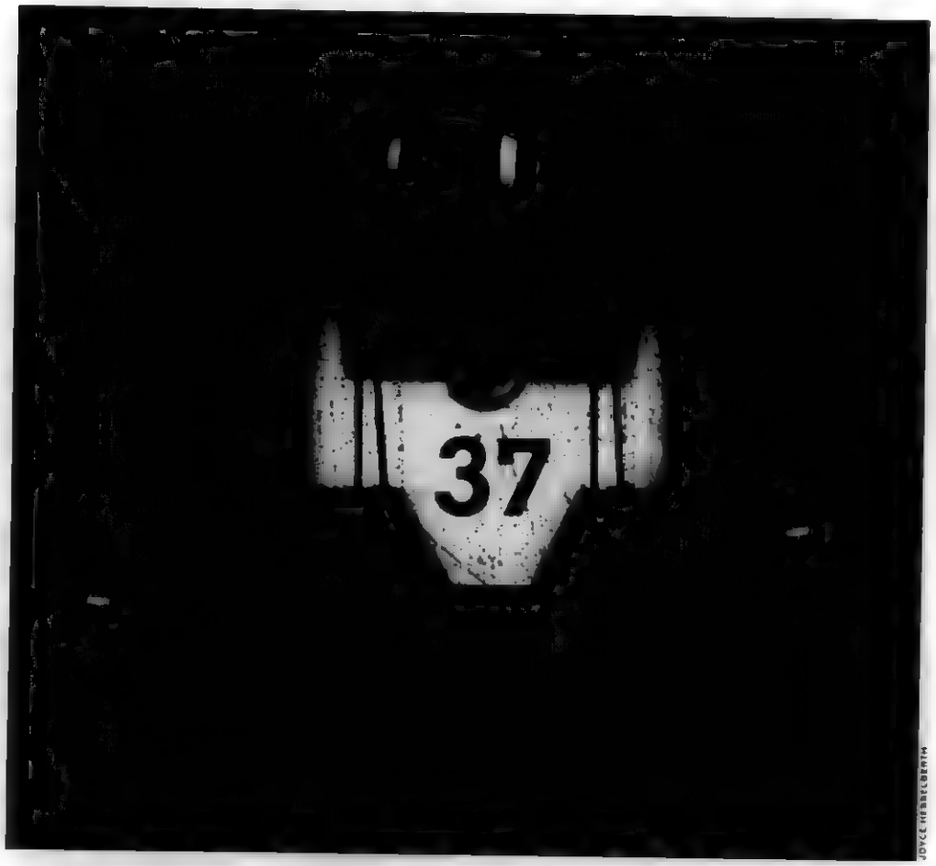
Here's to Your (Electronic) Health

The U.S. Health and Human Services department's initiative to consolidate Americans' electronic health records is a worthy cause — and a daunting project, says Tommy Peterson. **Page 28**

SECURITY MANAGER'S JOURNAL

Antivirus Service Troubled by TLS

A new antivirus service runs afoul of Roger Foix's all-too-complicated Transport Layer Security e-mail encryption configuration. **Page 25**



JOYCE HEBBELBRETH

WI-FI PLAYS DEFENSE

The new 802.11i wireless LAN security standard is a step forward, but Wi-Fi LANs still aren't impervious to attacks. BY JOANIE WEXLER

Unbounded by the physical constraints of cabling and walls, wireless LANs have proved tricky to secure. Now that the long-awaited 802.11i standard for enhanced WLAN security has been ratified, can IT assume that WLANs have grown as secure as their cabled counterparts?

Hardly.

It will take time for vendors to migrate their products to 802.11i, approved in June, and for IT organizations to adopt them. And the Wi-Fi Alliance won't even start interoperability testing of 802.11i products until next month.

More important, 802.11i represents just the finishing touch to a series of steps in wireless security standards development. Much of it has already been available for about 18 months in an 802.11i subset called Wi-Fi Protected Access (WPA). And while standards-based security technology plays a big part in protecting enterprises, the issues reach beyond a signed set of technical specs.

For example, there's a broad installed base of specialized client devices, such as bar code scanners, that run the MS-DOS operating system. They are not upgradable, even to earlier versions of authentication and encryption, let alone to 802.11i, which requires Advanced Encryption Standard protection. AES will require hardware upgrades — even for far newer products. As enterprises expand their WLANs, these legacy devices might well become the weakest link in the wireless security chain.

And some administrators lack confidence in their ability to properly implement the various pieces of WLAN security, particularly since new attacks regularly make headlines.

Asserts Pete Davis, assistant network engineer for the Spring Independent School District in Spring, Texas, "It requires much time and effort to determine what's real and what's market-speak. There's a lot of FUD [fear, uncertainty and doubt] being spread about wireless security."

Technology Headway

The formal 802.11i standard, which includes WPA, does bolster the confidentiality and integrity of WLANs. Tom Hagin, vice president of the wireless business practice at integrator NetXperts Inc. in San Ramon, Calif., says the standard has taken Wi-Fi security "from prepuberty to just past puberty."

"In the past six months, we haven't had anyone say they weren't going to install wireless because it isn't secure. Prior to that, we did," he says.

WPA, available in many WLAN network interface cards (NIC) and access points (AP), was developed

after university researchers demonstrated the ease with which hackers could break static encryption keys in the 802.11's Wired Equivalent Privacy (WEP) mechanism in 2001. WPA requires products to rotate encryption keys on a per-packet basis so they are much harder to crack. WPA also uses the industry-standard 802.1x framework for strong user authentication.

And AES, the U.S. government block-cipher standard for 128-bit data encryption, replaces the RC4 stream-cipher encryption that WEP and WPA use.

Still, "WPA will be good for three to five years before those smart kids who broke WEP break RC4. Then everyone will need AES," says Michael Disabato, an analyst at Burton Group in Midvale, Utah. 802.11i also specifies a way to achieve fast secure handoffs among APs (in the 25-msec range) and a simpler authentication scheme for small WLANs.

Practical Limits

But technology can solve only so much. Through 2006, 70% of successful Wi-Fi attacks will occur as a result of the misconfiguration of APs and client software, according to Gartner Inc.

This is why the Bethesda, Md.-based SANS Institute, which offers information security training and certification, recommends regular wireless audits. "AES is great," says Joshua Wright, deputy director of training. "But if people don't audit their networks, they might not know that a misconfigured AP isn't using it. This is low-hanging fruit for attackers."

Conducting audits requires tasks both on the wired and wireless sides of the network. First, says Wright, administrators should regularly download each AP's configuration and make sure it accurately reflects the organization's internal security policies.

For example, if an enterprise has adopted 802.1x and has selected Protected Extensible Authentication Protocol, one of several available authentication methods, network administrators should regularly check that all APs are indeed configured for PEAP.

In addition, airborne packets should be regularly examined using a wireless protocol analyzer to verify that they are actually using the EAP method selected. "Sometimes settings on APs have not been applied and do not kick in," Wright says.

Another recommended practice is treating the WLAN as an untrusted network, like the Internet, and putting a firewall or gateway where wireless and wired networks meet. Though this is a well-established guideline, "a lot of companies don't do it," observes Davis.

The Spring school district, however, has deployed the internal firewalling capabilities in Aruba Wireless Networks Inc.'s WLAN switches.

"We have an apartment complex behind us, and outsiders could poach on our Internet connection [without the firewall]," Davis notes. "Our district could be held accountable if they did nefarious things using our source network address."

Davis says the setup also lets him use an access control list to determine which network resources are available to each user in the 26,700-student, 25-school district. Wireless gateways from companies such as Bluesocket Inc. and Vernier Networks Inc. provide similar access control list functions.

It is not obvious to all network implementers how to glue the many available security mechanisms together. "Wi-Fi security is not something that you can set and forget," says Boris Shubin, director of IT at Dunkin' Donuts Inc., which recently deployed a wireless speech-recognition-based picking system in its Swedesboro, N.J., warehouse using centralized WLAN switches from Airespace Inc. "APs ship wide open. WLAN security is iffy; it's a very high-touch standard."

Dunkin' Donuts uses media access control address filtering to keep suspicious packets off its network. If a MAC client source address isn't on an approved list in the switch, it isn't allowed access.

Disabato says MAC filtering works but isn't scalable. "You have to change your system if a card breaks. If a guest leaves, you have to remember to remove their MAC address," he says. Such labor-intensive approaches tend to be less secure simply because they are error-prone.

Even the world's largest WLAN operator — Microsoft Corp. — isn't using WPA yet on its 4,500-AP WLAN, built on APs from Cisco Systems Inc. Many of Microsoft's older APs are first-generation technology and are not WPA-capable.

Microsoft is poised to make a wholesale change to its global WLAN infrastructure, which supports about 100,000 unique mobile devices. "11i is our main goal, but we can't move to it yet because no NICs support it," says Don Berry, the wireless network engineer who has overseen Microsoft's global WLAN implementation since 1999.

"We're assessing what the various EAP security strengths are," he says. "What will it take to live day to day using a particular method? How many servers would each type require? What's the security strength of each?"

Which EAP?

Most enterprises will select an EAP authentication method based on the type of database they have, says Dave Halasz, who chaired the 802.11i Task Group and is manager of software systems in Cisco's wireless networking business unit. "If you don't already have a certificate database for authenticating users, you might not put one in just for wireless," he says.

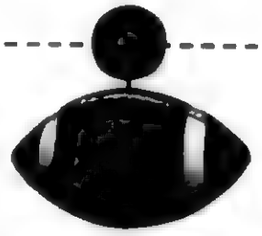
In fact, notes Kevin Tseng, senior wireless engineer at NetVersant Solutions, a systems integrator in Seattle, "most companies do not run a public-key infrastructure," which is required for using EAP methods that use client- and server-side certificates, such as EAP-Transport Layer Security.

Cisco's broadly deployed Lightweight EAP supports easier-to-manage username/password schemes but is prone to off-line dictionary attacks in shops that can't enforce strong password policies. LEAP also supports mutual authentication, an 802.11i recommendation, as do PEAP and another common method, EAP-Tunneled Transport Layer Security.

"But these are mostly supported in smart clients such as laptops," says Tseng. "Scanners for tracking inventory don't support them." He estimates that less than 30% of devices in the field are outfitted with mutual authentication today, leaving many deployments exposed.

Still, WLAN security has come a long way, says Disabato. "Two years ago, people who hadn't been antenna-heads for very long didn't even understand that walls don't stop signals. Now that people are thinking of networks radiating in a 360-degree sphere, they're doing much better." **48342**

Wexler is a freelance writer in Silicon Valley. Contact her at joanie@jwexler.com.



THREATS TO WATCH

Even with the range of WLAN security technologies available today, risks remain. Beware of these three threats:

IDENTITY THEFT

■ Merwyn Andrade, a contributor to the 802.11i security specification and chief technical officer at Aruba Wireless Networks, warns that identity theft could become a problem for enterprises using WLANs. For example, users with 802.11i wireless phones might save their passwords and PINs on the phone for convenience. "This would be like keeping your keys to your house in your wallet and then losing the wallet," he says. "Once 802.11i is pervasive, people might miss that they have to worry about authentication."

DEAUTHENTICATE DENIAL-OF-SERVICE (DoS) ATTACKS

■ Tools like Void11 software can flood a client with deauthentication packets, in effect telling clients that there are too many users associating with an AP and to seek another one. Repeated flooding of such legitimate 802.11 messages could sustain a DoS attack on clients indefinitely.

MESSAGE INTEGRITY CHECK (MIC) DoS ATTACKS

■ In the 802.11i specification, the MIC protocol compares MAC headers when transmitted and when received. If they differ, they are deemed spoofed, so the packet is dropped. However, if this happens twice within a minute, the WLAN AP tells the entire network to log off and stop accepting traffic for a minute. Repeated double MIC changes could result in prolonged DoS attacks.

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8:15am to 8:45am	**Consolidation and the Data Center: Boosting Business Performance and Application Availability** Richard Villars, Vice President, Storage Systems Research, IDC
8:45am to 9:15am	**User Case Study — Hilton Hotels: Considering the Next Generation Network** Damien Bean, Vice President, Corporate Systems, Hilton Hotels
9:15am to 9:45am	**User Case Study — MasterCard International** Jerry McElhatton, Senior Executive Vice President, Global Technology and Operations, MasterCard International
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**End-User Case Study**
10:45am to 11:15am	**Customer Challenges and Solutions: Real-Life Scenarios Connecting Data Centers Over Distance** Steve Adolph, CTO, Enterprise Solutions Group, CIENA
11:15am to noon	**Panel: Overcoming Management Barriers — Making the Case for Consolidation** Panel Moderator: Don Tennant, News Editor, Computerworld Panelists: Damien Bean, Vice President, Corporate Systems, Hilton Hotels; Frank Enfanto, Vice President, Operations Delivery & Information Security, Blue Cross Blue Shield of Massachusetts; Steve Goldman, Director, Network Architecture, Chicago Mercantile Exchange; Ron Kifer, Vice President, Program Management, DHL Express; Jerry McElhatton, Senior Executive Vice President, Global Technology and Operations, MasterCard International
Noon	Program Concludes

Selected speakers include:



Maryfran Johnson
Editor in Chief, Computerworld



Jerry McElhatton
Senior Executive Vice President, Global Technology and Operations, MasterCard International



Steve Adolph
CTO, Enterprise Solutions Group, CIENA



Damien Bean
Vice President, Corporate Systems, Hilton Hotels



Richard Villars
Vice President, Storage Systems, IDC



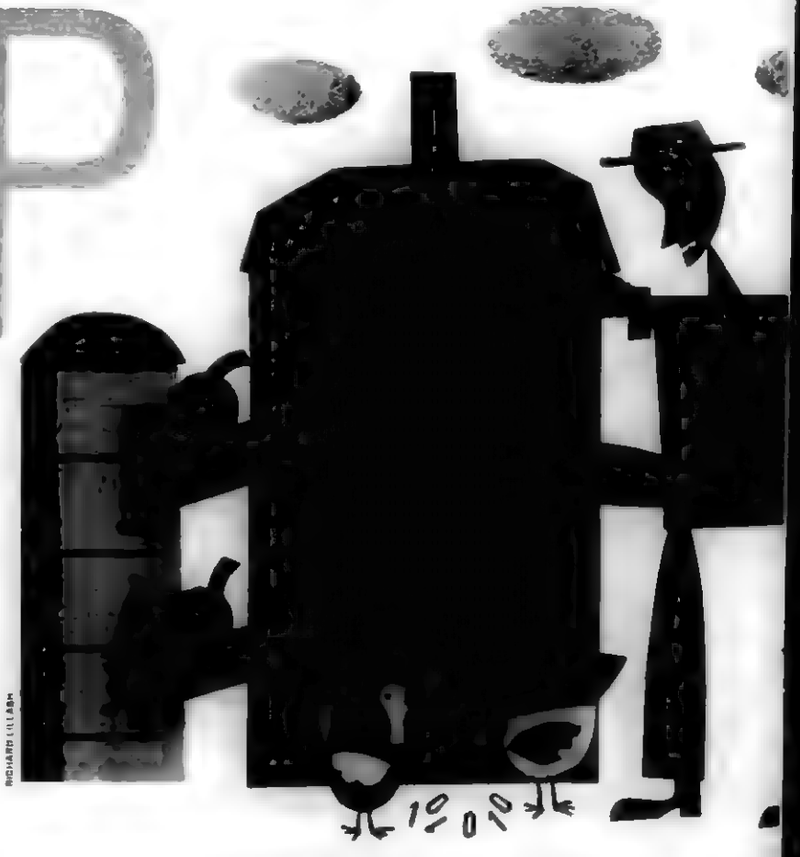
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BACKING UP THE EDGE

Thanks to remote data replication and disk-based backup technologies, the data center is reasserting control over branch-office backups. **BY LUCAS MEARIAN**



MIKE LUCAS, IT director at Hogan & Hartson LLP, had had enough. The Washington-based law firm was paying $30,000 a month to back up data on more than 400 servers located in 27 offices worldwide and store the tapes off-site. Lucas says he couldn't stomach the cost of buying more tape drives to back up every new print, file or application server.

Along with the increasing costs, the tape-based infrastructure created administration issues, including the need to sometimes rely on nontechnical staffers to swap out tape cartridges in each remote office every night and take them off-site.

Then there were the software glitches. "We'd have trouble from time to time with a tape getting hung, having to do a reboot of a server during off hours. We were at risk of not having a backup," Lucas says, adding that retrieving tapes for restoring data in an emergency could take more than a day.

Data protection executed at remote sites is often a hit-or-miss scenario because "no one knows if the backup actually happened or if a restore can occur," says Arun Taneja, an analyst at Taneja Group Inc. in Hopkinton, Mass.

Those frustrations led Lucas to use a remote backup strategy that brings backup data into the data center, where it can be centrally managed. Vendors offer a variety of network-based schemes that pull data across a WAN to a central repository. These systems are simpler to manage and more cost-effective than local tape backups, analysts say.

Most include software and appliances that replicate data from branch offices to the data center, where it is backed up to a disk device and/or tape library. This model eliminates the need for media handling or IT support at remote sites and offers greater security, since backup data is centralized.

The increasing popularity of these systems is starting to affect sales of entry-level tape drives commonly used to back up direct-attached storage. IDC in Framingham, Mass., is forecasting a 20% decline this year as administrators increasingly decide not to back up branch servers locally.

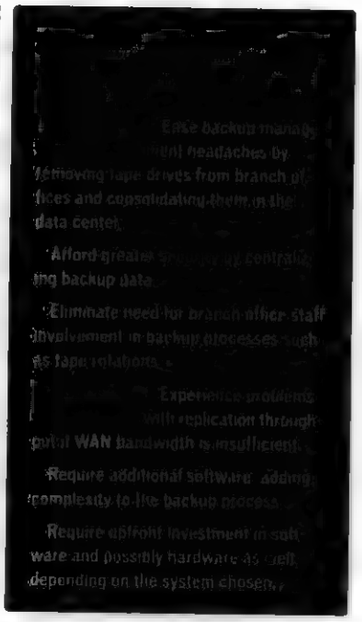
The Options

Vendors offer several approaches to remote backup. Software such as Veritas Software Corp.'s Storage Replicator and CYA Technologies Inc.'s HotBackup first execute a complete backup of direct-attached storage on each remote server or network-attached storage appliance and then move incremental or "delta" changes over the WAN to the data center.

Some organizations with branch offices that host multiple servers are choosing to first consolidate backups to a local disk-backup appliance before replicating data across the WAN. The appliance can complete server backups quickly across a LAN and then stream updates over the slower WAN connection to the data center, where it can be archived to tape.

For workstation backups, some storage administrators are creating virtual drives on remote end-user PCs and mapping those to a file server back in the data center. To avoid performance problems over the WAN, administrators install a local data-caching appliance that gives users access to their files at LAN speeds while updates stream in the background to the back-end appliance in the data center.

Lucas contracted with DS3 Data Vaulting LLC, a service provider in Fairfax, Va., for his network backup system, which includes disk-based appliances and software from Asigra Inc. in Toronto. Asigra's Televaulting DS-Client software runs on servers, desktops and laptops connected to each remote office LAN and automates the backup of about 3TB of com-



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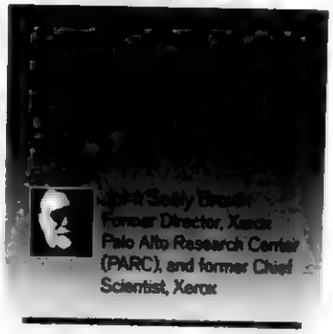
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Conference At-a-Glance *(subject to change)*

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MONDAY, OCTOBER 25

9:30am to 10:25am

INDUSTRY PRIMER TRACK

Addressing High Density Cooling of Storage Networking Equipment at the Facility Level
Donald Beaty, Founder & President, DLB Associates

INDUSTRY PRIMER TRACK

Storage Basics and Trends
Dennis Martin, Senior Analyst, and Greg Schulz, Senior Analyst, Evaluator Group

CAREER DEVELOPMENT TRACK

Power Statements, Questions and Answers Techniques
Howard Goldstein, Founder, Howard Goldstein Associates, Inc.

10:35am to 11:30am

Role of Server Blades and Virtualization in Next Generation Data Center
Arun Taneja, Founder and Consulting Analyst, Taneja Group

Why Tape Continues to Make the Grade
Richard Harada, President, Tape Technology Council

11:30am to 1:00pm Luncheon

Afternoon

SNIA Tutorial Sessions
1:00pm to 5:40pm

- Data Lifecycle
- Virtualization & Securing Your Storage
- Focus on Networking Your Storage
- Focus on Storage
- SAN Management
- Voice of the User

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IDC Briefing Session
1:00pm to 4:00pm

IDC

In this fast-paced session, IDC's top storage analysts will examine companies' growing interest in deploying tiered storage solutions and assess its impact on storage components, systems, networks, management and services.

IT End-User Golf Outing
noon to approximately 6:00pm

The pre-conference golf outing at the Ritz-Carlton Golf Club located adjacent to the JW Marriott Grande Lakes Resort is complimentary (a $125 value) for registered IT end-users. (Other participants, including sponsors and vendor representatives, may play on an "as available" basis and are responsible for all applicable golf outing expenses.)

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7:00pm to 9:00pm Welcome Reception

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TUESDAY, OCTOBER 26 *General Sessions Begin*

8:30am to 9:15am — **Don Tapscott, Renowned Bestselling Author of *The Naked Corporation, Growing Up Digital* and *Paradigm Shift***

9:15am to 9:45am — **The Future of Knowledge Management**
John Halamka, MD, CIO, CareGroup Health System and Harvard Medical School

9:45am to 10:15am — **Kevin Rollins, President & COO, Dell**

10:30am to 11:00am — **Keith Glennan, VP & CIO, Northrop Grumman IT**

11:00am to 11:30am — **Elevating the Art of Storage**
Shinji Iwata, CEO, Hitachi Data Systems

11:30am to noon — **Industry Presidents' Roundtable: A Market Outlook**
Moderator: Don Tapscott, Author of *The Naked Corporation: Growing Up Digital* and *Paradigm Shift*

12:15pm to 1:30pm — CONCURRENT LUNCHEON SESSIONS

General Networking Luncheon
On the Valencia Lawn

Luncheon Session
Steve Duplessie, Founder & Senior Analyst, Enterprise Storage Group

Luncheon Session: Measuring the Value of IT Investments
Richard Snedeker, Managing Partner, InterUnity Group

1:30pm to 2:00pm — **End User Case Study: Best Practices: Data Center Consolidation**
David Cohen, VP Technology Architecture Group, Merrill Lynch

2:00pm to 2:30pm — **Greg Reyes, Chairman & CEO, Brocade Communications Systems**

2:30pm to 3:00pm — **End User Case Study: Evaluating Options for Business Continuity/Disaster Recovery Plans**
Rod Mueller, Manager of Technical Support and Operations, Hewlett-Packard

3:00pm to 3:45pm — **CTO Insights Panel**
Moderator: Jon William Toigo, CEO & Founder, Toigo Partners International

4:00pm to 5:30pm — CONCURRENT SESSIONS

5:30pm to 8:30pm — Expo with Dinner / Interoperability & Solutions Demo Open — Interoperability & Solutions DEMO — 5:30pm to 8:30pm

WEDNESDAY, OCTOBER 27

8:30am to 9:15am — **Nick Carr, former Executive Editor of the Harvard Business Review and author of *Does IT Matter?***

9:15am to 9:45am — **End User Case Study**

9:45am to 10:15am — **Industry Leader Presentation**

10:30am to 11:00am — **End User Case Study: Realizing the Vision of Management Simplicity and Improved Business Processes in a Demanding, Distributed, High-Performance Environment**
Michael Prince, VP & CIO, Burlington Coat Factory

11:00am to 11:30am — **The Half-Life of Storage Trends**
Peter van Oppen, Chairman & CEO, ADIC

11:30am to 12:15pm — **Panel: End Users Speak Out**
Moderator: John Dix, Editor in Chief, Network World

12:15pm to 1:45pm — Expo & Luncheon

1:45pm to 2:15pm — **End User Case Study**

2:15pm to 2:45pm — **Industry Leader Presentation**

2:45pm to 3:30pm — **Analyst Roundtable Panel**
Moderator: Jon William Toigo, CEO & Founder, Toigo Partners International

3:45pm to 5:15pm — CONCURRENT SESSIONS

5:15pm to 7:15pm — Expo and Reception

7:30pm to 9:00pm — Gala Evening, Dinner and Entertainment

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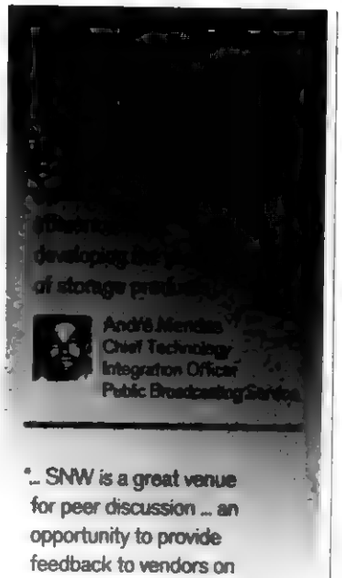
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THURSDAY, OCTOBER 28

7:30am to 8:30am — Breakfast

8:30am to Noon — CONCURRENT TECHNICAL & BUSINESS TUTORIALS

Noon — Conference Concludes



Andrés Mendez
Chief Technology Integration Officer
Public Broadcasting Service

"... SNW is a great venue for peer discussion ... an opportunity to provide feedback to vendors on what users need from them ... I sat down with my key vendors and shared information ..."

John Greer
Director, IT Infrastructure
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Please check ONE of the following:	Earlybird Registration (through September 14, 2004)	Full/Onsite Registration (after September 14, 2004)
❑ **I am an IT End-User*** (Complete Attendee Profile below)	❑ **$895** General Conference Package (October 26 & 27) Includes General Conference Sessions, Expo, Meals & Receptions ❑ **$1,290** Total 4-Day Package (October 25, 26, 27, 28) Includes General Conference, Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test Ready" Courses	❑ **$1,295** General Conference Package Includes General Conference Sessions, Expo, Meals & Receptions ❑ **$1,890** Total 4-Day Package (October 25, 26, 27, 28) Includes General Conference, Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test Ready" Courses
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* "End-Users" are defined as those who are attending Storage Networking World with the intent of purchasing products or services for their own internal business use. Those who are employed by companies whose business development personnel, analysts, consultants and engineers attending are considered

By participating in SNW's Channel Partner/Integrator/Consultant registration category, you agree to [illegible] for full conference passes; company may invite up to [illegible] SNIA are eligible to receive a $[illegible] discount provided that [illegible] registered during the

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The one item that best describes your involvement in the IT purchase process

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What is the estimated annual revenue of your entire organization?

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Would you like to receive information about playing in the golf outing on Monday, October 25th?
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Please send cancellation requests via email to snwreg@computerworld.com

pressed data from local backup appliances in 10 offices over the WAN to an AT&T data center.

After completing an initial full backup, the remote appliance provides updates only for changed data blocks. It eliminates duplicate files, encrypts the data and compresses it at a 2-1 ratio before automatically sending it across the WAN on a scheduled basis.

Lucas expects a two-year payback on his investment. The initial system installation in Hogan & Hartson's central office cost about $13,000. He has deployed 10 offices to date and is continuing to roll out the technology.

Caching Up

Companies such as Actona Technologies Inc. (recently acquired by Cisco Systems Inc.), Riverbed Technology Inc., Disksites Inc. and Tacit Networks Inc. use appliances at both the remote site and the central data center for global file sharing. The appliances speed up access to shared files in part by removing the overhead associated with file-serving protocols such as the Common Internet File System and Network File System.

Mukesh Shah, director of network services at The Associated Merchandising Corp. (AMC) in Plainfield, N.J., is in charge of file-sharing operations among 40 remote locations in a worldwide network that includes data center hubs in Hong Kong and New Jersey.

AMC uses MetaFrame serverware from Fort Lauderdale, Fla.-based Citrix Systems Inc., which gives Windows XP PCs and wireless devices virtual, thin-client access to applications running on back-end servers. It also uses the New Jersey data center for global file sharing of Excel spreadsheets, Microsoft Word documents and other files.

But users in Asia and Europe were waiting more than two minutes for remote files to open. The system also lacked adequate file-locking safeguards for some shared files. Users were "quite unhappy," Shah says.

Eight months ago, Shah began piloting a caching appliance from South Plainfield, N.J.-based Tacit Networks in his New Jersey data center. File-access times dropped from an average of 122 seconds to 11 seconds on first access and eliminated the end-user wait altogether on subsequent attempts after the file was loaded into the local appliance's cache.

"Tacit has a process where you can push files to a local cache on a scheduled basis," Shah says. "So when users go to access the file, it's already there."

When users change and save the file back to the cache, it's also saved on the main file-sharing server in New Jersey, where AMC staffers back it up. "All restores can be done centrally, whereas if we had to substitute the cache appliance with a file server, we'd have the complexity of backups and restores at the remote office level," Shah says.

Outsourcing It All

Overworked IT organizations that don't have the time or resources to set up a remote backup system can consider similar offerings from service providers.

Brian Asselin, IT director at Harborside Healthcare Corp., a Boston-based long-term care company, oversees operations for 55 locations and 8,500 employees, but he says he has only one IT person for each of the nine states in which facilities are located.

Harborside had been using direct-attached tape backup for its remote application servers, but Asselin says ensuring that backups occurred and performing restores were a nightmare.

"Our people working in the facilities are definitely technically challenged," he says. "Logistically, it would be impossible to restore with the people I have."

What's more, the Health Insurance Portability and Accountability Act requires greater security around patient information than Harborside's IT infrastructure can provide, Asselin says. "There's just a slew of security that needs to be in place by 2005 for HIPAA," he says.

Instead of building a central data center where data could be replicated for disaster recovery purposes and further burdening his IT staff, Asselin chose service provider AmeriVault Corp. in Waltham, Mass., to host backup data storage and handle daily replication from the remote sites.

AmeriVault installed its CentralControl software on Harborside's desktops and an agent on each of its servers. After completing an initial full backup of all data, the vendor performs daily, incremental, encrypted backups over the Internet to its disaster recovery centers.

In an emergency, administrators at Harborside can perform data restores, even from home, using a point-and-click application on AmeriVault's Web portal. Alternatively, data can be shipped on tape for large restores.

Asselin says AmeriVault has "processes and procedures" that are HIPAA-compliant, which relieves his staff from having to set up its own compliance program. And Asselin says he also reduced labor costs by outsourcing his remote backup and recovery architecture because "we don't have to have people running around dedicated to the task of backup."

But while the remote backup technology made processes more efficient, the outsourcing approach wasn't necessarily cheaper.

"In terms of actual backup cost, it's pretty much a wash. When you consider bandwidth and license payments for software, it's pretty much even with other backup solutions," Asselin says.

Tony Asaro, an analyst at Enterprise Storage Group Inc. in Milford, Mass., says the costs of edge network backup technologies are continuing to drop, and as large companies investigate using these systems, big vendors are stepping in with new products.

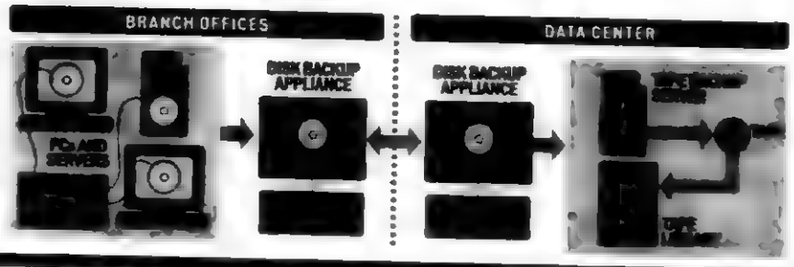
Asaro points to EMC Corp.'s entry-level Clariion AX100 array, which can be directly attached to its NetWin 110 NAS Gateway or bought as a preconfigured storage-area network with backup and storage management software for remote office backup.

And EMC's Legato RepliStor replication software is bundled with switches from Brocade Communications Systems Inc.

"I don't think it's a fad," Asaro says. "I think more people are going to adopt this technology because it's cost-effective." 46547

BACKING UP THE BRANCH OFFICE

In a typical remote office scenario, PCs and application servers in branch offices running backup client programs are backed up throughout the day to a local disk appliance. From there, data is automatically replicated across a WAN link to another appliance in the data center. The data is then streamed to a tape library for archiving.





Software Flight Plan

A retired Air Force general aims to bring military discipline to software



On Aug. 1, Retired U.S. Air Force Maj. Gen. **Paul D. Nielsen** *became CEO and director of Carnegie Mellon University's Software Engineering Institute in Pittsburgh. Before assuming his new job, Nielsen talked to Computerworld's Linda Rosencrance about what his work in the military means for the future of IT and about his agenda for the SEI.*

What are some leading-edge IT research areas in the military? How could they be applied to the commercial world in the future? The military leads in large-scale integration. In the past, we had communication networks that operated at different frequencies that made it hard for people to talk to someone who was on a different frequency or a different kind of receiver. So we're trying to integrate all those systems so people can do cross-banding — so a person who has a UHF radio ultimately can network into a trunk that's maybe at satellite frequency back to the States and then talk to someone and get information back.

I think that's an application the commercial world could benefit from. When you think that there is one satellite providing cable TV to the entire coast of the U.S., losing a satellite could be a terrible thing. But if you could do some of this cross-banding, cross-networking, you might have some ways to work around issues like that and lease services on some other satellite to start to provide services to people that you've lost.

Another project in the military is speech enhancement … where we're doing some unique kind of work.

For example, when linguists listen in on people around the world, often the links that they listen to are rather noisy. So we've had to work over the years to take out the noise in the systems so the linguist has a better shot at understanding what's going on.

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What are the top research projects on the SEI's agenda for the next three to five years? The SEI is already involved in two of the most important pervasive areas in software engineering: process improvement for software and system development, and network security.

I'm convinced that increased efforts in software architectures could help in software quality, productivity and security. We need to boost our efforts in this area.

In Department of Defense systems and in commercial systems, we are increasingly seeing the challenges and difficulties associated with higher and higher levels of integration.

We also see the great benefits to horizontal integration across systems, across enterprises. In most cases, software is predominantly the glue that holds these systems together. So the line between good software engineering and good systems engineering is blurring. SEI has to work with the industrial base, the academic community and the government to improve the state of systems engineering in the United States.

There are other important areas: formal validation and verification, COTS [commercial off-the-shelf] reuse, software supportability, anti-tamper technologies for software, the growing issues of wireless [networks].

FUTURE WATCH

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How will it help the corporate IT department? Corporate IT departments are an important market for software engineering technology, even though these same technologies are also very important to corporations for their external markets. Corporate IT departments need quality systems that are affordable, sustainable, reliable, evolvable and secure. Isn't this the heart of all the efforts on software engineering?

Improvements in the quality of the software, the supportability of the systems and especially the security of corporate systems are crucial for corporate IT departments. 48711

Title: CEO and director

Organization: Carnegie Mellon University's Software Engineering Institute

Background: Nielsen is a graduate of the U.S. Air Force Academy. He has earned three degrees, including a Ph.D. in plasma physics from the University of California, Davis. Until recently, he was commander of the Air Force Research Laboratory at Wright-Patterson Air Force Base in Ohio, where he managed an annual budget of more than $3 billion.

Taming Unruly Systems

A sampler of SEI projects that are under way:

Flow-Service-Quality Engineering Project is defining ways to develop systems with shifting boundaries and users, uncertain COTS software, unpredictable failures and lack of control.

Function Extraction Project is exploring ways to predict the behavior of large, complex programs.

Intrusion-Aware Design Project is defining tools for identifying and implementing system-survivability strategies.

Vendor Risk Assessment and Threat Evaluation Project is developing methods for assessing vendor capabilities as indicators of product quality.

Financial Infrastructure Project is developing scenario-based methods to improve contingency planning and analysis to deal with physical attacks and cyberattacks.

COTS-based Systems Project is developing principles and practices for integrating and evolving systems from previously built and commercially available components.

Software Flight Plan

A retired Air Force general aims to bring military discipline to software



On Aug. 1, Retired U.S. Air Force Maj. Gen. **Paul D. Nielsen** *became CEO and director of Carnegie Mellon University's Software Engineering Institute in Pittsburgh. Before assuming his new job, Nielsen talked to* Computerworld's *Linda Rosencrance about what his work in the military means for the future of IT and about his agenda for the SEI.*

What are some leading-edge IT research areas in the military? How could they be applied to the commercial world in the future? The military leads in large-scale integration. In the past, we had communication networks that operated at different frequencies that made it hard for people to talk to someone who was on a different frequency or a different kind of receiver. So we're trying to integrate all those systems so people can do cross-banding — so a person who has a UHF radio ultimately can network into a trunk that's maybe at satellite frequency back to the States and then talk to someone and get information back.

I think that's an application the commercial world could benefit from. When you think that there is one satellite providing cable TV to the entire coast of the U.S., losing a satellite could be a terrible thing. But if you could do some of this cross-banding, cross-networking, you might have some ways to work around issues like that and lease services on some other satellite to start to provide services to people that you've lost.

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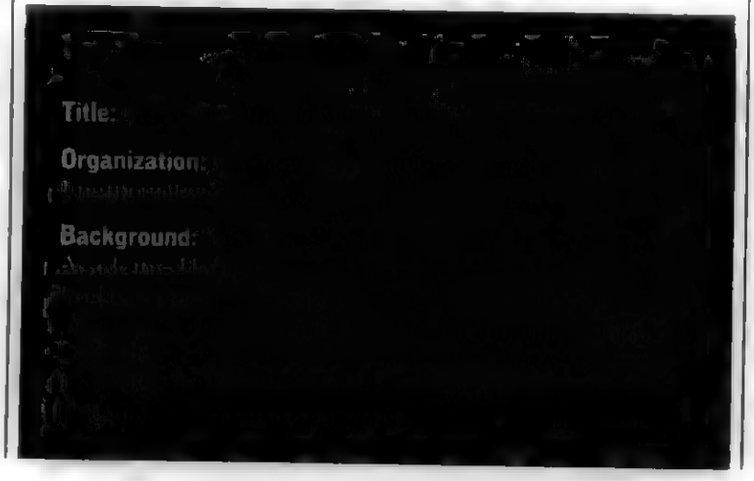
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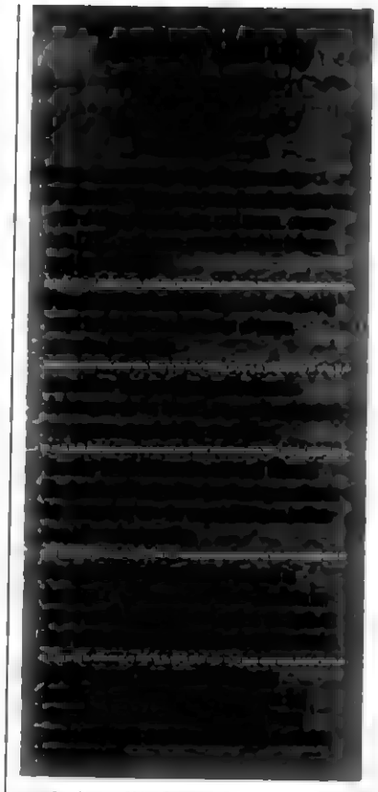
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Antivirus Service Troubled by TLS

Getting Transport Layer Security encryption up and running is difficult enough without having to migrate it to work with an antivirus service. By Roger Foix

SECURITY MANAGER'S JOURNAL

IN MY LAST COLUMN, I explained my experiences setting up Transport Layer Security and how complicated it could get. Unfortunately, I've since discovered that it gets a lot worse.

TLS is a wonderful protocol that can be used to encrypt e-mail between two companies very easily. Most modern e-mail gateway software comes with TLS support built in, but there's a lot involved in setting it up, as I discussed last time [QuickLink 48237]. This week, we've been making things more complex by adding antivirus services to the mix.

A strategic decision was made that it would be better to make sure viruses never reach our infrastructure, and Gloucester, England-based MessageLabs Ltd. was chosen as the service provider. Normally, I'm cynical about the abilities of vendors' technical staffs. But after working with MessageLabs, for the first time in years I can say I'm impressed with a vendor.

Ten Minutes to Trouble

I was invited to the initial meeting with MessageLabs as an afterthought. My colleagues thought I didn't need to get involved, but they invited me to be polite. After all, I was dealing with secure e-mail, so they figured I might as well be along at the start to agree that I didn't need to be involved. The meeting would take only 10 minutes, I was told.

Unfortunately, I did need to be involved. I was concerned about one throwaway comment at the end of the MessageLabs people's presentation. They were asked, "How do we ensure that all our e-mail goes through your service?" They answered, "We just change your MX record to point to our servers instead."

Mail exchange, or MX, records are the routing part of the mail service: They tell the world which servers should handle e-mail for a particular domain. By changing our MX record to point to its servers, MessageLabs ensures that all of our mail goes through its servers, where it can be scanned for viruses.

That's a simple and quick solution. But by changing our MX records, MessageLabs is suddenly rerouting all our TLS connections as well, and we've got about 30 of them.

Technically, this shouldn't present a problem. Their servers can do TLS, ours can do TLS, all our clients' servers can do TLS, and so it should just be a matter of making sure it's working on every server. But so far, about 95% of the project time is being spent dealing with the little TLS problems caused by the migration. The antivirus people aren't happy that their project seems to be getting derailed, and I'm not happy that I'm spending most of my time dealing with a project that was supposed to take 10 minutes of my time.

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The Big Holdup

Truth be told, much of the delay is really my group's fault: We had a bizarrely nonstandard set of TLS connections. Some of our more important clients have decided to do things their own way, and we have to follow their lead. As a result, all of our TLS connections seem to have ended up being subtly different: One uses strong encryption, one uses weak; one uses MX routing, another uses static; one does one type of authentication, another uses none at all; and so on.

All that gives us quite a complicated TLS environment that must be extensively tested and migrated to MessageLabs. But there are two problems. First, much of the testing must be done on our production systems because our test environment isn't extensive.

Second, testing TLS connections on our clients requires the cooperation of our clients' IT staffs. We must deal with 30 IT staffs working for 30 clients on six continents in nine time zones, with 12 sets of holidays and eight native languages.

The tests themselves are easy — send an e-mail to our clients, get them to reply to it, and then quickly check the routing to make sure it was all encrypted. But when you're sending an e-mail from a mail server on the West Coast in the U.S. to a server in France, you've got to send the mail before 9:30 a.m. if you want a reply. So every test tends to take at least a day because we have to wait for people in all the time zones to report back.

Then, just when we'd gotten it all working, we crashed the production mail servers. I won't go into exactly how we did it — it gets embarrassing — but I will say that it turned out to be an obvious error.

We also took a lot of flak from our sales staff about cutting off their e-mail links to clients. One sarcastic salesman's comments hit home. He said, "Remind me, isn't security all about making sure that e-mail keeps working? Doesn't that make it somewhat ironic that you're the ones who are crashing it?"

It's always hardest to deal with the truth.

While I'm on the subject of embarrassing moments, the worst bit about working with MessageLabs is that its people seem to know what they're doing. At our technical meetings, our experts spend 20 minutes discussing whether an idea will work, whether we'll be able to do it with our software, who's actually going to do it, and so on.

Then, when we ask MessageLabs, "Can you do this?" we get the immediate response, "Absolutely, no problems." Twenty minutes for us, three seconds for them.

So my advice for those of you looking to use TLS with a managed antivirus service is to make absolutely sure that your TLS environment is as simple as possible before you try to migrate it. Better still, get the managed antivirus service in place before you set up those TLS connections. Believe me, you'll save yourself a great deal of stress.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Roger Foix," whose name and employer have been disguised for obvious reasons. Contact him at roger.foix@hushmail.com, or join the discussion in our forum: QuickLink a1590

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Firetrust Releases MailWasher Tool

MailWasher Server, an enterprise system for e-mail security management, is now available from Firetrust Ltd. in Christchurch, New Zealand. The product is priced from $7 to $20 per user and is available for Windows, Solaris and Linux operating systems. MailWasher Server's multilayered approach identifies spam or malicious e-mail before it enters a network. The product uses statistical content analysis filtering, connection filtering, policy enforcement, and blacklists and whitelists to help remove spam.

McAfee Revises Policy Orchestrator

Santa Clara, Calif.-based McAfee Inc. announced a new version of its ePolicy Orchestrator security event management software. EPO 3.5 is designed to work with Microsoft Corp.'s Active Directory, can alert staff to network threats and compliance-related issues, and integrates with McAfee's Entercept host intrusion-prevention software. The latest version also includes a virus-source reporting feature and an enhanced Microsoft security patch assessment capability.

Alcatel Improves Endpoint Protection

Calabasas, Calif.-based Alcatel Inc. has enhanced its OmniSwitch technology with a new capability designed to help companies prevent and contain threats to network endpoint devices. The new function combines OmniSwitch's virtual LAN capability with host-integrity, enforcement, and remediation security technology from Sygate Technologies Inc. to allow administrators to ensure that all devices that connect remotely to a corporate network have up-to-date antivirus software and firewalls.

BRIEFS

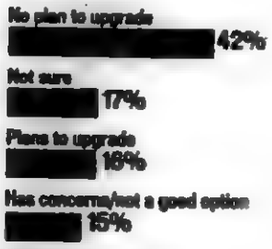
Sybase Rolls Out PowerBuilder 10

Sybase Inc. has announced the release of its Sybase PowerBuilder 10 application development software. New features include Unicode support, enhanced XML Web DataWindow and .Net support, and an Application Refactoring and Object Modeling function that lets programmers reverse-engineer applications. PowerBuilder 10 sells for $2,995; upgrade pricing is $645, according to the Dublin, Calif.-based company.

Certance Launches Ultrium Tape Drives

Certance LLC in Costa Mesa, Calif., announced its CL 800 LTO Ultrium 3 series and CL 400H LTO Ultrium 2 series tape drives. The CL 800 costs $5,999, has a capacity of 800GB and a transfer rate of 480GB per hour and is aimed at large companies. The CL 400H, which costs $1,999 and has a 400GB capacity, is targeted at small to midsize businesses. The unit boasts a 144GB-per-hour transfer rate and is targeted at small to midsize businesses.

How does your organization view Hewlett-Packard's Itanium server road map?



NOTE: Margin of error is plus or minus 4%.
SOURCE: Interex/HP user group poll of 350 members, July 2004

TOMMY PETERSON

Here's to Your (Electronic) Health

I HAD MY annual physical last week, and there were no surprises. The standard admonitions to watch my diet and get more exercise were accompanied by the usual depressing reassurances that all of those little aches, pains and minor bodily dysfunctions were merely normal signs of aging.



Also as usual, my primary care physician imparted this advice and information while shuffling through a bulging manila folder, looking in vain for notes from specialists and test results that either had never been sent or had been inadvertently tucked into an EKG printout from five years ago. That manila folder is as close to a comprehensive medical record as exists for me. And I'm much better off than most people, since I've been going to the same internist for 20 years.

This country's medical records system, or lack thereof, is just one of the things desperately wrong with the way we deliver health care in the U.S. The good news is that the federal government has a plan to use information technology to fix this aspect of the medical mess. The bad news is that the plan will take so long and cost so much to execute that it's hard to have confidence that it will ever come to fruition.

Last month, the U.S. Department of Health and Human Services (HHS) released its 10-year road map for the creation of a "health information infrastructure." The aim is to create a consolidated electronic health record (EHR) for every American and to build a nationwide network for securely transporting those records to health care providers.

The potential benefits of the system are enormous. Estimates of financial savings resulting from streamlined health care administration and the elimination of redundant care range as high as nearly half a trillion dollars a year.

Beyond monetary considerations, a single EHR for every citizen would translate into improved care. Access to more information means that doctors and other providers will make fewer mistakes. Diagnoses and treatment plans would be more likely to be made in the context of the patient's overall health and medical history, rather than just in response to individual symptoms. In this case, technology would actually promote a more holistic practice of medicine.

So, if the potential benefits the health information infrastructure are so great, why isn't it on a faster track? A decade is a long time to wait.

Looking beyond the delays endemic to political maneuvering and entrenched bureaucracies, the sticking points are money and technology.

While the system will lead to enormous savings once it's implemented, upfront costs will be hefty, and the largest portion of them aren't covered in the federal budget. When the HHS plan was announced, Mike Kappel, vice president of strategic planning at health care IT vendor McKesson Corp., told *Computerworld* that its price tag could reach $10 billion [QuickLink 48367]. With the feds allocating just $50 million for health care IT this fiscal year and $100 million for next year, there's a big funding gap for hospitals and doctors to fill.

Administration will incur a big chunk of those costs, but the technology challenges in the project are complex and expensive. An EHR is a virtual entity, not a collection of information that will reside in a single repository. Pieces of the EHR will be scattered among a variety of systems, locations and media. Authorization to access the network infrastructure connecting them will be delegated by the patient, who will have been assigned a cradle-to-grave ID number and be required to use two forms of authentication, such as a security token and a thumbprint. Single sign-on capability will be crucial for providers, if the system is to succeed at its main mission: making it easier for them to get a patient's complete history.

The EHR system will have to maintain a complete audit trail, tracking who accessed a patient's record and when. Electronic document management and workflow tools must be integrated into the system, and providers will need to secure plenty of bandwidth to move images — digitized X-rays and CT and MRI scans and so on — around the network.

There are standards battles and certification skirmishes to be fought. Vendors have lots of work to do, most critically on their software interfaces. Interoperability is what the project is about. And nobody knows how long funding will last, or if the powers that be will, as they say in Washington, stay the course on the project.

But despite the complexity and uncertainty, few federal projects in recent memory have been as worthwhile as this one is. Who knows, if the U.S. can provide EHRs for each of its citizens, someday it might be able to give them all access to health care as well.

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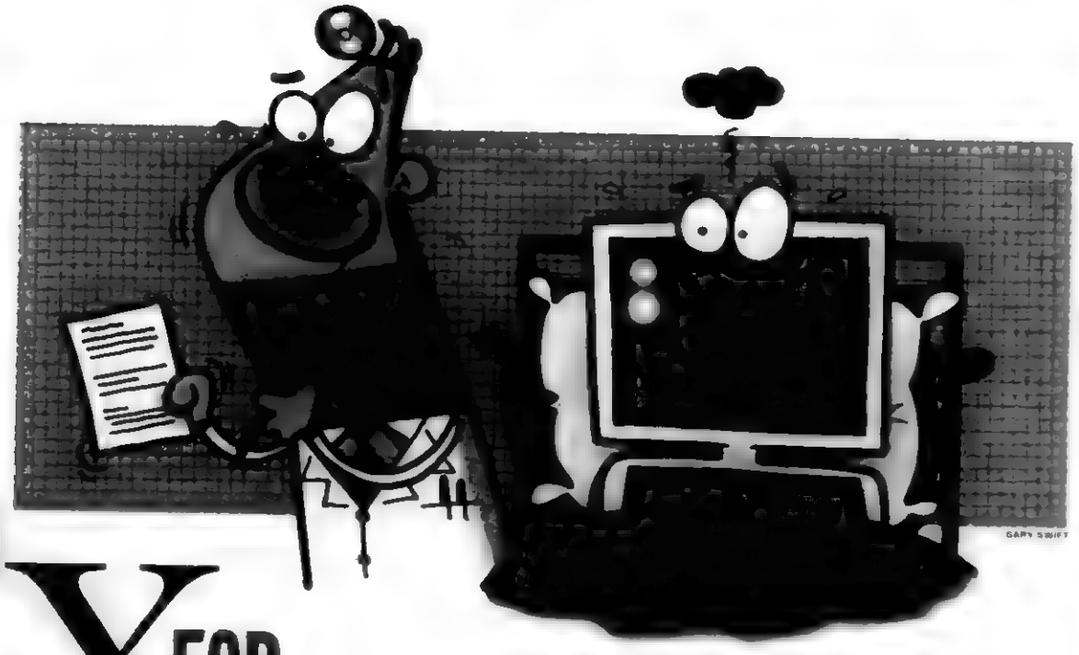


IT MENTOR
IT Survival Guide
Forty years in IT have taught Ace Hardware CIO Paul Ingevaldson a thing or two, and in this valedictory he shares some nuggets with his colleagues. **Page 30**

Q&A
No Free Lunch
Open-source software is free — or is it? It comes with rights and obligations, and attorney and author Larry Rosen says it's important for IT managers to understand both. **Page 31**



Career Watch
Leveraging your skills; how project leaders really get picked; and IBM hits college campuses. **Page 32**



Rx FOR Success

Great hospital safety systems are all about getting the basics right – and knowing what motivates doctors. BY CJ RHOADS

WHEN CIO JOHN HUMMEL tried to computerize the way doctors write prescriptions for patients at Sutter Health, a network of 26 California hospitals, he came smack up against an immovable obstacle: physician resistance.

"We tried to implement computer physician order entry four or five different ways," says Hummel. "We tried four different vendors. We tried PCs, tablets and PDAs." In every case, technology slowed the process for the physicians. A prescription that took five seconds to order on paper took two to three minutes on the system. The doctors were frustrated over the crippling effect on their productivity, Hummel says.

The result: "Even with the [improved] system we finally implemented, it takes about a year for a physician to recover to 90% of their original productivity," he explains, and less than 20% of the doctors use it. "I would have to label the attempt a resounding failure."

User resistance is nothing new in IT projects, but in a hospital setting, the stakes are higher, and life-saving projects can be doomed by recalcitrant doctors. Still, user opposition is justified if new safety systems steal precious time and disrupt workflow.

The best way to win doctors over is to follow the same rules that guide any good IT system implementation: Start with strong executive support and realistic expectations; understand your processes and how the system will affect them; anchor the system with an efficient, bug-free back end; build a user-friendly front end; find committed users to lure in the rest; and provide good technical support. But most important, understand what really motivates your users.

Failed Front Ends

Hospital safety systems are doomed to fail if the physician-facing front end isn't tied to an efficient and responsive back end, and the back end needs to be built first, says Chris Giglio, director of the Accelerated Solutions Center at Cerner Corp., a Kansas City, Mo.-based vendor of hospital automation systems. "The physician changes should be implemented last," he says. The system must have a flawless workflow before it's put in physicians' hands so that the effect on them is minimized.

Jayashree Raman, CIO at The Reading Hospital and Medical Center in Pennsylvania, is following that order. Last year, she installed a back-end medication administration records (MAR) system, which enables clinicians to match a patient's bar code to the bar code on a prescription drug before it's administered. "The MAR is designed to ensure the five rights: right patient, right drug, right time, right dosage, right route," Raman explains.

She also plans to implement a computerized physician order entry (CPOE) system, but that will take time. "It is a complicated project affecting multiple departments," Raman says. "We are working through the process issues and anticipate having a working model in the next few months."

Tomorrow wouldn't be soon enough for Terrence Cescon, a doctor at Berks Hematology-Oncology Associates Ltd., who works with Reading. "Reading Hospital is in the Stone Age," says Cescon, who trained at Hahnemann University Hospital Inc. in Philadelphia, where a CPOE system had already been implemented. Because he's familiar with the technology, ordering a prescription online is quicker for him than writing it by hand, he says.

Back-End Basics

But Hummel maintains that the back-end MAR systems are even more important than the front-end physician systems.

"It's popular to point the finger at doctors' horrible handwriting," he says, referring to the 1999 Institute of Medicine report that estimated that as many as 98,000 patients die each year as a result of preventable medical errors in hospitals. But more recent studies have shown that only 13% of the errors are due to poor handwriting, he says. Eleven percent are introduced at the pharmacy, and a full 50% of the errors are made at the bedside.

"You can spend millions trying to avoid a physician's handwriting, but it won't make that much difference," he says. "Hospitals can make a much bigger impact with bar coding."

Even so, MAR systems alone aren't good enough, says Claire Turner, director of communications for The Leapfrog Group, a Washington-based consortium of companies that provide health care to 35 million Americans. "Implementing only the back-end process doesn't deal with the real issue," she says. "The earlier in the process you catch the errors, the better."

Turner compares a fully automated electronic health record system (which includes both CPOE and MAR) to safety systems in a car. "We need a seat belt, an airbag and antilock brakes," she says.

John Glaser has had experience at both ends. At Partners HealthCare System Inc., a nonprofit network of 10 hospitals in the Boston area, he's implementing CPOE systems at several of his teaching hospitals.

"It's a bear — very complicated, highly invasive of workflow, constantly encountering challenges," he says. But unlike Hummel, he doesn't use the term *failure*. "No project is a complete success or a complete failure," he says. "It's a matter of degrees. All projects have problems."

For example, Glaser tells of rocky times during a pilot of an MAR project. "The wireless PDAs and the network were flaky; they just didn't work reliably," he says. "Plus, we didn't really think through the workflow."

Workflow Reworked

Workflow problems can sabotage a hospital safety system because doctors won't stand for the disruption. "If you do it right, implementing a whole system is like ripping out the backbone of a hospital and replacing it," says Paul Ruflin, CEO of Eclipsys Corp., a provider of hospital medical record software in Boca Raton, Fla. "It is pervasive technology."

"The challenge is redesigning the entire workflow," says Jacque Dailey, CIO at Children's Hospital of Pittsburgh. "Success is based upon process improvement, not the technology."

And process improvement requires strong support — from both executives and IT. Dennis Baker, CIO at Sarasota Memorial Hospital, a community hospital in Florida, has been learning about that since 1999, when he implemented a CPOE system without enough support from either group. "For years, we only had 25% of the orders placed online," he says.

Executive backing, although belated, made all the difference. "We finally got the CEO involved," Baker says. The CEO sent a letter to all the physicians, mandating the use of the system within a year. "Now we are proceeding floor by floor with extra support for the clinicians using it," he says. "We are up to 50% and expect to get to 80% by the end of the year."

Although automated hospital systems are expensive and disruptive and doctors complain about lost productivity in the early phases, helping everyone focus on the big picture can improve the outcome. "You have to do this for the right reasons," Hummel says, "and return on investment isn't one of them."

Hummel says that motivation can make all the difference in physicians' acceptance of a new system, recalling a project designed to ensure that specially trained doctors called intensivists monitor critical-care unit patients. "We implemented a video system so that intensivists can monitor 50 beds at a time instead of 10," Hummel explains.

Because there are only a few intensivists available, they were thrilled to be able to monitor more people during each shift. "We decreased fatalities by 25%," he says. "We proved that it works. The cost is over $5,000 per bed per month, but we saved lives."

Jocelyn Benes, vice president of quality control at Children's Hospital of Pittsburgh, says that when the hospital implemented a CPOE system, "we didn't even measure financial benefits. Our focus on quality was one of the reasons we were successful."

Benes says that appealing to users' dedication to the job is the key to getting their buy-in. "Clinicians are more receptive to doing what's best for the patient than they are to saving money," she explains. "We were successful in decreasing errors, and that's all that mattered to the patients and the staff." 48386

Rhoads is a freelance writer in the Philadelphia area. Contact her at CJRhoads@ETMAssociates.com.

DIFFERENT PLAYERS, SAME GAME

CIOs and specialists who have implemented hospital safety systems say that while the players are different and the stakes are higher than for other IT projects, most of the success factors are similar.

DRIVE the project from the operational area of the hospital, not IT.

USE a multidisciplinary team that includes doctors and nurses to design the process.

GET buy-in from all stakeholders, especially top management and the top doctor in each department. Forcing a system on clinicians who don't see the benefits is a prescription for failure.

KEEP all stakeholders informed throughout the process. Clinicians often don't have offices and don't check e-mail, so devise special methods of keeping them up to date.

ENLIST the nurses and other practitioners early and use their feedback to improve the process before attempting to convert the physicians.

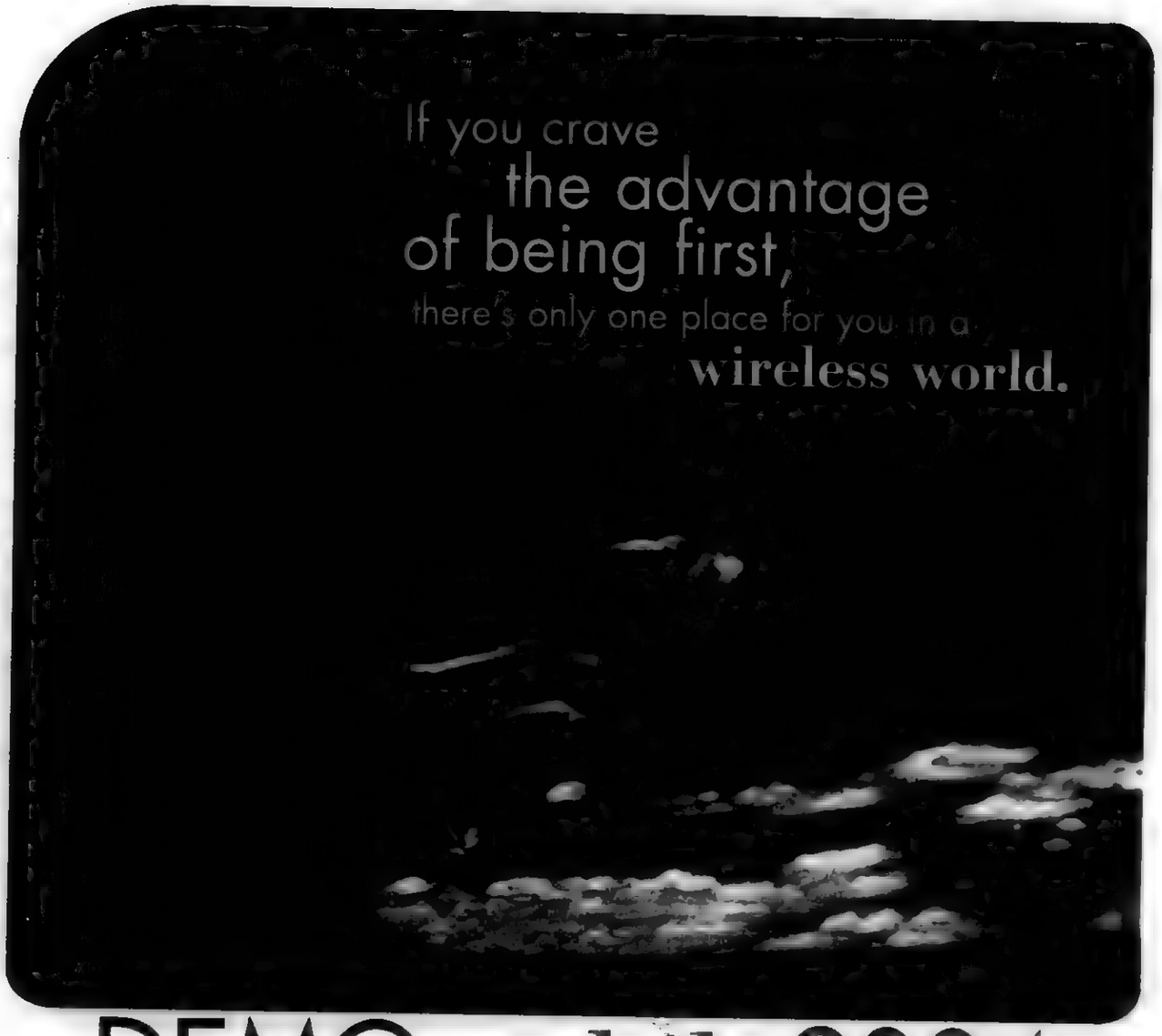
PROVIDE good support and resolve problems quickly. Have people on-site during the rollout phases — especially when physicians are involved.

MAKE SURE the system is ultrareliable. Keep antivirus software up to date and fully test all patches before implementing them. A computer virus isn't normally a life-or-death matter — unless the computer is monitoring someone's life support.

SET the proper expectations for the project. Don't try to do too much too soon, and explain about trade-offs, such as time versus access to information.

FOCUS on measurable quality and safety goals that relate to saving lives. Don't focus on financials or expect the system to save money.

— CJ Rhoads



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IT SURVIVAL GUIDE

RETIRING CIO **PAUL INGEVALDSON** OFFERS **10 TIPS** FOR SURVIVING – AND PROSPERING – IN THE IT JUNGLE.

DEAR COLLEAGUES:

I've been in IT for 40 years, and I plan to retire at the end of this year. Yes, I'm retiring as the CIO, and I'm not being downsized, forcibly replaced or fired. I've been at my current company, Ace Hardware Corp., for 25 years. That's a long time in this day and age of the portable CIO. In fact, *Computerworld.com* reported Dec. 22 that the average CIO tenure is 18 to 36 months.

IT MENTOR

Over the past 40 years in technology, I've developed some practices that have served me well. Perhaps they can also help you survive in the treacherous world of IT. So here are Ingevaldson's top 10 ways to survive the IT jungle:

10 Don't be afraid to leave IT. It's a great experience, and you'll probably come back. And you will come back as a more well-rounded executive. You will also experience IT from the outside in and better understand people's true feelings about IT within the corporation.

And there is nothing more fun and more daunting than trying to make the revenue line. Most of us manage expenses well, but that revenue line is really a challenge. Believe me, you will gain renewed respect for your users.

9 Don't keep IT in the closet. Spread the word, create excitement and convince people to get on the IT bandwagon. We are in a very exciting, dynamic profession that is changing the life of everyone on the planet. You may sometimes think we are selling reports and screens, but remember: We're creating business-changing and life-changing systems.

8 Never think you know it all, because you don't. But even if you do, it will change. Read voraciously, and know what's going on. Read outside of your expertise so you can see the world on a bit larger stage. I love *Harvard Business Review*, *The Economist* and *MIT Technology Review*, along with all the other technology magazines and newspapers.

7 Understand the corporate strategy and mobilize IT to support it. Be sure you're part of the process, not just the implementer. This is a high priority, and you must make yourself necessary in the strategy meetings. This requires that you think in company terms, not IT terms. This is really a stretch for some of us, and it's where the rubber meets the road.

6 Develop a "cheap" image. For some of us, especially a Norwegian like me, this is easy. IT is an expensive, misunderstood area that is clouded by mistrust and arcane concepts. The last thing you need to do is flaunt your image and act like a know-it-all IT savant. Get rid of the Armanis and the pinkie rings. Be down to earth and talk business-speak, not IT-speak.

5 Don't overmanage IT personnel. Our business is exciting and self-motivating. Provide the proper tools and environment, set the right strategy, and get out of the way. Remember when you were a programmer, and how the worst thing was to have someone looking over your shoulder.

4 Expect your people to make dates and budgets on projects. Do this by managing the lock-in dates for both and by minimizing specification creep. Missed deadlines and busted budgets give IT a bad name, and they are often caused by uninvolved users. Be sure — no, demand — that you have user involvement in projects. Be strong and vigilant. Sure, some projects will go over, but that should be the exception, not the rule.

3 Don't charge out IT. Operate it as an expense center. I feel very strongly that the need to charge out is an indication that the company doesn't support IT. If you have a process where top executives make the prioritization decisions, then IT is working on the important applications. There is no need to charge out.

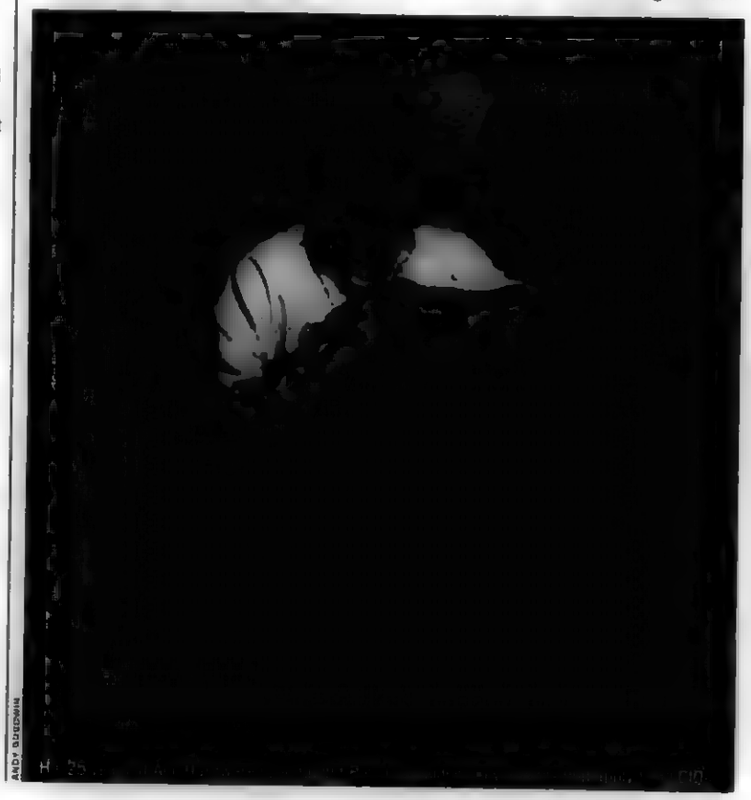
If you decide to charge out and thus operate IT like a utility, then it will never be strategic. Nicholas Carr will be right [QuickLink 37990]. Having electricity in the wall won't give you a strategic advantage. It's just a cost of entry into the game. Besides, the charge-out system is a big system that requires a huge amount of processing time and data input, and it results in much disagreement with the very users we are trying to nurture.

2 Learn to delegate. If you're answering too many easy questions, you're not delegating enough. Sure, it makes you feel good that you still know the answers, and that is a big thing for an ITer. If you delegate the easy ones and get only the hard ones, you'll have a tougher day, but your people will feel more engaged and the department will move faster. Besides, tough days are why they invented single malts.

1 Force IT onto the plate of all senior executives. They can handle it. It's part of their job, just like finance, marketing and all the other major departments. Just mention that you spend between 1% and 7% of corporate revenue and you want to get them more involved. What are they going to say? You'll be surprised by how much they really want to understand technology.

That's my list. It has helped me avoid some of the pitfalls that are out there, and I hope it helps you. Good luck and have fun. You're in a great business. **48479**

— Paul Ingevaldson



ANDY GOODMAN

No Free Lunch

Open-source software comes with rights and obligations. Here's what that license is really all about.

Nothing in life is really free, says Larry Rosen, *and that includes open-source software. As open-source gains traction in business, it's increasingly important to understand the licenses under which it's used. Rosen, who formerly taught programming and database design at Stanford University, is also a founding partner of Rosenlaw & Einschlag, a technology law firm in Los Altos Hills and Ukiah, Calif., and the author of* Open Source Licensing: Software Freedom and Intellectual Property Law *(Prentice Hall PTR, 2004). He talked with Computerworld's Kathleen Melymuka about rights and obligations under open-source.*

As an IT manager, why do I need to know or care about open-source licensing? Because you or your company is, or soon will be, using open-source software.

I never realized that licensing was even an issue in open-source. Why do I need a license for something that's free? Because of the problem with the word *free*. It means too many different things in the language. Birds are free to fly. Is open-source software free in that sense?



Then what does it mean? It means you are given the freedom to do certain things with the software — things like use it, copy it, change it, combine it with other stuff. Because of that, what's important is the license under which those freedoms are protected.

What are the key things to look for in an open-source license? What you need to look for is "What am I being licensed to do?" and "What are the conditions that I'm accepting when I take that license?" And therein lies a tale.

Are there any deal-breakers I need to really watch out for? What you need to look out for is what you give up. What are the conditions, because nothing is really free in life. What you have to give up can be expensive. It depends on the license. You may have an obligation to expose your own source code, take a risk, distribute it under the same license. It's not just free.

Can you give me an example of something that might catch a company by surprise? The one that most people are concerned about is if you create a derivative work and distribute it, you're required to disclose your changes and distribute it under the same [open-source] license.

Then I can't use open-source and customize my own software? You can. For internal uses, it's your business. But if you choose to share it with some other company, your obligation under some licenses is to make it available under the same license.

So I can't sell it? No. That's what people think. You can try to sell it, but if you're required to distribute it under the same license, that license allows people to make copies for free, so you have to tell them they can also have it for free.

What is the General Public License and why should I care? The GPL is the archetype, the first and best and most popular and most influential of all open-source licenses. It is the license under which Linux is distributed and many other software packages that are extremely important in open-source. About 70% of all open-source is licensed under the GPL. So it's important to understand it and its legal effects, its strengths and its weaknesses.

Your book has a section on litigation. Why would anyone sue over free software? People sue over intellectual property because it is property and because the stakes are so high and because the legal constructs are not black and white, and so licenses get interpreted and side agreements get made between companies. Lawsuits are usually by people who don't want it to be free — who want to lock it back up again. As open-source becomes successful, people are going to want to try to make it proprietary, to claim ownership over things they don't have rights to. People will sue over what they have sued about since the first case: money and property. **48482**

Intellectual Property

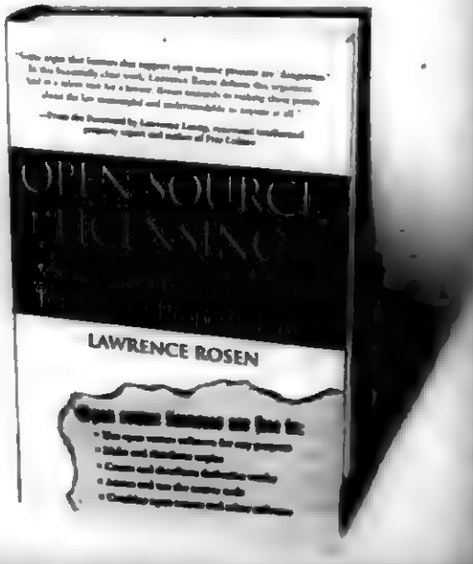
There is much more to software than the disk it comes on. As one California court wrote in 1948, property is a very broad concept that includes not only the tangible but also "every intangible benefit and prerogative susceptible of possession or disposition." Computer software is this kind of intangible property because, under the law, it comes with specific but intangible benefits and prerogatives that can be separately owned and disposed of.

Software is a product of human intellect, and therefore it is a kind of intellectual property. Intellectual property is a valuable property interest, and the law allows its owner to possess and control it. The programmer who writes software – or the company that hires that person to write software – is deemed to be the first owner of intellectual property embodied in that software. That owner may exercise dominion over that intellectual property. He can give it away, sell it or license others to use it. That owner has the prerogative to create copies of the intellectual property, and he or she may prevent others from making, using or selling those copies.

Because of these partly tangible and partly intangible aspects of computer software, it is possible to have different owners own (1) a tangible copy of software purchased at a computer store or downloaded from a Web site, and (2) the intellectual property embodied in that software.

Never confuse these two aspects of intellectual property, for the laws apply differently to each.

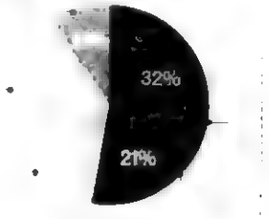
Excerpted with permission from *Open Source Licensing: Software Freedom and Intellectual Property Law*. Copyright 2005 Lawrence Rosen (Prentice Hall PTR, 2004).



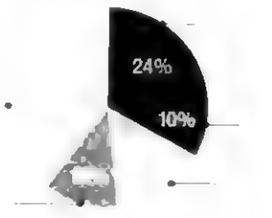
Career Watch

CLOSE-UP: IT Project Leaders

Which has the most effect on the motivation of software project team members?



In your organization, how are team leaders usually selected?



BASE: [illegible]
SOURCE: Cutter Consortium, Arlington, Mass., 2004

Grooming Next-Gen IT Pros

In a 2004 IBM survey of 450 global CEOs, 75% cited education and a lack of qualified candidates as the issues that will have the greatest effect on their businesses over the next three years.

IBM is aiming to better prepare graduates for tomorrow's IT jobs by providing colleges and universities with a wide range of education benefits and programs designed to teach students open standards skills. In addition to offering 40 software programs free of charge through a Web-based portal, the company is offering educators a special rate on hardware. Under the new IBM Academic Initiative, the vendor will also assign technical teams to various universities to assess their IT curricula and provide special training and skills transfer for faculty and staff.

Universities participating in the pilot program include the University of Houston-Clear Lake, Indiana State University, Worcester Polytechnic Institute and Universidade de Brasilia. IBM says it developed the program in response to the need for IT professionals with skills in open-standards-based products. Linux, for example, is the fastest-growing operating system, according to IDC. Java, meanwhile, is used by more than 70% of all enterprises, according to Gartner Inc.

–*Julia King*

ASK AN IT LEADER

Roy E. Lowrance



TITLE: Chief technology officer

COMPANY: Capital One Financial Corp., McLean, Va.

Q&A Lowrance is this month's guest Premier 100 IT Leader, answering readers' questions about job skills and career strategies. If you have a question you'd like to pose to one of our Premier 100 IT Leaders, send it to askaleader@computerworld.com and watch for this column in print and online.

I am currently a junior in college, focused on networking. But my school isn't very strong in that field. What can I do on my own to develop skills that will make me competitive with students from other schools? There are many things you can do to make yourself more marketable. First of all, make sure you take advantage of every opportunity to get a well-rounded education. Having strong expertise in one or more specialized areas is important, but most employers are interested in candidates with diverse skills and knowledge in many different fields.

In addition to technology courses, take classes that will help you develop strategic and critical thinking skills. If you can think strategically and understand business issues, you will be better able to position yourself as a valued technology resource rather than just a commodity. To develop your networking skills, keep current with the latest trends by reading books and trade journals and utilizing Internet resources. Also, look for opportunities to apply and expand your technology experience through part-time work, internships or even volunteer work. If you are fairly certain you want to pursue a career in networking, you might want to consider transferring to a school that has a strong reputation in that field.

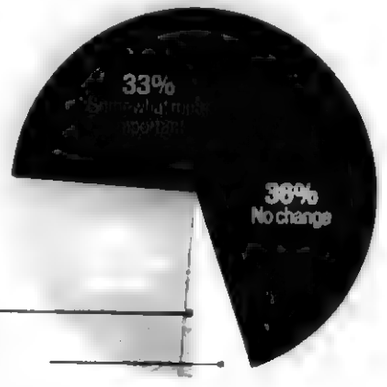
How can I exploit my in-depth knowledge of both software engineering and biotechnology while hedging bets against job outsourcing? Combining a specialty (such as software engineering) with in-depth knowledge of a growth industry (like biotechnology) is a great strategy. To enhance your marketability, keep up with innovation in both your specialty and industry. In addition, look for ways to provide unique value to your future employer. This requires keeping current with what's happening in the IT marketplace so you don't find yourself in a role that is viewed as a commodity. At Capital One, we choose software engineers/architects who can take a strategic view of not only the IT organization but also the company as a whole. The wider view enables them to create better architectures and better systems for the company.

Should I plan to leverage the portfolio of white papers, audits, analyses and case studies I have created in my career when interviewing for a director or CIO position? Some argue that writing skills are irrelevant to the CIO position because verbal and leadership skills are more important. Strong writing skills are valuable regardless what career path one takes. Effective leadership requires being able to convey information and strategies to people in a clear, concise and persuasive manner, whether verbally or in writing. A strong portfolio that demonstrates your ability to communicate effectively through a variety of writing styles will make a favorable impression on most hiring managers.

More and more, business leaders are looking for IT professionals who can be strategic thinkers and truly understand the nuts and bolts of business dynamics. Being able to demonstrate your strengths in writing is an added tool in your arsenal. Don't forget to make sure your resume casts you in the best light. **48706**

Staying Power

Is the retention of your IT staff becoming more or less important as the economy improves?

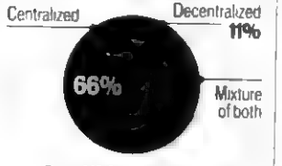


BASE: 1,400 CIOs at U.S. companies
SOURCE: Robert Half Technology, Menlo Park, Calif., July 2004

QUICK HITS

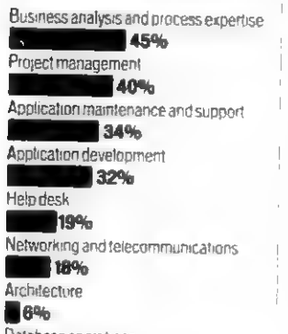
IT GOVERNANCE

How would you describe your IT organization?



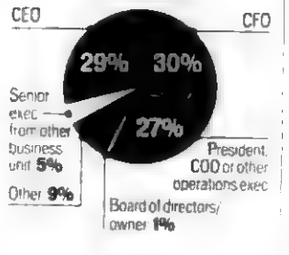
Base: 867 IT decision-makers at North American companies

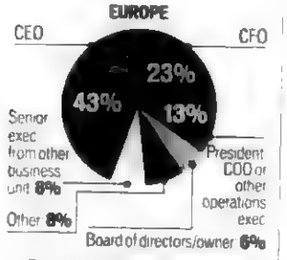
In mixed organizations, which IT activities report primarily to business units rather than to IT?



Base: 309 IT decision-makers at North American and European companies. Multiple responses allowed

To whom does the CIO or senior IT decision-maker report?





Base: 1,263 IT decision-makers at North American and European companies. (Percentages may not total 100 because of rounding.)
Source: Forrester Research Inc., Cambridge, Mass., July 2004

The Changing Face of Information Security

HACKING, CRACKING, global worms and viruses, netspionage, social engineering, internal theft, employees with malicious intent, physical terrorism and cyberterrorism — these are just some of the security challenges organizations face. All the ways we have allowed data to be shared have made undetected theft of sensitive information exponentially easier. While efforts to extend data to the edge of the organization for productivity's sake have succeeded beyond our expectations, attempts to secure that data have failed miserably.



[illegible] is director of security solutions at Forsythe-Solidean Group Inc., an IT consultancy and infrastructure firm in Skokie, Ill., specializing in cost and risk management. Contact him at [illegible]

We are starting to realize that information security is a process in support of the organization, requiring an understanding of the forces that drive business both internally and externally. A security program can be designed to effectively withstand business change only when the organization and the IT department work cooperatively.

Security Blunders

Organizations usually react to threats by implementing some new piece of defensive technology, but while that may appear to be the quick solution, it is often the last thing you should do. Technology without proper strategy and business value can actually leave you more vulnerable.

One publicly traded company redesigned and replaced its firewalls before it acquired another publicly traded company. The parent company was focused on shoring up its infrastructure, but it failed to concern itself with the new organization's environment prior to purchase.

In this case, the first dollar the purchased company transacted after the merger put the parent company at risk. All the parent company's security precautions were in vain, since it had not taken into consideration the security controls of the company it was acquiring. And the CEO and CFO were liable for all noncompliance issues in both companies.

Building a Compliant Organization

The introduction of mergers or mandates like the Sarbanes-Oxley Act complicate security, and organizations need to develop programs that take them into account. With compliance taking a big bite out of IT budgets, companies need to make sure that every dollar spent on technology gets them closer to their compliance goals. Business-driven, top-down strategies are far better than the typical ground-up approach of reacting to threats. Here are some tips for doing this right:

- Understand and fully interpret the governance and compliance issues you are faced with today. Realize that you may be subject to multiple mandates (Sarbanes-Oxley, HIPAA and California's SB 1386, for example) and that it's important to understand all of them before planning to address any single one.
- Employ an external organization to provide a baseline or "gap" study of your environment that includes reviewing your compliance drivers, understanding your security environment as it stands today and prioritizing recommendations. Engaging a contractor to do this sidesteps internal politics that could get in the way of exposing security gaps.
- Once a gap is identified, have a conversation with management about how IT will deliver process and technology to address the *business issue* of compliance. Get management buy-in.
- Create a compliance road map. Specifically address how best to solve each compliance problem through the chosen combination of technology, processes and documentation.
- Build incident detection, monitoring and response programs, realizing that the optimal security environment starts with a clean slate, not with the addition of more technology to an existing mess.
- Develop security awareness and training programs, then prepare all employees to understand their security responsibilities.

Closing the Gap

How will the changing face of information security affect the corporation, and how do we establish an effective business strategy to help it evolve? You must realize that technology alone will solve nothing and recognize that security requirements have evolved from a technology issue to a business issue.

This change requires challenging and rethinking the traditional approach to security. Organizations need to see security as a business objective, or even as an enabler of new technology initiatives, rather than as something forced upon them. This requires communication among business units to develop an environment that is compliant-ready and a culture that is security-aware. Only by taking a proactive approach that recognizes that security extends beyond IT will companies stay ahead of game. **49649**

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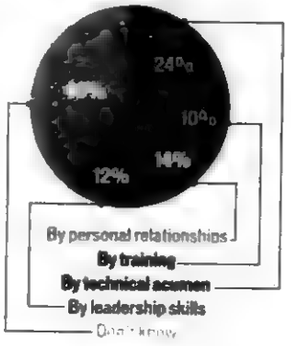
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BASE: Software project teams from more than 250 development organizations
SOURCE: Cutter Consortium, Arlington, Mass., 2004

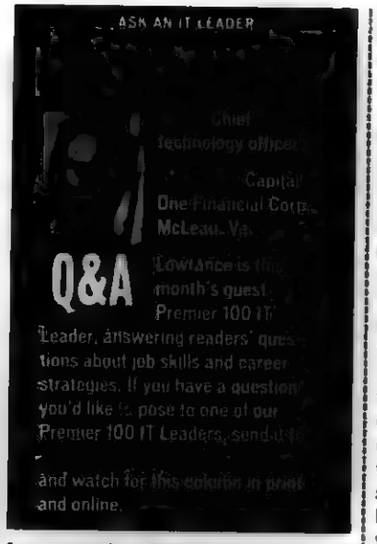
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— Julia King



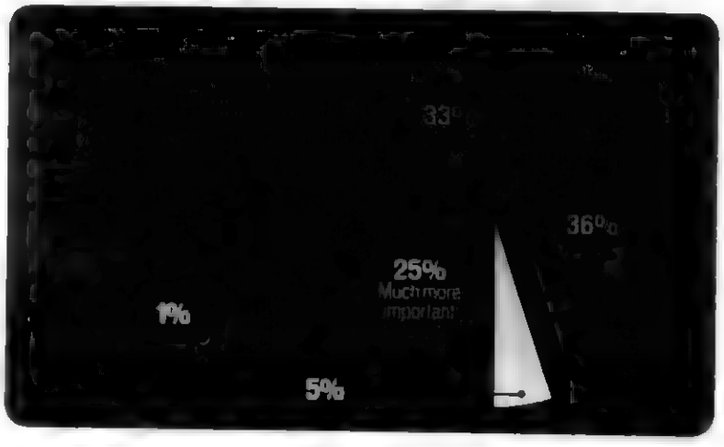
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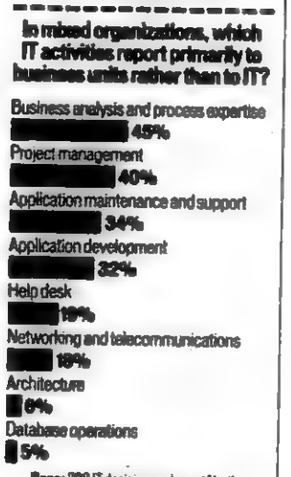
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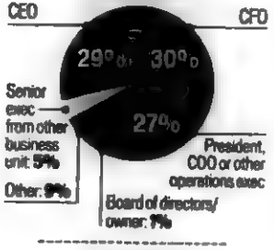
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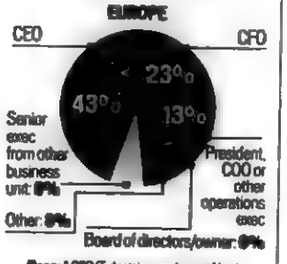
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EDWARD SMITH

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We are starting to realize that information security is a process in support of the organization, requiring an understanding of the forces that drive business both internally and externally. A security program can be designed to effectively withstand business change only when the organization and the IT department work cooperatively.

Security Blunders

Organizations usually react to threats by implementing some new piece of defensive technology, but while that may appear to be the quick solution, it is often the last thing you should do. Technology without proper strategy and business value can actually leave you more vulnerable.

One publicly traded company redesigned and replaced its firewalls before it acquired another publicly traded company. The parent company was focused on shoring up its infrastructure, but it failed to concern itself with the new organization's environment prior to purchase.

In this case, the first dollar the purchased company transacted after the merger put the parent company at risk. All the parent company's security precautions were in vain, since it had not taken into consideration the security controls of the company it was acquiring. And the CEO and CFO were liable for all noncompliance issues in both companies.

Building a Compliant Organization

The introduction of mergers or mandates like the Sarbanes-Oxley Act complicate security, and organizations need to develop programs that take them into account. With compliance taking a big bite out of IT budgets, companies need to make sure that every dollar spent on technology gets them closer to their compliance goals. Business-driven, top-down strategies are far better than the typical ground-up approach of reacting to threats. Here are some tips for doing this right:

- Understand and fully interpret the governance and compliance issues you are faced with today. Realize that you may be subject to multiple mandates (Sarbanes-Oxley, HIPAA and California's SB 1386, for example) and that it's important to understand all of them before planning to address any single one.
- Employ an external organization to provide a baseline or "gap" study of your environment that includes reviewing your compliance drivers, understanding your security environment as it stands today and prioritizing recommendations. Engaging a contractor to do this sidesteps internal politics that could get in the way of exposing security gaps.
- Once a gap is identified, have a conversation with management about how IT will deliver process and technology to address the *business* issue of compliance. Get management buy-in.
- Create a compliance road map. Specifically address how best to solve each compliance problem through the chosen combination of technology, processes and documentation.
- Build incident detection, monitoring and response programs, realizing that the optimal security environment starts with a clean slate, not with the addition of more technology to an existing mess.
- Develop security awareness and training programs, then prepare all employees to understand their security responsibilities.

Closing the Gap

How will the changing face of information security affect the corporation, and how do we establish an effective business strategy to help it evolve? You must realize that technology alone will solve nothing and recognize that security requirements have evolved from a technology issue to a business issue.

This change requires challenging and rethinking the traditional approach to security. Organizations need to see security as a business objective, or even as an enabler of new technology initiatives, rather than as something forced upon them. This requires communication among business units to develop an environment that is compliant-ready and a culture that is security-aware. Only by taking a proactive approach that recognizes that security extends beyond IT will companies stay ahead of game. 48849

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Advertising Supplement

IT Careers: Illinois, Chicagoland Bridge Old to New Industry Age

In an era past, Chicago and the state of Illinois claimed fame in meat packing, transportation, heavy machinery, brewing, and corn. Today's economy is based squarely on technology with more than 7,000 IT-specific companies and a host of heavy IT users ranging from Baxter International to Argonne National Laboratory.

While most Illinois technology companies were hiring in the hundreds in the 1990s, 2004 shows listings in much smaller numbers -- 40 to 50 specialized professionals for larger firms and five to 10 for dozens of smaller companies -- for entry level and senior management IT jobs. Allstate Insurance, long a leader in information technology use, has better than 40 IT jobs listed on its website, while food giant Archer Daniels Midland has listings that include bioinformatics, application support, analysis and opportunities for academic interns.

Among the coups for Illinois and Chicago was the announcement in fall 2003 that Chicago's McCormick Place will host the 2006 Biotechnology Industry Organization International Conference and Exhibition. State leaders point to the win as host site as an indicator of leadership in biomedical device development, pharmaceuticals, agri-science, bio remediation, and research and development innovation.

However, the region is also known for a heavy load of consulting talent, ranging from giants Accenture, Mercer and Hewitt to locally operated firms. Crain's Chicago Business lists its technology who's who as Michael Birck, soon-to-retire CEO of Tellabs; Robert Blackwell Sr., CEO of Blackwell Consulting Services, John Edwardson, CEO of CDW Corp., Richard A. Forsythe, CEO of Forsythe Technology Inc., Gale E. Sayers (yes the football great), CEO of Sayers Group LLC, and Judith A. Sprieser, CEO of three-year-old data synchronization firm Transora Inc. In addition to these home-grown IT and software development groups, the listing includes Carol Potts, area vice president for Hewlett-Packard, and Allan Duffy Gaynor, a global business segment leader for IBM.

The trend with these, and others such as Allstate Insurance, Archer Daniels Midland, Motorola and Baxter International, is in hiring people with specific, advanced skills such as IT architecture, analysis, development and disaster recovery, as well as IT support – in smaller numbers, but still hiring.

The jobs are clustered in the Chicago area, Springfield and east of St. Louis, as well as a software development core that is scattered throughout rural Illinois, including the Carbondale/Southern Illinois University region. According to John Barr, project manager for the IT Cluster in Illinois' Department of Commerce, the state's IT strength is in hardware/networking, software and data services. Software has grown at the fastest pace, with total employment increasing by better than 90% in the past decade, driven by growth with companies such as Platinum Technology, SPSS, SoftNet Technologies and Spyglass.



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source: State of Illinois, DCOE

SHOMEX, long known for its diversity job fairs, is launching a new regional-focused product to meet technology-hiring requirements. The first show, according to Cris Levy, vice president of marketing, is Jan. 19 at the Navy Pier in Chicago. More than 30 companies are expected to participate in the job fair.

For more information about IT Careers advertising, please contact: Nancy Percival
Vice President, Recruitment Advertising
800.762.2977
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Produced by Carole R. Hedden

NovaSoft Information Technology Corp., a software consulting firm & web development co., is seeking Programmer Analysts/one of the following sets of qualifications to work in the Minneapolis area:

*2 yrs exp. designing/developing apps using SQL Server, Visual Interdev 6.0, VB 6.0, ASP, JavaScript & HTML

*1 yr exp. designing/developing apps using Lotus Notes, Domino & Windows NT, & setting up Domino Servers & Lotus Notes on Windows NT

*2 yrs exp. developing/testing strategies using Test Manager, Rational Clear Quest, Rational Clear Case, WinRunner & LoadRunner

BS in Comp. Sci., CIS, Engrg, Electronics, Busns or Math + 2 yrs exp. as a Prog. Analyst, Silver Engr, Syst. Analyst, Consultant or QA Analyst/Engr req. Excellent salary/benefits pkg. Send resumes to: NovaSoft Information Technology Corp., ATTN: HR Dept., 8400 Normandale Lake Blvd, Ste 920, Bloomington, MN 55437.

Lead SW Dev Engineer - Lead a team or be able to independently design, develop, code, test & debug new SW or make significant enhancements to existing SW of moderate complexity using knowledge of Oracle 8.0 - 8.x, Unix shell script, C++, Javascript, HTML, SQL, PL/SQL, Oracle Developer 2000 & Oracle Designer 2000. Develop solutions across many disciplines & be responsible for explaining solutions & procedures. Apply principles, theories & concepts & use methodologies, tools, documentation processes & test procedures to complete projects related to moderately complex SW. BS in Comp. Sc, Engin. or related field & 3 yrs exp & working/theoretical knowledge of OB Development/Admin in Oracle 8.0-8.x; Programming using Unix Shell Script, C++, Javascript, HTML, SQL, PL/SQL & Oracle Developer 2000/Oracle Designer 2000. $73,333/yr, M-F 40 hrs/wk, Denver, CO. Must have proof of legal authority to work permanently in U.S. Application by resume only to Workforce Development Programs, PO Box 46847, Denver, CO 80202. Ref job# CO5086677.

Software Engineer - Applications. Sought by Englewood Colorado consulting company to work in various unanticipated locations throughout the U.S. Duties: Develop, create and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. Analyze and design databases with an application area. Use of Oracle, JavaScript, Perl, Sybase, Internshop, ASP, HTML, SQL and Windows NT. Reqs. Masters or equivalent in Computer Science, Computer Engineering, Engineering (any field) or related field. Plus 1 year in the job offered or 1 year in a related occupation, including Programmer Analyst, Internet Specialist or Programmer. $73,000/year, 40/hrs/wk, 9AM-5PM. Respond by resume to WORKFORCE DEVELOPMENT PROGRAMS, PO Box 46847, Denver, CO 80202, and refer to Job Order No. CO 5086067.

Senior Software Architect, Delray Beach, Florida: Analyses existing functionality and programming of current system and evaluates client requirements for new or modified software system. Within time and cost constraints analyzes, researches, designs, develops, and customizes in Unix financial applications in a client-server environment utilizing Shell Scripting, C/C++, SQL, Motif, Perl and SYBASE. Prepares, plans, develops, codes, implements and documents software systems using detailed design documents, object models and data flow diagrams including data structure, algorithm and procedure flow. Requirements: Master degree in one of the following: Computer Science/Engineering, Mathematics, Computational Science or related area and two years experience in the job offered or a Ph. D degree and six months experience. Wages Offered: $165,000 per year. Hours: 40 hrs per week: Monday to Friday, 9:00am to 6:00pm. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869. Attr: EH., Job Order FL-2526398.

R Systems, Inc. is a global information technology services company and it has multiple Job openings for the following positions at its corporate office in Sacramento as well as Project sites throughout the United States:

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- Database Analyst
- Software Engineers
- Systems Analyst
- Network Analyst
- IT Project Managers
- Business Analyst
- Sales Engineer
- Programmer Analyst
- Sales Manager
- Database Administrators
- Market Research Analyst

Minimum requirement: Bachelor's degree or equivalent and one year experience in the job offered. All positions may involve relocation to project sites.

Submit detailed resume and position applied for to:

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5000 Windplay Drive Suite 5
El Dorado Hills, CA 95762



Database Analyst. Design, implement, maintain database, web pages, software tools and documentation for marketing and financial software applications. Must have Bachelor's in Information Systems, Accounting or related, 1 yr. exp. and knowledge of Microsoft SQL database programming, ASP programming, C, Visual Basic, HTML and Java programming. Send resume to Infinity Investments Inc., Attn: Jim Belvanz, 373 Collins Rd. NE, Cedar Rapids, IA 52402.

SW Engineers to analyze, design business appls for SAP R/3, ABAP, Workflow, C, C++, Java, VB, Oracle, SQL, etc. under Windows, UNIX OS; analyze business processes to determine reqs & generate reports; prepare documents, flow charts and programming specs; create appl prototypes for client approval and rapid appl development; train users in business appl usage. Require MS or foreign equiv. in CS/Engg. (any branch)/Math & 1 yr exp in IT. High salary F/T position. Travel Required. Resume to HR, Smartsoft International, Inc., 3985 Johns Creek Court, Suwanee, GA 30024.

Computer Support Specialist

To support multiplatform computer hardware and software systems users in PC and Unix environment and maintain the company's NT Servers and website. Require B.S. in Computer Information Systems, Computer Engineering or closely related field and proficiency in both Windows and Unix operating systems and in ASP, ASP.NET & SQL Server. 40hrs/wk. Send resume &cover to HR, HGS Engineering, Inc., 1121 Noble Street, Anniston, AL 36201. Job Code: AL-KB.

Stamford Technology Partners Inc. is an IT consulting company with its clients across the USA. We seek a PeopleSoft EPM Functional Consultant. Duties include reporting tool selection; identifying legacy system reporting & architecture; conceptual mapping of hardware configurations for PeopleSoft reporting tools; creating conceptual design docs; assisting staff on docs, identifying gaps in source system, present EPM module to mgmt and team members for review and implementation. Job is located in Tallahassee, Florida or unanticipated locations throughout the USA. If interested, please send resume to: STPI, 289 Boston Tpke #8, Shrewsbury, MA 01545 e-mail: [redacted]

Programmer Analyst, auto parts import. Evaluate user req & implement specialized computer programs, inc inventory, US & export, customs & fiscal req, SBT accounting system in visual fox pro language, warranty/defect control, & pricing/cost analysis/availability. M-F 9-5 $51,000 yr. Bachelor in computer field or equiv ed & exp & 2 yrs exp. Resume to Workforce Program Support, PO Box 10869, Tallahassee, FL 32302-0869. Re: Job Order #FL2544978.

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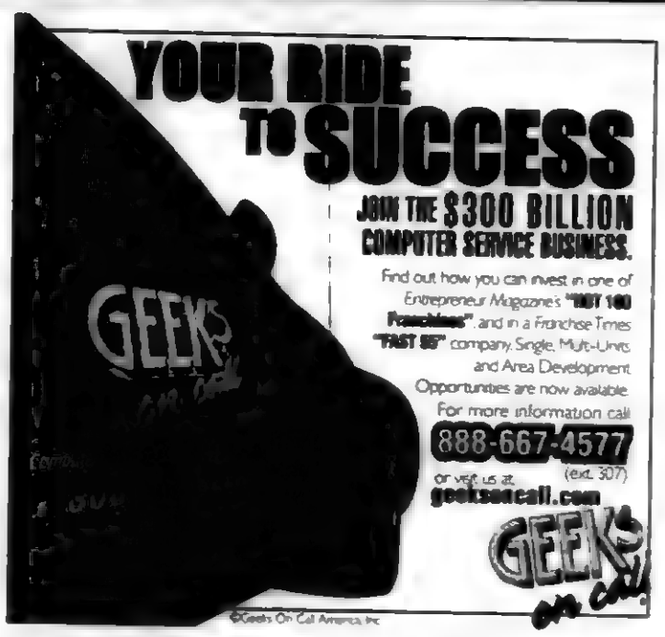
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Senior Programmer Analysts to lead teams to analyze, design, develop, implement appls using SAP, C, J2EE, JSP, RMI, Websphere, Weblogic, and EAI tools like Mercator, Sybase, Vitria, Webmethods, etc under Win-dows/Unix OS; responsible for data modeling, gap analysis, etc; involve in system/business analysis; develop functional specs based on business reqs; design, develop interfaces and perform integration of various modules; test team members/train end users. Require: BS or foreign equiv in CS/Engg. (any branch) & 3 yrs exp in the IT field. Travel involved. F/T posi-tion, competitive salary. Resume to HR, Koneru Software Services, 333 Swanson Dr., Ste 124, Lawrenceville, GA 30043.

Multiple openings for Program-mer/Systems Analysts, Software Engineers. Must have BS in Com Sc or rel field plus 2 yrs exp in requirement analysis, De-sign and development, resolving the technical issues. W/exp in two or more of the following skills: Oracle Applications (GL, AP, AR, FA, PO, INV, OM, CM, BOM modules ver 11/11i) Oracle Reports, forms, Discoverer, Unix, Solaris, C/C++, JAVA, XML, PeopleSoft, Cognos, Win/Load Runner, DB2, PL/SQL, MS-SQL, Sybase, PB, VB, ASP, .net & Windows. Resumes to Z3 Technologies Inc., 11400 W. Bluemound Rd, Wauwatosa, WI 53226. emails: resumes@z3tech.com

Programmer Analyst: program, implement, edit, and maintain user applicabon programs. Trouble-shoot, compile and doc-ument program development. Req: Bachelor's degree or for-eign equivalent (based on edu-cation or work experience, or both) in CS, CE, Electrical & Electronic Engineering, MIS, ME, Electronic and Comm-unication Engineering or related field with proficiency in either Baan, Oracle Financial ERP, Java/Weblogic/Websphere, Informatica, Siebel or C++/Corba. 40hr/wk, 9:00 a.m.- 5:00 p.m. Send resume to Visionsoft International, Inc., 1842 Old Norcross Road, Suite# 100 Lawrenceville, GA 30044

Need IT Professionals like Software Engineers, Programmer Analysts, IT Business Managers for company based in Bristol, PA. MS/BS Degree or equivalent in C.S, CIS, MIS, Engg (any), Math, Phy / rel field and/or rel. work exp. All positions may involve travel &/or relocation to project sites throughout the U.S. Mail resumes to HR at Systems People Inc. 1200 New Rodgers Road, C 7B, Bristol, PA 19007. State the pbst applied for.



Database Consultant/Software Engineer to serve as senior consultant to provide strategic tech leadership for data architecture across Co's systems & market data services. Will initiate, plan, & implement complex database development projects, providing direction for DBMS operasonel & warehousing methods & tools, research DBMS technology, rec-ommend changes in project development methods & strate-gies to architects & manage-ment. Requires Bachelor's or equiv in C.Sc., Engineering, Math, or Physics plus 6 yrs ex-per in job offered, OR 6 years in Database Administration. Alter-natively, will accept No degree plus 8 yrs of exper in job offered OR 8 yrs in Database Admins-tration. Candidate must also possess demonstrated expertise in DB2 administration, incl UDB, AIX, and SOLARIS and UDB replication in a zero latency environment, demonstrated ex-pertise in ORACLE administra-tion, including PL/SQL programm-ing, performance tuning & optimization; and demonstrated expertise in strategic data archi-tecture, including actuate report-ing, ETL tools & operational data storage analysis. Sal $94,750/yr. M-F, 9A-5P. Send 2 resumes to Job Order #2004-226, P.O. Box 988, Concord, NH 03302-0988. EOE. Applicants must be U.S. workers eligible to accept full-time U.S. employment.

IndusValley Consultants, Inc., is a global IT systems integration and solutions firm has openings for the following Software Engin-eers: Research, Architect, Integ-rate distributed applications ut-ilizing various software's such as SAP R/3, Clarify, Siebel, Oracle Apps, Visual Basic, Java, Tibco. Provide leadership to complete design solutions, write code, per-form testing, provide documenta-tion, and implement develop-ment projects. Need Master's Degree in Computer Science or related and 2 years of experi-ence. Programmer Analysts: Plan, test and develop web appli-cations for ERP and CRM pack-ages. Design and develop client-server applications using Java, ASP, VB, C. Clarify, Siebel and AutoCAD2002. Interact with cli-ents to design the functions of software according to client spe-cifications. Need Bachelor's De-gree in Computer Science or related and 2 years of experi-ence. Send resume: HR Manager, 401 E 8th St., Ste. # 200Y, Sioux Falls, SD 57103. E-mail: sam@indusvalley.com fax: 800-440-1907

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Salary $77,126 per year. Mon-Fri, 9:00 am to 5:00 pm. The posi-tion requires: Bachelor's degree in Computer Science, Computer Engineering, IS, MIS or related + 2 years of experience in the job offered or 2 years of experience as Technical Consultant, EPR in-tegration Engineer, SAP Produc-tion Engineer or related occupa-tion. Related experience must include utilization of configura-tion, development and business/technical data warehousing skills and include SAP R/3, SAP Busi-ness Intelligence, SAP Industry Solutions and i2 Technologies.

Please send your resume refer-encing Job Order Number WEB444831 to the PA Career-Link, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

Vensas Technologies has the fol-lowing openings for individuals to work at client sites throughout the U.S. Application Developer with exp in EDI, Java, Websphere, DB2, Mercator, DBA with exp in DB2, Oracle, Solaris, Siebel and Decision Support Products. System Analyst with exp building n-tier static/web applications, Cold Fusion, CFMX, HTML, Java-Script, CSS, Oracle, SQL. System Programmer with exp in DB2 stored procedures, C, C++, Cobol, Java, MVS Internals, JES2, OS; System Analyst with exp in C, Peoplesoft, RTOS, pSOS/vxWorks, Texas Instru-ments, DAC's and ADC's. Software Engineer with exp in Clarify modules, Java, EJB, JSP, Weblogic, Oracle, J2EE, MQ Series, Tuxedo, Rational Rose, ClearQuest, Clear Case, PeopleSoft, Java Programmer with exp in Peoplesoft, Java, Oracle, Discoverer, Developer, Client Server Software Engineer with exp in eCRM packages, Siebel, Vantive and Onyx, ETL Programmer Analyst with exp in ETL tools in large scale Data Warehousing Projects, SQL, Oracle, DB2, Solaris and Rational Tools. All applicants must have B.S. in Computer Science, Engineering or relat-ed. Apply to Vensas Techn-ologies, 20 Trafalgar Square, Suite 400, Nashua, NH 03063.

NovaSoft Information Tech-nology Corp., a sftwr consulting firm & web development co. is seeking a Programmer Analyst to work in the Minneapolis area who will be respons for dsgn, dvlpmnt & implem. of client/serv-er appl sftwr using current IT skills. MS in Comp & Info Sci., Chemistry, Math, Busns or Engrg & 2 yrs exp as Prog Analyst, Sftwr Engr, Sftwr Consultant or Proj Mgr reqd. Must have 2 yrs exp w/ Arcnet/Ethernet protocols, CSMA/ CD protocols, WAN solutions (PC Connect & Netwares) TCP/IP, Win NT & IPX/SPX & 2 yrs exp. w/user & busns. requirements analyses. Excel, salary/benefits pkg. Send resumes to NovaSoft Infor-mation Technology Corp., ATTN: HR Dept., 8400 Normandale Lake Blvd., Ste 920, Bloomington, MN 55437.

IT Professionals, exp'd sought by a Software Consulting Co., in any of following areas (i) J2EE Architecture w/eblogic or silarel, JavaScript & XML/XSLT (ii) Oracle Forms, Reportwriter & Database Dsgn (iii) Lotus Notes, SDLC, PVCS, VM, Tracker rela-tional dbases & IBM MQ Series (iv) Data-warehousing applica using Informatica, Powercenter, Powerconnect, Cognos Report-net & Metrics/Framework & (v) C, C++, ASP, VSS, SQL Server, XML & Net BS in Comp Sci, Eng, or related field. Applicants must be willing to relocate/travel to various unanticipated locs throughout US. Resume to DatamexUSA, Attn: HR, 315A West Lincoln Way, Ste 15, Cheyenne, WY 82001 or email to jobs_wy@datamexusa.com.

IT PROFESSIONALS

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(Glen Mills, PA and other locations throughout the United States). Provide professional consulting services in the areas of business process transformation and implementation of integrated software solutions to meet evolving business needs. Review and analyze client business process requirements, determine optimal integration of business process engineering and emerging information technologies, and propose strategic solutions and business process improvements including benchmarking and design analysis. Lead the design and implementation of mySAP.com EBP such as BugeEye/eMerge Catalog management tools including SAP MM (Materials Management) & PP (Production Planning), SAP Business Warehouse and SAP SD (Sales & Distribution) & WM (Warehouse Management), to provide best-of-breed functionality built for complete integration, industry-specific capabilities, unlimited scalability and easy collaboration over the Internet. Lead the implementation of mySAP.com middleware technologies such as SAP Business Connectors, ALE (Application Link Enabling), BAPI, and IDOC to provide a program distribution model and technology that enables clients to interconnect programs across various platforms and systems. Implement project management tools and create and apply solution specific methodologies to ensure that the delivery and implementation of software solutions meets client requirements and industry standards.

$103,000/year. Mon-Fri 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Computer Science, Engineering (any), or Information Systems plus 4 years of experience in the job offered or 4 years of experience as a Senior Consultant, SAP Consultant, or Executive. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited foreign credentials evaluation service. Related experience must also include 2 years of mySAP.com EBP, SAP MM (Materials Management) & PP (Production Planning), SAP Business Warehouse, SAP SD (Sales & Distribution) & WM (Warehouse Management), mySAP.com middleware technologies & project management tools.

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QA Engineer Req #608Design and develop Dynamics quality assurance test applications using 4GL, ADM2, Dynamics Tools and distributed computing technologies. Install and configure applications in both Windows and Sun operating systems. Assist technical support personnel with product issues; validate product defects and report using internal defect tracking system. Must have B.S. in CS + 5 yrs. exp. or M.S. + 6 mos. exp. in software development. Must have knowledge of Java, XML, OOP, RDBMS, PROGRESS 4GL, ADM Tools and Dynamics. Interested applicants should submit resume to S. Fernandois, Progress Software Corp. 14 Oak Park, Bedford, MA 01730 - Equal Opportunity Employer. For immediate consideration, please visit our career page at http://careers.peopleclick.com/Client40_ProgressSoftware/BU1/External_Pages_PSC/Jobsearch.htm and apply online, referring to the requisition # for the position for which you are applying.

Jr. Programmer Analyst. Assist P.A. in researching, designing and developing s/w for integrated Business-to-Business protocol interfaces using middleware SeeBeyond e*Gate integrator suite and diverse sys. w/in an enterprise using message based brokering s/w. Test s/w on ALX servers and fine tune app. using various UNIX memory mgmt. tools. Assist in creating and analyzing data back up scripts and in UNIX. Assist in bldg. real time and batch mode J2EE comp. app. using J2EE technologies such as servlets, JSPs, JMS, JNDI, and JDBC and app. servers, which include IBM Websphere, BEA Weblogic and Apache Tomcat. Req: BS in comp. Info. Sys., comp. Sci., or related area. 40hrs/wk. Job/interview Site: Des Moines, IA. Send resumet to Chuck Gutta, Emprise Consulting LLC @ 2915 Redhill Ave. # F202, Costa Mesa, CA 92626.

Jr. Programmer Analyst. Assist P.A. in researching, designing and developing s/w for various business problems using J2EE and object-oriented design principles and technologies incl. UML and Waterfall models, and RUP process. Assist in testing s/w solutions using Java, J2EE, JSP, Struts, Servlets, Swing on Unix and windows NT. Assist in developing s/w for SQL Queries and stored procedures on SQL Server and Oracle. Provide test cases and other doc. in CMM 5 standards. Req: BS in comp. Sc., Comp. Eng., or Elect. Eng. 40hrs/wk. Job/Interview Site: De Moines, IA. Send Resumes to Emprise Consulting LLC, Attn: Chuck Gutta, 2915 Redhill Ave., # F202, Costa Mesa, CA 92626.

Seeking qualified applicants for the following positions in Collierville, TN: Senior Project/Process Analyst. Perform project planning and analysis and provide project leadership for IT projects, processes and/or on-going programs. Requirements: Bachelor's degree or equivalent* in business, computer science, MIS or related field plus 5 years of experience in planning, project management or process analysis of IT projects. Experience with: either SQL, ASP or CSP; either Crystal Reports or Crystal Enterprises; and Windows 2000 Server also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Roger Wright, FedEx Corporate Services, 80 FedEx Parkway, Room 108, Collierville, TN 38017. EOE M/F/D/V.

Principal Software Engineer: Primary responsibility for the development of networking software. Responsible for functional spec dev, arch design, implementation and verification. MS or foreign equiv in EE or CS plus 5 yr. exp. that must include 3 yr. with one or more network protocols including IP, TCP, ARP, DHCP, DNS, SNMP,and firewall. Must be familiar with IP QOS protocols and RFCs. Must have development exp. with Linux, and in C/C++. Please send resume to Ucentric Systems, 2 Clock Tower Place, Suite 550, Maynard, MA 01754, Attn to Pat Riley.

Business Analysts to gather, analyze, document, propose systems solutions; lead JAD sessions to analyze, define user business reqs, process descriptions, use cases, scenarios using rational rose, visio etc., re-engineer business processes/procedures, define/document data models using SSAD, OOAD, RUP methodologies; analyze system performance to understand exceptions, anomalies, problem areas; provide direction/assist project teams; Require Bachelors in Business/Mgmt/CS/Engineering with 2 yrs or related exp. Competitive salary. Travel involved. F/T. Resume to: HR, Bahwan Cybertek Technologies, Inc., 209 West Central Street, Ste 312, Natick, MA 01760.

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System/Programmer analysts. IT engineers needed by E IT professionals, Inc. to design system applications to meet client's requirements using Java, Oracle, VB, Web Tech, Unix, SQL, SAP, JSP, J2EE, MS Tech, etc. BS/MS with IT exp required. Contact pete@itprofs.net EOE. No calls.

OTS (Object Tech Solutions) has multiple openings for IT professionals (software engineers, system/program analysts, DBA, etc.) to design and develop applications using various skills such as VB, Oracle, Java, WebSphere, SQL, SAP. Req MS/BS with exp. Contact resumes@ots-usa.com EOE.

Paradigm Technologies is looking for program/system analysts, DBA, s/w engineers. Candidates must have BS/MS with experience. Good skills in C/C++, Java, Oracle, WebLogic, VB, HTML, ERP are plus. Traveling required for some jobs. Please apply at jobs@paradigmtek.com. EOE. No calls.

Stryon, a leader that provides Software Transformation Solutions, looks for IT professionals to develop our own migration products, .NET and J2EE & our bridging middleware products. iHUB and R-JAX. Must have BS/MS with IT exp. Please send resumes to: contact@stryon.com. EOE.



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Global Consulting is looking for programmer/system analysts, software engineers. Candidate must have BS with IT experience. Good skills in C/C++, Java, Oracle, EJB, J2EE, WebLogic, VB, HTML are plus. Traveling is required for some positions. Apply job@g-c-g.net EOE. No calls.

Systems Analyst sought by large employer in Electronic Print Svcs industry. Reqs BS in Engg, CS or MIS. Min. 2 yrs IS exp in a high speed digital print technology environ & using document print/print image formats incl Xerox Meta/code & DJDE, IBM AFP, Adobe PDF, fonts, bar-codes, font edit tools, document dsgn tools. Min. 2 yrs exp using Process Automation on multiple platforms (IBM MVS, Window, Unix, HS Printers) Min. 2 yrs exp w/VC++, VB, MS Access, SQL. Micro Tech, tMR Alchemy, Ekser & CompuSet. M-F 8-5. Respond to Scott Erickson, HR Mgr, Moore Wallace, Business Communication Svcs, 630 W 1000 North, Logan, UT 84321.

eToys Direct seeks applicants for the position of Web Applications Developer in Denver, CO to design and develop custom web-based software applications. Requirements include bachelor's in computer science or related field and experience in designing and developing web-based applications. Requirements also include working knowledge of TCL/TK, Expect Programming Language, Oracle Development and Python Scripting Language. Respond by resume to Gigi Healy, eToys Direct, 1099 18th St., #1800, Denver, CO 80202.

Database Aps Engr - Design, develop, & impl. RDBMS util SQL & multi-tiered distributed apps util. VB, ASP, & HTML/XML, to run on Windows NT o/s. Provide on-site info. systems consulting to corp. clients in order to maximize info system efficiency. REQS: MS in CS, Math, Physics, or any Engineering discipline, + 2 yrs of exp in job offered, or 2 yrs of exp as a Database Admin or Database Design Analyst. Salary $65,000 to $80,000, DOE. Ind benes, 40 hrs/wk. EOE. Job loc: Various unanticipated locations throughout U.S. Apply by resume only to Job #CO5087982, Worldcorp Development Programs, P.O. Box 46547,Denver, CO 80202.

Computer Support Specialists - needed for various unanticipated locations in US to support clients' technical efforts in building and configuring computer systems, performing network admin and hardware troubleshooting. BS in Mechanical/Electrical Eng reqd. 40 hr/wk, $20+/hr. Send resume w/ ad to Ms. Shipe, OAO Services, 2286 South Dobson Rd, #209, Mesa, AZ 85202.

IT PROFESSIONALS

Senior Consultant

(Glen Mills, PA and other locations throughout the United States). Responsible for Siebel software development tasks associated with the design and development for customization of Siebel applications. Develop Siebel objects including creation of business components, business objects, applets, views and screens. Develop Siebel Enterprise integration objects enabling Siebel to integrate with other systems including SAP and Oracle utilizing Siebel Enterprise Integration modules. Create integration objects, workflow processes and data mappers and develop business services to incorporate the required logics. Test workflows and utilize various Siebel connectors and adapters enabling Siebel to communicate with middleware technologies and other applications. Utilize Siebel Enterprise Integration Manager to load data into Siebel from other legacy or source systems. Prepare data sheets as per table requirements, write control files, run SQL loader scripts to load data in the interface tables and create server tasks to run the Enterprise Integration Manager process. Develop strategy documents for proposed technical solutions, design deliverables, develop documents, and write test scripts and test plans. Responsible for the scoping and mapping of operational reporting requirements to Actuate Siebel reports with report parameters/filters, and design the Actuate Siebel reports. Lead data integration, and oversee data conversion and application configuration efforts including leading a team of Siebel developers. Perform the analysis of existing business and system use cases and requirements documentation. Perform accurate analyses and effective diagnoses of client issues and oversee day-to-day client relationships on client engagements. Implement project management tools and create and apply solution specific methodologies to ensure that the delivery and implementation of software solutions meets client requirements and industry standards.

$82,650/year. Mon-Fri 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Computer Science, Engineering (any), Information Systems, Mathematics, or Business Administration plus 5 years of experience in the job offered or 5 years of experience as a Senior Consultant, Consultant, or Software Engineer. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited foreign credentials evaluation service. Related experience must also include at least 1 year of Siebel application development, Siebel enterprise integration development, utilization of Siebel Enterprise Integration Manager, integration of Siebel with other applications including SAP or Oracle and development of Actuate Siebel reports.

Please send your resume, referencing Job Order Number **WEB444961** to the PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

Systems Analyst w/SCSA needed at client sites to dsgn, dvlp, code, test, debug, modify & implmt prgms, provide Tier 3 support of Web, Mail, DNS & provisioning Internet services, dsgn & implmt high-available Unix systems: tools incl JDK, Perl CGI, HTML, Veritas Volume Manager & Cluster Server, Netbackup, CheckPoint Firewall, Cisco Routers, Foundry Switches, TCP/IP networks, Sun E420, SunE250, Solaris, RedHat, Oracle, Sun StorEdge A5200, NETApp F760, DNS, NIS & NFS. Apply to: Global Consultants, Attn: Hiremi, 25 Airport Rd, Morristown, NJ 07960.

Computer Programmers needed. Seeking qual candidates possessing BS or equiv. and/or rel. work exp. Part of the req. rel. work exp must include 2 yrs working w/ Java and XML and 1 year working with Net. experience can be simultaneous. Duties include: Develop & write programs; Configure HW/SW; Analyze & implement remote control of Software packages. Work with Java, SQL, Linux, .NET, & XML. Send res., ref. & spl. req. to: Applienz Technologies, 322 S. Mosley, Wichita, KS 67202.

Systems Administrators to plan, design, install, maintain and administer LAN/WAN networks; install, configure, administer Windows NT, IIS & SQL Servers; maintain backups and provide support for users; create, maintain user accounts; manage communication systems including Mail servers; evaluate new/existing systems, recommend future IT strategies. Require BS of foreign equiv in CS/Engg (any branch)/Busn. with 2 yrs exp. in Sys Admin./Sys Mgmt. F/T. Travel involved. High Salary. Resumes to: HR, Fourth Technologies, Inc., 585 Tollgate Road, Ste I, Elgin, IL 60123.

Programmer 1. Under supervision, design and implement applications and database support tools using Java, JSP and stored procedures development environment; maintain and oversee the coding standards; provide technical support for resolution of customer issues, and function as mentor to other Software Engineers on development standards and methodology. Must have Bachelor's in Computer Science, Engg, or related, 1 yr. exp., and experience must include working with Java, JSP, Struts, XSLT, Websphere, ClearCase, Rational Rose and Crystal Reports. Send resume to Praxis Technology Group, LLC, Attn: Mark; Loomis, 1500 NW 118th St, Des Moines, IA 50325.

Jr. Programmer Analyst. Assist P.A in researching, designing and developing s/w for various business problems using J2EE and object - oriented design principles and technologies incl UML and Waterfall models and RUP process. Assist in testing s/w solutions using Java, J2EE, JSP, Struts, Servlets, Swing on Unix and Windows NT. Assist in developing s/w for SQL Queries and stored procedures on SQL Server and Oracle. Provide test cases and other doc. in CMM 5 standards. Req: BS in Comp. Sci., or Comp. Info. Sys. or Comp. Eng. 40 hrs/wk. Job/interview site: Des Moines, IA. Send resume to Empiree Consulting LLC, Attn: Chuck Gutta, 2915 Redhill Ave., # 202, Costa Mesa, CA 92626.

Control Systems Designer wanted by construction supplies mfr in IL to dsgn special controlling systms/software, dsgn/diagram structures & circuits. Provide s/ware prgm reqmt specs; eval control dsgn systms models w/physical models. Must have Bach or equiv in Comp Sci. Respond to: Mr. Bob Kuzy, Universal Form Clamp, Inc., 840 S. 25th Ave, Bellwood, IL 60104. No calls.

A global software development company headquartered in Newark, DE is seeking Software Engineers for Multiple Openings:

Duties Include: Research, design and testing of software applications. We have multiple positions available for various skill sets which may include the following: Oracle, Siebel, C, C++, Crystal Reports, Sybase, DB2, Visual Basic, MSAccess, PL/SQL, COBOL, JCL, CICS, Java, COGNOS, PowerBuilder, XML, ASP, HTML on UNIX, Solaris, LINUX and Windows NT operating systems.

All positions require the minimum of a Bachelor's Degree or U.S. equivalent along with one (1) year of experience in the position of software engineer, programmer analyst, software programmer, systems analyst, consultant or a related/equivalent occupation. **Positions require extensive travel and/or relocation.**

Highly competitive salary offered between $52K and $55K. Send resumes to Delaware Department of Labor, Division of Employment and Training, 4425 North Market Street, P.O Box 9828, Wilmington DE, 19809-0828. Please refer to Job Order # DE 205314

A global software development company headquartered in Newark, DE is seeking Software Engineers for Multiple Openings:

Duties Include: Research, design and testing of software applications. We have multiple positions available for various skill sets which may include the following: Oracle, Siebel, C, C++, Crystal Reports, Sybase, DB2, Visual Basic, MSAccess, PL/SQL, COBOL, JCL, CICS, Java COGNOS, PowerBuilder, XML, ASP, HTML on UNIX, Solaris, LINUX and Windows NT operating systems.

All positions require the minimum of a Bachelor's Degree or U.S. equivalent along with one and a half (1.5) years of experience in the position of software engineer, programmer analyst, software programmer, systems analyst, consultant or a related/equivalent occupation. **Positions require extensive travel and/or relocation.**

Highly competitive salary offered, between $54K and $56K. Send resumes to Delaware Department of Labor, Division of Employment and Training, 4425 North Market Street, P.O Box 9828, Wilmington, DE 19809-0828. Please refer to Job Order # DE 205265

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Structured systems analysis, design, development, modification, testing, quality assurance, implementation, integration, maintenance and support of large volume online complex integrated client-server based financial and human resource management application systems in a multi-hardware/multi-software environment using centralized or distributed Relational Database Management Systems (RDBMS) such as DB2, Oracle, Sybase, SQL Server, SQL Base and related software. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr experience in job offered or as Programmer Analyst/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 3 of B. A includes PeopleSoft Financials, PeopleSoft Human Resource Management and B includes PeopleTools, PeopleCode, SQR, Crystal Reports, COBOL. High mobility preferred. 40 hrs/week, 8 am - 5 pm. $86,533 - $78,000 per year. Qualified applicants should contact or send resume to: BECS/CareerLink Program Supervisor, Indiana County CareerLink, 300 Indian Springs Road, Indiana, PA 15701. Refer to Job Order # WEB 444189

IT PROFESSIONALS NEEDED

MindTree Consulting, an established and expanding IT consulting company offering product realization services to Internet infrastructure and device vendors, is searching for qualified IT professionals to join its growing team. Presently, we have positions for Technical Architects, Software Consultants (systems analysts, P/As, Soft. Enggs.). Experience with Cisco Router, Compaq servers, Implemented Checkpoint network security firewalls, Rational Rose, IPlanet Webserver, Sun Microsystem's J2EE architecture desired. Qualified applicants will have a bachelor's degree in a relevant field and/or qualifying industry experience. Positions may require relocation to various client sites throughout the United States. Qualified applicants submit resumes to HR Department, The Tower at 270 Davidson Avenue, Suite 305, Somerset, NJ 08873

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Systems Analyst

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Please forward your resume to Computer Sciences Corp., Attn: J. Lis, 2100 E. Grand Ave., Mail Code: A209, El Segundo, CA 90245. Please indicate the specific job title and location for which you are applying.



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A global software development company headquartered in Newark, DE is seeking Advanced Software Engineers for Multiple Openings:

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All positions require the minimum of a Bachelor's Degree or U.S equivalent along with two to three (2-3) years of experience in the position of software engineer, programmer analyst, software programmer, systems analyst, consultant or a related/equivalent occupation. **Positions require extensive travel and/or relocation.**

Highly competitive salary offered at $84K. Send resumes to Delaware Department of Labor, Division of Employment and Training, 4425 North Market Street, P.O Box 9828, Wilmington, DE, 19809-0828. Please refer to Job Order # DE 205261

A global software development company headquartered in Newark, DE is seeking Advanced Software Engineers for Multiple Openings:

Duties Include: Research, design and testing of software applications. We have multiple positions available for various skill sets which may include the following: Oracle, Visual Basic, SQL Server, Java on UNIX, and Windows NT operating systems.

All positions require the minimum of a Master's Degree or U.S equivalent along with one (1) year of experience in the position of software engineer, programmer analyst, software programmer, systems analyst, consultant or a related/equivalent occupation. **Positions require extensive travel and/or relocation.**

Highly competitive salary offered at $84K. Send resumes to Delaware Department of Labor, Division of Employment and Training, 4425 North Market Street, P.O Box 9828, Wilmington, DE, 19809-0828. Please refer to Job Order # DE 205829

Information Specialist (Miramar, FL) - Design, construct, test and implement applications for sales, revenue and reservation systems in the transportation industry using Java and COBOL in UNIX, MVS and Windows environment; apply CMM level 3 practices and SCL software development life cycle methodology to develop software; collect, define and organized detailed user requirements through interaction with customer, define scope, plans and deliverables for projects, enter program codes into computer system. Requires Bachelors in Electrical Engineering or Computer Science and either 4 yrs exp in job offered or 4 yrs exp in designing and constructing applications for sales, revenue and reservation systems in the transportation industry using Java and COBOL in UNIX. Salary $65,000/yr. Mon-Fri, 8AM-5PM, 40 hrs/wk. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to J.O. # FL-2543510.

Senior Software Engineer to lead a team in the design, development, implementation, testing, maintenance, and supporting application software in a client/server environment using object oriented programming. Oracle, Java, J2EE, JSP, Servlet, JDBC, EJB, J2C, JMS, JAAS, HTML, XML, UML, RDBMS, Struts, JavaScript, MS-Project, WSAD, and WAS under UNIX and Windows operating systems. Supervise and mentor junior programmers. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with five years of progressively responsible experience in the job offered or as a Systems Analyst. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to Sophie Mookanje, President SPI, 3901 Roswell Road, Suite 134, Marietta, GA 30062. Job JR

Database Administrator, Ft. Lauderdale, FL: Define & administer database organizations, standards & procedures using RDB, VMS, SQL Server, Java, J2EE, WebSphere, XML, Visual Basic, Cold Fusion, DHTML & Rational. Must have Bachelor's Degree in Computer Science & 3 yrs. exp. in job offered or with all phases of software development life cycle. Mail resume to ref #220, HR-Program, Spherion Corporation, 2050 Spectrum Blvd., Ft. Lauderdale, FL 33309

Abbott Laboratories seeks qualified Systems Analysts, Database Administrators, Applications Programmers, Software Engineers and Software Specialists with experience in one or more of the following technologies: SAP, ABAP, BASIS, RDBMS, SUN UNIX, Solaris, Oracle, AS/400, PL/SQL, Visual Basic, C/C++, Windows, UNIX, SAS, HTML, XML, Java, JSP, JavaScript, Documentum, LAN, Lotus Notes. Respond by mail to Abbott Laboratories, Dept. 323, Bldg. AP6D2, 100 Abbott Park Road, Abbott Park, IL 60064-32537. An EOE. Refer to ad code: IT-KE

PROGRAMMER/ANALYST to analyze, design, develop, test, implement and support web-based client/server application software using C, C++, Java, HTML, XML, JSP, Servlets, EJB, CORBA, RMI, WebLogic, WebSphere Servers, Oracle and DB2 on AIX-UNIX and SUN Solaris platforms. Require B.S. degree in Computer Science/Engineering, or a closely related field with 2 yrs of exp in the job offered or as a Software Engineer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ravi Kandimalla, Everest Computers Inc., 875 Old Roswell Road, Ste E-400, Roswell, GA 30076. Attn: Job GB

COMPUTER/IT

Program Manager. Software Engineering. Req. Master's degree in Eng. or Comp. Sci. and 3 yrs. of software engineering experience. All stated experience must include utilizing each of the following: C, C++, Visual Basic, C#, JD Edwards ERP system and CMM Level 2. Plan, direct and coordinate the activities of team of software developers responsible for utilizing the Capability Maturity Model for Software (CMM) Level 2 to identify the key practices required to assess and improve BE&K's software processes. Send Resumes to: D. Brasher, Job Reference #002, BE&K Engineering Company, 2000 Interstate Park Drive, Birmingham, Alabama, 35243.

CONSULTING SERVICES ENGINEER to study and analyze business processes of client companies to optimize efficiency of their transportation and supply-chain resources. Develop large scale logistics decision support systems and cutting edge decision tools using scientific analysis, mathematical models and algorithms, as well as computer skills including Visual Studio.NET, VB.NET, C#, SQL, XML, ASP.NET, ADO.NET, MS MapPoint, MS Source Safe and Remote Administrator on Windows 2000/XP/NT platforms. Develop and maintain database architecture for business object representation and distributed processing using SQL Server 2000. Design and test highly-efficient complex database objects including stored procedures, functions, triggers and constraints. Require: M.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs. of exp. in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Manoj Madhavan, Hybrid Solutions, Inc., 4800 Avocet Drive, Norcross, GA 30092; Attn: Job SK.

PROGRAMMER ANALYST - Consult with client to determine technical requirements, evaluate client's existing software, hardware and operating systems and analyze to determine necessary changes and modifications. Develop necessary programming applications using tools such as VISUAL BASIC, VISUAL FOXPRO and SQL. Salary $57,449.60/yr., 40 hr. work wk. (9:00 a.m. to 5:00 p.m.) Requirements: B.A. in Engineering or Computer Science & One yr. Experience Programmer Analyst to include development of client programming using VISUAL BASIC and SQL. Employer Paid Ad. Send resumes to MDCD, P.O. Box 11170, Detroit, MI 48202-1170 (Ref. #212196)

Software Engineer

Requ: B.Sc. Elec. Eng & 2 yrs exp. Send resume to Jyoti Maewall, Computer Data Circuit, Inc, 69 Milk St, Suite 220, Westboro, MA 01581.

Director of Engineering (with Masters and 4 years experience or Bachelors with 9 years experience) - St. Louis, MO. Job entails and requires experience in project management and design and development of applications using Java, VC++, VB, .Net, Java2D, CORBA, COM, Adobe Postscript, and Adobe PDF. Relocation within USA possible. Attractive compensation package. Send resume to Rod Zimmerman, Dynalivery Corp., 320 Westport Plaza, Suite 205, St. Louis, MO 63146

Multiple positions available for computer professionals including Soft. Eng.'s, Programmers, Jr. Programmers, Systems Analysts, Network Analysts, DBA'S, etc. Locations vary. Req's BS, MS, or equiv. depending on pos. & 1-2 yrs exp depending on pos. For some positions, we also accept any suitable combination of education, training or experience in lieu of the req. edu. Travel/frequent relocation. EOE. Competitive salary & benefits. Resume to: Pinnacle Talent, Inc. Attn: HR 1919 Midwest Road, Suite 210, Oakbrook IL 60523, Job ID #: FLB-11-04

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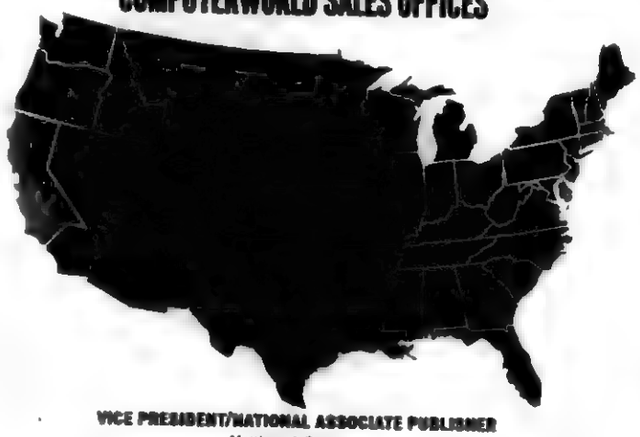
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HP World

"They haven't shown up yet," Slattery said. Normally, the systems would have arrived within five days, according to Slattery. He said that when they didn't, he called HP and was told the servers were back-ordered.

Slattery added that he didn't know what was causing the shipment delay until he heard HP executives discuss the order-processing problems here at the HP World conference, which was sponsored by the independent Interex and Encompass user groups. "I never put it down to the supply chain mess," he said.

Kees denHartigh had a different type of problem with an HP hardware delivery. A systems and network analyst at the University of Alberta in Edmonton, denHartigh placed an order with HP last spring for new equipment that included Opteron-based servers and a storage array. He said that not one but two deliveries showed up at the school in June, leading him to call HP as well.



PATRICK THIBODEAU

Attendees check out technology offerings on the show floor.

"They were right upfront about it," denHartigh said. "They were merging the ERP systems between Compaq and HP, and they had some issues with duplication of the whole process. So the order went in at two places." The extra equipment is still boxed, awaiting its return to the vendor, he added.

HP officials have said that the supply chain problems stemmed from a poorly executed migration to a new order-processing system based on SAP AG's ERP applications [QuickLink 48819].

HP's overall revenue rose 9% in its third quarter, which ended July 31. But its enterprise server and storage business fell 5%, prompting CEO Carly Fiorina to fire three executives because of what she called "unacceptable execution" within that unit.

Mark Gonzalez, vice president of enterprise server and storage sales for HP Americas, said the troubles began over the July 4 weekend, when HP went live with the SAP-based system to replace three order-processing applications that it had after its 2002 acquisition of Compaq Computer Corp.

"It's systems talking to systems," Gonzalez said. "It just did not quite work out." He added that customers should no longer experience delays on storage products or Unix servers. Processing of ProLiant server orders is "pretty much back on track, with the exception of a couple of complex, configure-to-order type things," Gonzalez said. "The worst is behind us."

At the conference, HP officials were also adamant that the company won't make any changes in its technology direction because of the poor third-quarter results. But that didn't stop users such as Paul Gerke, systems administrator for Clark County in Vancouver, Wash., from voicing concern about the possibility that HP could alter some of its system development plans.

"Quarterly news can change very quickly," said Gerke, who manages HP-UX systems. Referring to HP's decision to phase out its HP 3000 minicomputer line, he said, "You have to wonder, if we start seeing declining results for Unix, is that the next thing [to go]?"

John Hohenfeld, operations manager at the 55,000-student Cuyahoga Community College in Cleveland, said HP's financial results "made me wonder a little, but I think they are very safe" as a vendor.

Safe for users, perhaps. But when Denys Beauchemin, chairman of Interex's board of directors, opened the floor for questions during a panel session featuring HP executives, he invited attendees to "fire away" with their questions.

That choice of words prompted one HP official on the panel to quickly retort, "Don't fire away," drawing laughter from the audience. ● 48066

Robert McMillan of the IDG News Service contributed to this story.

MORE NEWS ONLINE

Offshore customer support and the future of HP-related conferences were also hot topics at HP World.

QuickLink 48078
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HP Exec Blames Server Shortfall on 'Internal Execution Issues'

BY ROBERT McMILLAN AND PATRICK THIBODEAU



When HP missed earnings expectations for its third quarter two weeks ago, the company placed the blame squarely on the shoulders of its Enterprise Servers and Storage division – leading to the sacking of three senior executives within that unit [QuickLink 48813].

Ann Livermore, executive vice president of HP's Technology Solutions Group, manages servers and storage as well as the vendor's software and IT services units. She spoke with *Computerworld* and the IDG News Service at HP World.

Why did the enterprise computing group lose money in the third quarter? There were really a couple of main areas where we didn't execute as well as we needed to this quarter. In the United States, we were transitioning to a new system and set of business processes for our order management and manufacturing operations, and that transition caused more disruption than we had planned.

In Europe, we had some issues around our channel management processes. We also had, in a few instances in [Europe, the Middle East and Africa], more aggressive discounting than what we had originally planned for. So the good news – or the bad news – is that they are all internal execution issues we can address ourselves. They're not things that are fundamental weaknesses in our business offerings.

You're getting rid of the Alpha chip and moving from PA-RISC to Itanium. Is there any sense that the decline in sales may be indicative of customers just not wanting to move to Itanium? No. What we're seeing with Itanium is that our quarter-to-quarter ramp is as we've expected. And our Unix growth last quarter was 8%, which is a good year-over-year growth rate.

When you say Unix growth was 8%, do you mean on Itanium? Unix growth overall.

What was it just on Itanium? You know, I didn't bring with me the specific breakdown in terms of what the PA-RISC growth was versus the Itanium. But the thing we're seeing that we like from an Itanium perspective is that the ISV [independent software vendor] applications and ports are going really well. Our ISV partners have all believed that the migration has been easier than what we planned.

IBM is sticking with its Power architecture, and Sun is sticking with UltraSparc. Is anything in your financial results or in the feedback you get from users giving you grounds for doubt about HP's Itanium-only strategy? No. And we don't have an Itanium-only strategy. From a customer perspective, we have a very simple set of architectures: We have Itanium, and we have x86. A lot of the power of HP from a computing perspective is we do offer both.

McMillan is a reporter for the IDG News Service.

READ MORE ONLINE

An expanded version of this interview can be found on our Web site.

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The Power of No

IT WAS JUST LAST YEAR that the London borough of Newham couldn't afford to upgrade its aging Microsoft Exchange 5.5 server. Then Newham contacted an open-source consulting firm, Netproject, for a study to see whether Linux desktops would be a workable option for the local government. By November, there was a credible Linux plan set for adoption, subject to further negotiations with Microsoft.

Last week, Newham announced a new 10-year, $9 million deal with Microsoft. The local government that couldn't afford an Exchange upgrade will now get that, plus up-to-date desktop software, plus a batch of tablet PCs for the borough's social workers.

Now *that's* bargaining power.

Officially, Newham's decision was based in large part on a Capgemini study, commissioned by Microsoft, that concluded that Newham would not only save a bundle by staying with Windows, but would also have fewer security problems. Yeah, right.

Unofficially, and much more believably, the deal went down like this: Newham had a viable Linux alternative to Windows (and a lot of press attention for being a highly visible Linux poster child). Microsoft negotiated. Newham ended up with a truckload of goodies that it couldn't afford before.

Pretty slick, eh? True, the Linux advocates say they feel used. They're right — they *were* used. All the available evidence suggests that Newham's IT boss, Richard Steel, never really wanted to go through the expense and trouble of dumping Windows and all the other Microsoft products Newham was using in favor of Linux and open-source alternatives.

But when Steel went to negotiate the deal with Microsoft, that competing open-source proposal was on the table. It meant Steel could walk away from Microsoft if he had to. He had the power to say no to anything short of the deal he wanted.

Was it a bluff? Only Steel knows, and he's not saying. But Microsoft believed Newham could go with Linux. Microsoft wasn't willing to take that chance. And that got Newham one heck of a deal.

Think you can't possibly get that kind of leverage in your own dealings with software vendors? You're probably right — chances are, you don't want that much publicity for any IT-related negotiation.

But can you take a few lessons from the Newham deal? Sure.

Start by remembering that if you can't say no, it's not a negotiation. If you can't walk away from the table, you have no leverage at all.

So be sure you always have a viable alternative when you sit down with a vendor. Maybe that means one or more competitors' products. Maybe it means open-source. Or a homegrown system. Or just standing pat. But make sure you can say no.

Then forget about being a nice guy. Use those competitors against one another. Somebody in this deal is going to lose. Make sure it's not you.

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Take your time — the Newham deal took months to finalize. Keep upper management in the loop, so you won't be undercut when somebody gets unhappy at how things are going.

And when the time comes, do the deal and damn the consequences. The losers will howl because they lost. The winners will moan because you squeezed them so hard. That's OK — you don't work for them.

For the organization you *do* work for, you may not get a Newham-size advantage. But if Newham can do it, you can too. And these days, you need all the bargaining power you can get. 48930



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

That Would Explain It

Help desk staffer complains that her voice-over-IP phone calls are breaking up. So the network team puts a sniffer on the line and tracks down something on the network that's using a lot of bandwidth. "The bandwidth hog is listening to an Internet radio station," says a pilot fish on-scene. "And it's the caller's own PC." Her response? "Ohhhhh. I *did* notice it started about the time I started listening to that radio station."

SHARK TANK

All Wet

Yes, this user did spill water in his keyboard. But he has dried it out pretty well, he tells help desk pilot fish. Still, when he tries to type using one of the keys that got wet, the system acts up or reboots. Is it because the keyboard is still damp? "I explained that by hitting a key, he was causing an electrical circuit to close, but because of the water, he was closing multiple circuits and sending bad signals to the computer," says fish. User's reply: "No I'm not. I'm just typing."

The Front Page

This user is furious – information is missing from an inventory report, and she needs it right away. "I stay late into the night poring through code for this complicated application," says programmer pilot fish. "Finally, at 10 p.m., I run the report myself and find that the information she was asking about *is* in the report." On the first page, in fact. Next morning, fish asks to see the user's copy and discovers that the top page says "2 of 117." "Oh," user tells fish, "I must have left Page 1 on the printer."

Idiot? You?

The printer isn't working for this auto mechanic, so support pilot fish walks him through the usual questions: Is it plugged in? Cable connected to the printer? Any alarm lights? "What, do you think I'm an idiot?" mechanic snaps. Next, fish steps mechanic through the process of printing a test page. Did anything print out? fish asks him. "Not yet," says mechanic. "Let me put paper in it first."

Nope, Not Me

It's the mid-1960s, and this military unit is just starting to send files electronically from base to headquarters. "The only problem was that we had to connect through a switchboard," says a pilot fish who was there. "If the operator would 'plug in' to listen, an error would be generated in the data." Fish explains this to the operator – but the next time his unit sends data, the errors are back. "We called the operator and said that we asked her to not listen in to the transmission," fish reports. "Her reply? 'I didn't listen in! Besides, it was just a lot of beeps and noise anyway.' "

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FRANK HAYES ■ FRANKLY SPEAKING

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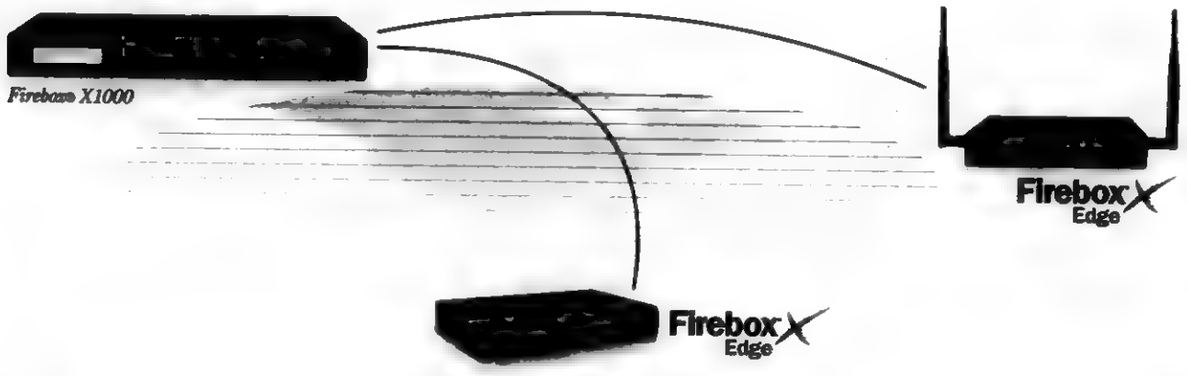
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2004

On the Mark: A means preventing insider data theft arrives from Russia.
Make certain you're aware of the rights and obligations of open-source, says Maryfran Johnson.

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Is Your Data Safe Offshore?

We went to India and China, the two hottest offshore outsourcing destinations, to find out. Our on-location coverage from Bangalore and Shanghai begins on **page 6.**

Key Financial Firms Compare Notes on Disaster Recovery

BY LUCAS MEARIAN

A group of top financial services companies confirmed last week that their IT executives have met to share current disaster recovery schemes and discuss future technology recovery strategies. And what they found was that they had a lot in common — including headaches.

"To start with, I found out I'm not alone. All banks are struggling with this," said Todd Baumann, director of enterprise business continuity at Huntington Bancshares Inc. in Columbus, Ohio.

The Technology Recovery Project involved an information exchange among eight banks (see list, page 14). IBM, Microsoft Corp. and Veritas Software Corp. also participated in the project, which was organized by the New York-based Financial Services Technology Consortium and took place between November 2003 and June of this year.

The banks and bank holding companies looked at mainframe, open systems and stor-

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App Tests for Win XP SP2 Burden Users

Most delay installing XP security update

INSIDE

Early SP2 adopters not extra busy

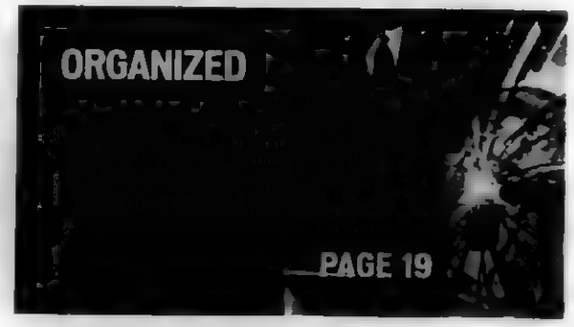
BY CAROL SLIWA

Microsoft Corp.'s Service Pack 2 is an important security-focused update for corporate users running Windows XP. But in the three weeks since its release, it's been a tough pill for many to swallow, as they struggle to test tens, hundreds and, in some cases, at least 1,000 applications against it.

Only two of 32 IT managers who responded last week to a *Computerworld* survey conducted via e-mail and telephone said their companies had deployed SP2, and in both cases they did so as part of Microsoft early-adopter programs. The majority said they're still testing SP2 to determine its compatibility with the applications their companies run.

"As we get closer to the holidays, we don't make changes of this significance because we don't want to disrupt our environment so close to our

SP2, page 45



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Can you afford to change?
The time has come, they say, to transform your IT. But how? On what scale? As a technology company, HP creates—as no financial institution can—opportunities you once thought impossible, and lets you change without fear. HP consultants help you identify the hardware, software and services you'll need. Then HP Financial Services helps you finance global migration and manage the technology over its lifespan, while minimizing financial risks. Once you can afford change, you might even embrace it. www.hp.com/info/hpfs
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Windows Server System

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Encryption Must Move Beyond SHA

In the Technology section: Bruce Schneier says recent progress in breaking the MD5 and SHA hash functions means it's time to find a new hash standard. **Page 28**



Who Owns the Web?

In the Management section: When business units fight for control of the corporate Web site, the company loses. **Page 31**

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13 U.S. Army payroll systems have been pushed past their breaking point by the war in Iraq, causing problems for reservists, says the GAO.

13 The TSA plans tests of new airport security technologies, but lawmakers and industry executives are frustrated by the slow pace of deployment.

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36 Who's Who in IT: The Thrill of Crisis. You may think database administration is a skill, but DBA Gary Rue knows it's an art. In his world, a crisis is always just around the corner.

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16 Dan Gillmor thinks Microsoft should use some of its billions in reserves to ensure that the next PC you buy doesn't need immediate XP upgrades.

17 Pinni Fox has some advice for the agency behind the anti-terror "no-fly" list: Get the technology right.

38 Gopal K. Kapur says project managers tend to point to two key causes of project failures: half-baked or harebrained ideas and excessive scope creep. What's his solution? Just say no.

46 Frankly Speaking: Frank Hayes warns that before you junk data storage devices, remember that any information they contain is dangerous in the wrong hands.

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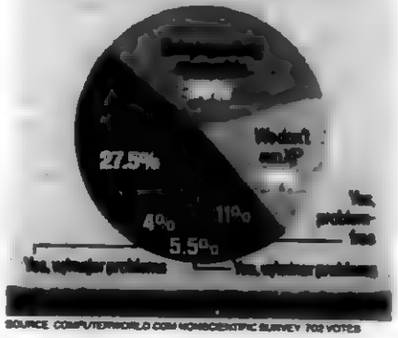
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Have you installed Windows XP SP2 at your organization?



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Phishing: Are You Responsible?

IT MANAGEMENT: Those e-mails trying to con customers into parting with sensitive information may not be connected to your company, but washing your hands of the mess is bad for business, says new IT Ethics columnist Larry Ponemon. QuickLink 44820.

Apple Remote Desktop 2 'Well Worth the Money'

MACINTOSH: Columnist Yuval Kossovsky takes Apple Remote Desktop 2 out for a spin and finds that its new management features make it an upgrade that's worthy of consideration. QuickLink 43031

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Security Expectations, Response Rise in India

INCREASINGLY TOUGH DEMANDS FROM U.S. CLIENTS SPARK CHANGE.

BY JAIKUMAR VIJAYAN BANGALORE

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VIDEO MONITORING is used extensively by Indian service providers.

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"New regulations from the SEC and other regulatory agencies have created a need for several internal controls for application development, change control and maintenance," Mouli said. "These controls have to be extended offshore and monitored."

The result is "tremendous scrutiny right now on data security, access controls and privacy" related to offshore work, said the chief technology officer of a Chicago-based service provider for the financial industry who spoke on condition of anonymity. "Some of our customers have asked us to fill out extraordinarily detailed questionnaires in which they ask us to attest to our security controls so they in turn can include that in their compliance documents," he said.

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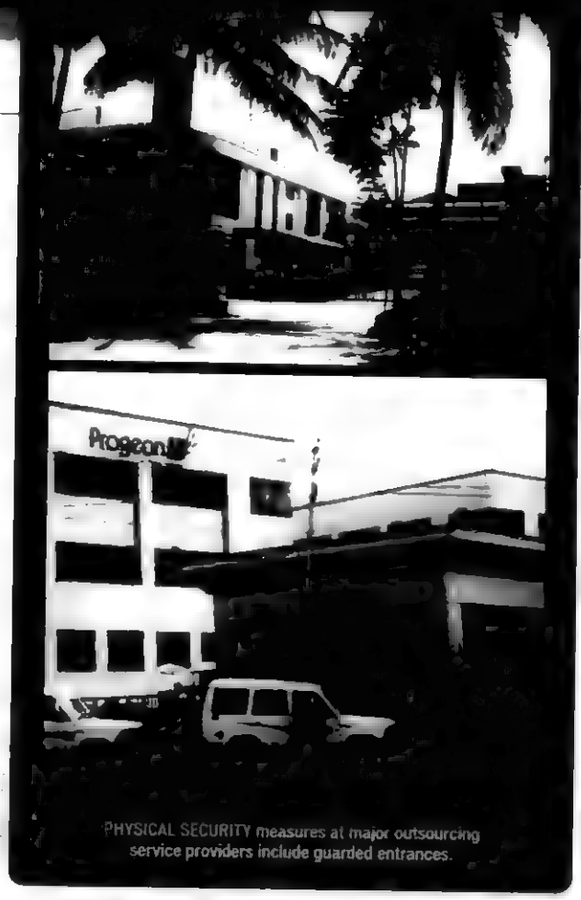
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Ongoing Risks

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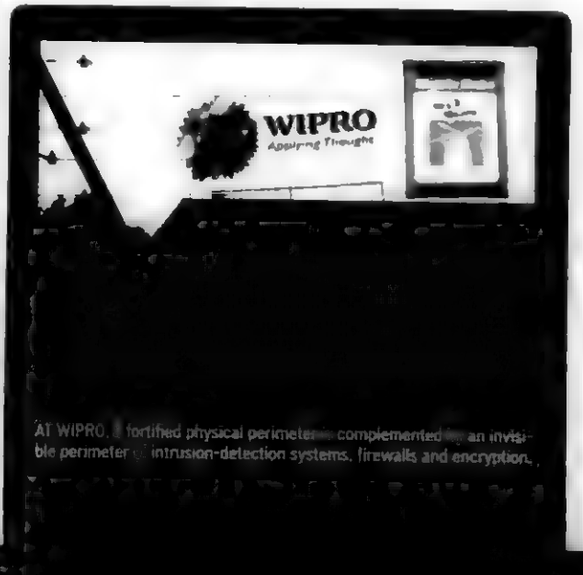
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Security Checklist

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AT WIPRO, a fortified physical perimeter is complemented by an invisible perimeter of intrusion-detection systems, firewalls and encryption.

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India's IT trade organization, the New Delhi-based National Association of Software and Service Companies (Nasscom), is acutely aware that the country's flourishing IT industry could be damaged if data protection can't be enforced.

The organization recently launched an education campaign aimed at judicial and police authorities as well as the ministries of IT and law, association vice president Sunil Mehta said. The idea is to create a much broader awareness of the need for enacting legislation that can be more easily enforced.

Nasscom is also working with IT companies to build a database that vendors can use to more quickly and reliably verify an employee's professional education and other background information, Mehta said.

The global database will be compiled with input from Nasscom's members but won't be used as an instrument for blacklisting employees, he said.

– Jaikumar Vijayan

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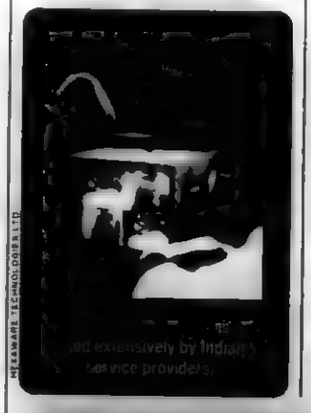
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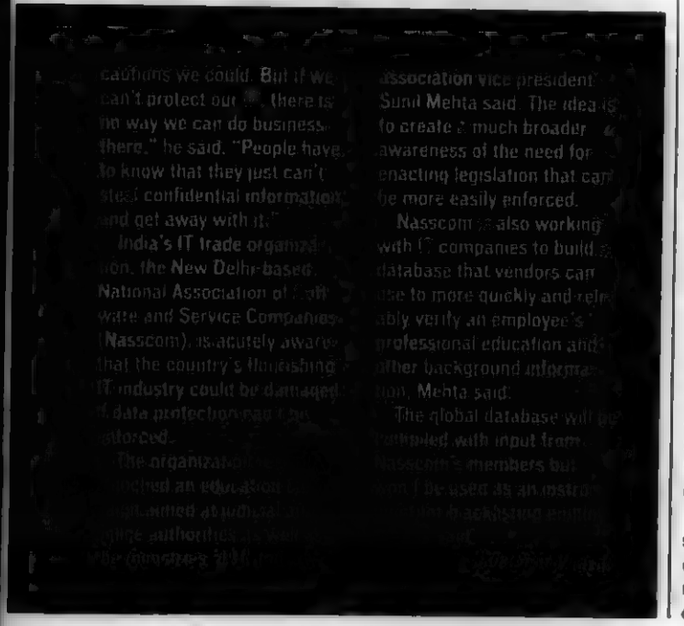
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WIPRO TECHNOLOGIES

Overcoming the Piracy Stigma in China

PROVIDERS 'OVERCOMPENSATE' FOR THE RISK. BY SUMNER LEMON SHANGHAI

WALK into the access-controlled room full of software developers at Bleum Inc.'s headquarters here and you can't miss the slogan written in large blue and black letters that stretches across the far wall: "Protect our customer."

The message is there to serve as a constant reminder for Bleum's team of English-speaking software engineers of the importance of keeping clients' software code secure, said Eric Rongley, the outsourcing service provider's founder and CEO.

Concerns about the protection of intellectual property and proprietary corporate data are hardly unique to China. But the security risks are greater here than in locations such as India or Eastern Europe, Rongley said. "It's definitely in the interests of a company here to overcompensate for it," he said.

China's poor reputation for intellectual property protection stems largely from the widespread availability of pirated DVD movies and software. Last month, the Business Software Alliance in Washington estimated that 92% of software used in China during 2003 was unlicensed and illegal. That figure tied the country with Vietnam for the dubious distinction of having the world's highest piracy rate.

But a high piracy rate for packaged applications doesn't inherently place outsourced software development projects at risk, said Chen Lingsheng, vice president of greater China at BearingPoint Inc., calling security concerns in China overblown. Outsourcing projects to companies in China can be as secure as it is anywhere else, he said.

"We had a major financial client from the U.S. come over here to do a security audit before they would give us a project, and we passed the audit," Chen said, noting that BearingPoint follows the same security procedures in China that it uses in the U.S.

In addition to conducting security audits, those procedures include strictly enforcing nondisclosure agreements and restricting development work to facilities that require a keycard for access.

BearingPoint and other outsourcing service providers in China are willing to go even further to meet their customers' security demands. For example, BearingPoint developers have access only to code and project documentation.

"As an outsourcing service provider, we take it very seriously to protect our clients' secrets and business data," said Walter Fang, group vice president and chief technology officer at Neusoft Group Ltd., a Chinese software company based in the northeastern city of Shenyang. Neusoft employs 1,500 developers who work on outsourcing projects at several locations in China.

Neusoft allocates separate buildings for major clients such as Toshiba Corp. and Alpine Electronics Inc., and it restricts access to the buildings to staff working with those companies, Fang said.

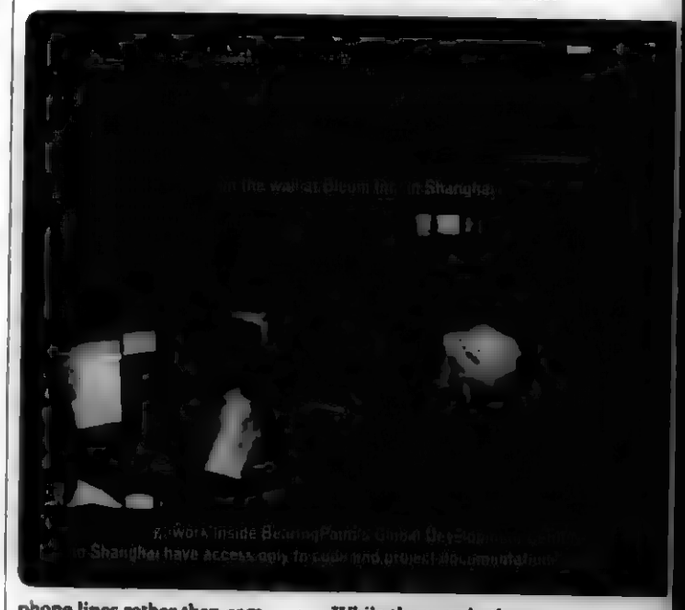
On-site offices are available to each client's project managers, and Neusoft can provide them with individual phone lines rather than company extensions, he said.

Aside from physical security measures, Fang said foreign companies can build effective legal protections into their contracts with outsourcing providers in China. For example, Neusoft's contracts with its Japanese clients are typically designed to be enforceable in both Japan and China while offering an avenue for arbitration with a third party under Hong Kong law, he said.

For companies that want to keep a closer eye on outsourced development projects, BearingPoint has offered to install video cameras to monitor work in project rooms at its facilities in Shanghai and the northeastern Chinese city of Dalian, Chen said.

At Bleum's highest level of security, Rongley said, the company offers a "shadow group" of developers who are given financial incentives to uncover vulnerabilities in software developed by the lead development team.

The shadow developers examine the code for security holes such as back doors or opportunities for buffer overflows that would allow attackers to run executable code.



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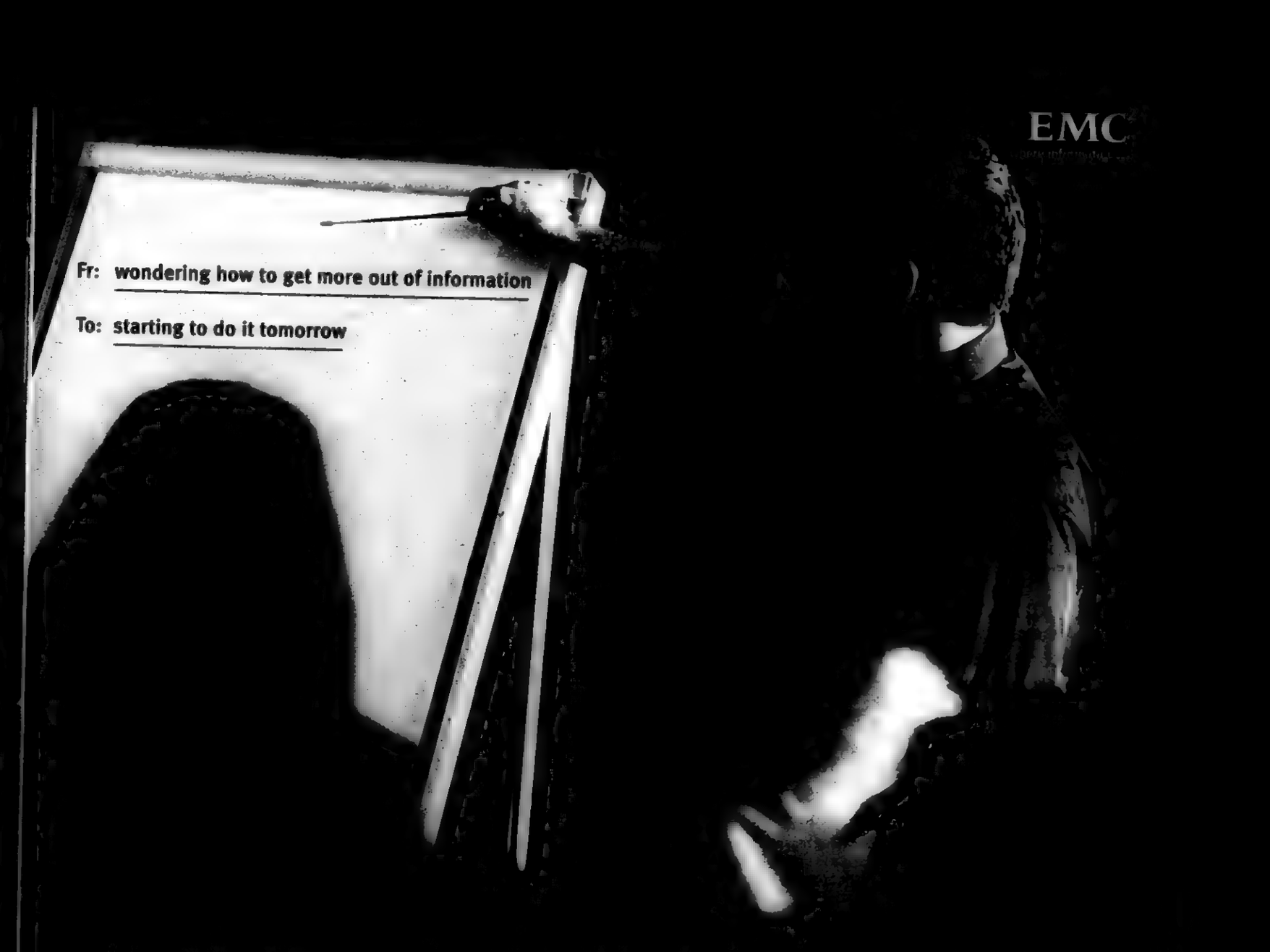
While these and other measures may help to guarantee the security of a customer's code and data, the best way to improve intellectual property protection in China is to change cultural attitudes, according to Rongley. He noted that service providers can advance the cause through training sessions and staff meetings.

And even slogans on the wall. **48092**

Lemon is the IDG News Service correspondent in Taipei.



Jaikumar Vijayan ■ Sumner Lemon
Julie Quinn ■ Don Tennant



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AT DEADLINE

Storage Subsystem Out of Longhorn

Microsoft Corp. announced Friday a change in plans for the next major release of Windows, which is code-named Longhorn. The new Windows storage subsystem, code-named WinFS, won't be part of the Longhorn client, as previously planned. Microsoft said WinFS will be delivered after the Longhorn release. The company said the Longhorn client is targeted for generally availability in 2006. It said it expects the Longhorn server release to be available in 2007.

Cisco Warns of Two Security Flaws

Cisco Systems Inc. last week warned about security holes in two products that provide user authentication and authorization services: the Cisco Secure Access Control Server for Windows, and the Cisco Secure Access Control Server Solution Engine. Cisco recommended that customers with service contracts obtain the updates using the Cisco Product Upgrade Tool or by contacting its Technical Assistance Center.

Oracle Again Moves Offer for PeopleSoft

Oracle Corp. on Thursday filed another extension in its hostile $7.7 billion bid to acquire PeopleSoft Inc., this time pushing the deadline ahead two weeks to Sept. 10. Oracle said it now has 21.7 million tendered shares – 6% of PeopleSoft's outstanding total.

U.K. Agency Adopts Sun's Java Desktop

The U.K.'s National Health Service last week said it purchased 5,000 licenses for Sun Microsystems Inc.'s Java Desktop System as an alternative to Windows. The NHS is spending $9 billion to upgrade its IT infrastructure. It began evaluating the use of Sun's open-source desktop system in December.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW MAHON

Tune In to New Ways to Steal . . .

. . . critical corporate information. So warns Gartner Inc. in a report detailing how data crooks can use portable music players like Apple Computer Inc.'s iPod to rob you blind [QuickLink 47983]. Vladimir Chernavsky, CEO of AdvancedForce InfoSecurity Inc. in San Ramon, Calif., amplifies that concern by including Bluetooth devices, floppy disks, CDs and virtually anything that can store data and use a pair of legs to leave the premises. "Someone carrying a hard drive out of a building would be suspicious, but carrying an iPod is not," he observes. "Now everyone is potentially James Bond." As you would expect, Chernavsky has a solution: DeviceLock. His company has the exclusive North American rights to sell the software from its Russian authors at SmartLine Inc. DeviceLock is designed to prevent data from being written to any device type. But it's flexible enough that you can, for example, permit Universal Serial Bus keyboards to be used, but not USB storage systems. A new release coming in November will let you centrally log the files that you do permit to be written to a mobile device, so you'll know whether an executive is updating his Bluetooth unit's contact list or downloading your entire customer file. It runs $35 for a single license, but that price can fall to less than $7 when you get 1,000 or more licenses. Think of it as a little something from Russia with love.

Kill Spam Before . . .



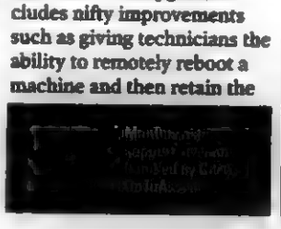
. . . it reaches your network. That's the wisdom from Scott Petry, chief technology officer and founder of Postini Inc. in Redwood City, Calif. He claims that his service stops 50% of the 400 million e-mails destined for his customers' networks every day, because they're spam. "If you're blocking them at your gateway, it's much more expensive," he says. He argues that service providers such as Postini are more efficient because they can see "the SMTP conversation" on the Internet and quickly identify and remove spam- and virus-laden messages. Petry says privately held Postini is profitable, growing at close to 180% this year and looking to acquire companies in what he expects will be a rapidly consolidating market over the next year.

Event-Driven Data Gets Pushed . . .

. . . to users' screens with publish-and-subscribe tool. KnowNow 3 from KnowNow Inc. in Sunnyvale, Calif., eliminates the need for end users to request reports on data generated across the HTTP-based networks. The server software "dual posts" requested data and immediately directs it to a user's screen or to an application. For example, upon completing an online form, a Web visitor can be instantly sent to an available customer service agent, or sales data entered in an ERP system can be immediately sent to a sales executive's desktop spreadsheet. Version 3, which ships at the end of next month, includes a new module for Microsoft SharePoint systems, more granular event filtering and added database support. Pricing starts at $15,000.

Tech Support Goes Remote . . .

. . . with a hosted service from Citrix Systems Inc. GoToAssist 6.0, which is set for release on Sept. 14, lets your technical service reps remotely view and control the PCs of end users who are baffled by the behavior of their Windows machines. The upgrade includes nifty improvements such as giving technicians the ability to remotely reboot a machine and then retain the link to the user's PC after the restart in case the problem persists. There's no need for the troubled end user to have client software, so customer support can be handled on an ad hoc basis. Each session is 128-bit encrypted for secure communications. The service works for both desktops and servers, and Citrix is planning Linux and Unix support in the coming months. Pricing starts at $325 per month per tech-support agent, with a one-time start-up charge of $700. There are no session fees or end-user time limits for the GoToAssist service.



Forget Centralized Directory Efforts . . .



. . . because they're doomed. There are just too many sources with too many methods and schemas scattered throughout your company to get under control. So, should you just give up? Maybe not. Michel Prompt, CEO of Radiant Logic Inc. in Novato, Calif., claims that a virtual directory is the solution. "Trying to centralize and create the überdirectory has been a big failure," he says. "But virtualization works." In effect, your users query the virtual directory, which handles the protocol and other differences among the various directories linked to it. Radiant One 4.0, which ships this week, can even virtualize Web services. By October, when 4.1 ships, Radiant will release federated security services that will authenticate users and their rights across multiple directories. Expect to pay about $50,000 to sidestep nonvirtual doom. **ID 48096**

There is no one, single solution to security.

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Free Updates and E-mail Alerts Stay on top of the latest security issues quickly and easily by signing up for free Microsoft Security Communications.

Free Security Tools React more effectively to potential security threats. Take advantage of free tools and technologies like the Microsoft Baseline Security Analyzer and Software Update Services.

Visit the Security Guidance Center regularly for the latest security developments. It's continually updated so you can find the tools and training you need to help better protect your company, all at one centralized resource. For proactive protection and ongoing guidance, visit **microsoft.com/security/IT** today.

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NEWS
THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICROFORM EDITION.

HP's Virus Throttler Service Is Shelved

Six months after unveiling technology designed to choke off the spread of viruses, Hewlett-Packard Co. is shelving the project. The company won't be releasing a security service called Virus Throttler because it requires operating system changes that are incompatible with Windows, HP said last week.

Cisco to Purchase P-Cube for $200M

Cisco Systems Inc. said last week it has agreed to acquire Sunnyvale, Calif.-based software developer P-Cube Inc. in a deal that Cisco valued at $200 million. Cisco plans to continue selling P-Cube's software, which helps service providers analyze and control network traffic, as standalone products. The company said it will also work on incorporating the technology into its own hardware and software.

U.S. Forest Service To Cut 500 IT Jobs

The U.S. Department of Agriculture Forest Service is cutting the equivalent of 500 full-time IT jobs in a reorganization of its IT department. Forest Service employees won a competitive sourcing contract to manage the IT department. The workers had bid against undisclosed private companies for the contract, which is valued at $295 million. The Forest Service expects to save approximately $100 million over the five years the agreement is in place.

Short Takes

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SEC Deadline Delay Signals Sarb-Ox Relief

Should help ease transition to new reporting mandates

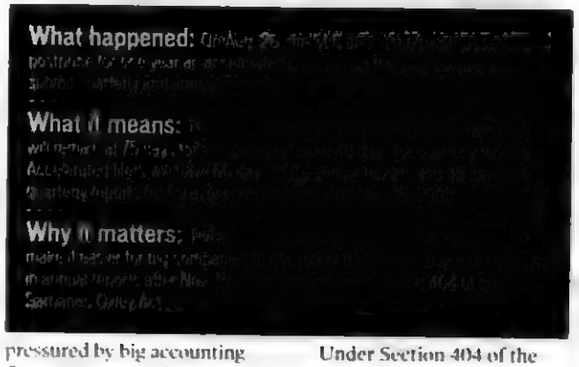
BY THOMAS HOFFMAN

THE U.S. SECURITIES and Exchange Commission last week announced that it will delay an accelerated filing period for annual reports — a move expected to help big companies transition more easily to year-end reporting requirements under the Sarbanes-Oxley Act.

In 2002, the SEC made a change to the Securities Exchange Act of 1934 that shortened the amount of time companies would have to file their quarterly and annual reports after the end of a fiscal period.

The filing requirements for companies with a market capitalization of $75 million or more shrank from 90 days within the close of a business cycle to 75 days this year. It was scheduled to be cut to 60 days next year.

But sources close to the issue said the SEC was being pressured by big accounting firms to maintain the 75-day filing requirement for one more year to help big companies make their first transition to a year-end Sarbanes-Oxley deadline. Under the SEC proposal issued last week, the current deadline for so-called accelerated filers would remain at 75 days for annual reports and 40 days for quarterly reports. The accelerated-filing phase-in period would resume for reports filed for fiscal years ending on or after Dec. 15, 2005. SEC registrants have 30 days to comment on the proposal.



Under Section 404 of the Sarbanes-Oxley Act of 2002, large companies must document in their annual reports the financial and IT controls they have in place for fiscal years that end on or after Nov. 15, 2004.

Big Four Weigh In

The nation's Big Four accounting firms recently asked the SEC "that they not push [the filing requirement] to 60 days, at least for the moment, to help companies deal with these current pressures," said Marios Damianides, international president of the Information Systems Audit and Control Association and the Information Technology Governance Institute, both in Rolling Meadows, Ill.

For the past few weeks, rumors have been swirling that the SEC might extend the deadline for public companies to meet Section 404 requirements. But sources said those rumors are unfounded and were based on misinterpretations of recent comments made by SEC officials: Section 404 enforcement delays aren't anticipated. An SEC spokesman declined to comment.

"[The SEC has] already postponed Section 404 deadlines twice. If they keep backing down and do it a third time, people are going to question their credibility," said Tim Welu, CEO of Paisley Consulting Inc., a company in Cokato, Minn., that develops software for managing audits of both IT and financial controls.

"I think they'd only extend the accelerated filing period," said Eric Clarke, internal audit director at Bresler & Reiner Inc., a Rockville, Md.-based real estate investment trust. "If they keep extending the deadline for meeting Section 404 requirements, it won't do anything for investor confidence." 49101

Regulatory Demands Put Spotlight On Asset Management Practices

Bresler & Reiner Inc. has found itself placing a lot more emphasis on IT asset management practices as a result of pressing regulatory compliance demands.

Earlier this year, the Rockville, Md.-based real estate investment trust installed an industry-specific accounting software package that's used by its various property management companies. The package was supplied by Beaverton, Ore.-based Timberline Software Corp., said Eric Clarke, Bresler & Reiner's internal audit director.

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Indeed, regulatory requirements are forcing IT managers to track their IT assets more closely, said Jane Disbrow, an analyst at Gartner Inc. "If you don't know where all your laptops and software are located, how can you tell regulatory bodies that customer information is being kept private?" she said.

IT asset management concerns are just making their way onto Zebra Technologies Corp.'s regulatory radar screen. IT asset management "is something that is on our Sarb-Ox list a month or so into the future," said Todd Naughton, vice president and controller at the print components supplier in Vernon Hills, Ill.

Sarbanes-Oxley is having a two-pronged affect on IT asset management practices. Under Section 404 of the act, companies are required to attest to the internal controls that are used for financial reporting. These include IT-related controls that firms have in place to effectively track and monitor hardware, plus software used to support financial reporting. Companies are also required under Sarbanes-Oxley to disclose to regulators all material financial exposures they have, including IT equipment leases and licensing agreements, which have to be tracked closely.

A soon-to-be-published survey of 220 IT decision-makers by Boston-based AMR Research Inc. found that companies that consider regulatory compliance the top business issue affecting their security spending cite the need to invest in auditing and asset-tracking tools as their No. 1 security budget priority.

– *Thomas Hoffman*

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BRIEFS

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JUST THE FACTS

What happened:

What it means:

Why it matters:

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Legacy Army Payroll Systems Buckle Under Weight of War

GAO audit finds that 95% of 348 active reservists have had problems with pay

BY MARC L. SONGINI

The war in Iraq has helped push antiquated U.S. Army payroll systems past their breaking point, leading to widespread problems for reservists, according to a U.S. Government Accountability Office report issued this month.

So severe are the problems caused by the aging, standalone Cobol-based mainframe systems that the GAO audit found that 95% of 348 mobilized reserve soldiers had at least one payroll problem. The glitches included both overpayments and underpayments, as well as delayed disbursements. Some troops had numerous payroll problems, and it took more than a year to correct some of them.

Both the system itself, called the Defense Joint Military Pay System-Reserve Component (DJMS-RC), and the attendant human processes are "so error-prone, cumbersome and complex" that the soldiers affected can't be assured of timely and accurate payment for duty served, said the GAO study. The result has been a "profound adverse affect on individual soldiers and their families," it said.

System Limitations

One major weakness stems from a lack of integration between the DJMS-RC and related U.S. Army personnel applications. The payment system was also hampered by processing limitations, requiring "significant manual effort" to make up for the shortcomings.

The GAO cited one case in which a soldier received an overpayment of $24,000 when a revocation of his mobilization status wasn't automatically reported to the payroll system due to the gaps between the personnel system and the DJMS-RC. And because of the DJMS-RC's computational limits, accounting for variables such as hardship duty requires manual input.

The Defense Finance and Accounting Service (DFAS), which oversees the DJMS-RC, has acknowledged that the system is "aging, unresponsive, fragile and a major impediment to efficient and high-quality customer service," according to the GAO.

Increased Risk of Error

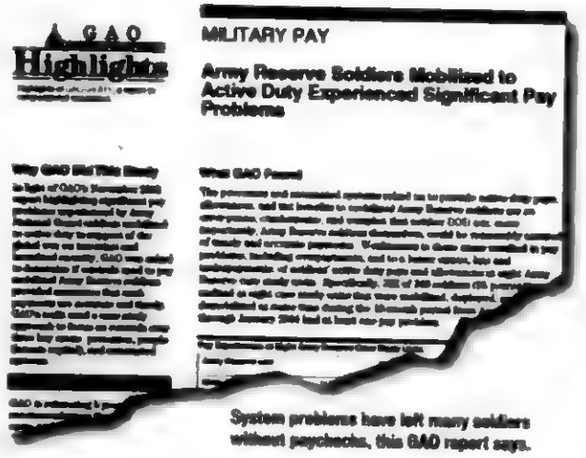
A DFAS spokesman said the DJMS-RC's limitations were exacerbated by the war in Iraq; prior to the war, the system primarily handled pay for drilling exercises and not for the 12- or 18-month deployments now taking place in the Middle East. "Anytime a system requires human intervention, you increase the risk," the spokesman said.

Acknowledging the system's limitations, the Defense Department has launched a training program for support personnel and is rolling out an improved payroll system based on PeopleSoft Inc.'s PeopleSoft Enterprise, which will begin to go live next spring.

Once in place, the application will integrate the pay processes for reservists and active Army personnel and end the need for manual workarounds while improving stability and eliminating many of the problems identified by the GAO, said the spokesman.

That system will later be phased out in favor of the larger Defense Integrated Military Human Resources Systems (DIMHRS), which was first announced in August 2001 and is also built on PeopleSoft [QuickLink a4940]. Eventually, the human resources and payroll applications will function as a single integrated system, although progress on the DIMHRS implementation has been slow [QuickLink 41815].

While "significant design work has been completed" on the DIMHRS project, extensive testing will be required before implementation can begin, said Norma St. Claire, a DOD director of joint requirements and integration. Deployment to the Army, the first branch to go online, will start in the first quarter of 2006, she said. St. Claire added that while the DOD wants the software to be as "vanilla" as possible, "sometimes there are mission requirements that are not supported by the commercial product, and a few modifications will be needed." **48108**


GAO Highlights

MILITARY PAY

Army Reserve Soldiers Mobilized to Active Duty Experienced Significant Pay Problems

System problems have left many soldiers without paychecks, the GAO report says.

TSA Readies Security Systems Rollout

BY DAN VERTON
WASHINGTON

The Transportation Security Administration last week announced a series of pilot tests of IT-based programs to bolster airport security. And TSA Administrator David M. Stone said the agency is only "days or weeks" away from deploying a revamped version of its controversial passenger-screening system.

The TSA selected two additional airports — the Norman Y. Mineta San Jose International Airport and the Helena Regional Airport in Montana — to participate in its Access Control pilot program. That brings the total number of airports in the program, which began in April, to 10.

The pilot program will test a wide range of technologies, including radio frequency identification (RFID) systems, antipiggybacking systems, advanced video surveillance technology and various biometric systems. The goal of the tests, which will run through the end of the year, is to identify technologies that allow only authorized airport personnel and vehicles to access secure areas of an airport.

The announcement was welcomed by members of Congress, who expressed frustration with the pace of technology efforts to support homeland security. At a hearing of the House Transportation and Infrastructure aviation subcommittee last week, lawmakers urged Stone not to let a desire to find the perfect technology delay the deployment of something that is "good enough" for now.

Some lawmakers and airline industry executives argued that TSA programs have been hindered by a lack of standards for biometric technologies and a government bureaucracy that remains incapable of sharing information and setting priorities three years after the Sept. 11, 2001, terrorist attacks.

"Many airports are willing to deploy biometric technologies but are reluctant to do so until the Department of Homeland Security issues guidance and makes clear what types of biometric systems will meet its standards in the future," said Rep. John Mica (R-Fla.), chairman of the House Aviation subcommittee. "Someone at DHS just needs to make a decision, and the rest will fall into place."

Capt. Duane Woerth, president of the Air Line Pilots Association, said that when his organization began working with the IT industry and the government to establish a biometric standard, it expected the effort to take about six months.

"Every airline employee [had his] background checked and was fingerprinted three years ago," said Woerth. "Three years later, we don't have anything. Three years later, we're told we might have a pilot program. That's unacceptable." **48109**



is screened at a boarding gate at San Jose International Airport

Continued from page 1

Disaster Plans

age networking environments.

Firms were asked what recovery strategies they use, what they consider to be best practices and what cost/risk trade-offs and regulations are driving their strategies. They were also asked what investments in disaster recovery they will make in the next year.

For security reasons, the banks were unwilling to share specific strategies publicly. But Baumann said a common concern is the need to find a data recovery methodology that's efficient and scalable and meets the needs of internal customers.

"We'd all like to have an open checkbook to do everything right now. We'd like to do it at a price tag our companies are willing to spend," Baumann said. "It's not so much getting the money. It's putting together the right business case to say, 'Here's why we should be doing this.'"

Cost Pressures

Virginia Garcia, an analyst at TowerGroup in Needham, Mass., said the discussion is unique among financial services firms, which have been squeamish about sharing IT data because they consider it a competitive advantage.

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Key Project Findings

- **Banks are increasingly using higher levels of automation to minimize recovery complexity.**
- **Market dynamics are demanding that large firms provide faster recovery capabilities at lower cost and with less risk.**
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- **Banks are moving toward internal recovery centers and away from third-party recovery centers.**

Participating Banks

- [redacted]
- [redacted]
- [redacted]
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- [redacted]
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CA Shareholders Back Management on Bonuses

Money paid to former executives won't be revoked

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BY BOB BREWIN

In a development that extends wireless WAN technology beyond fixed locations, Washington State Ferries plans to offer free Wi-Fi service to passengers on ferryboats on its high-traffic Seattle-area routes this fall.

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That's exactly what Mobilisa Inc., now running a nearly yearlong test of Wi-Fi for Washington State Ferries, is delivering, according to Nelson Ludlow, CEO of the Port Townsend-based company. Mobilisa has installed a wireless WAN that treats about 400 square miles of Puget Sound "like one big WAN," with Wi-Fi service and wireless connectivity to the Internet available on ferryboats operating anywhere in the area. The Mobilisa tests are being funded by a $1 million grant from the Federal Transportation Administration.

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Proxim's Tsunami MP11a system supports mobile roaming, which is key to ensuring uninterrupted connectivity from the boats as they move from the coverage area of the fixed-link wireless antennas installed on one side of a route to antennas on the other side. The Port Townsend-Keystone run doesn't allow line-of-sight coverage, so it required the installation of two antennas on the Keystone side, Ludlow said.

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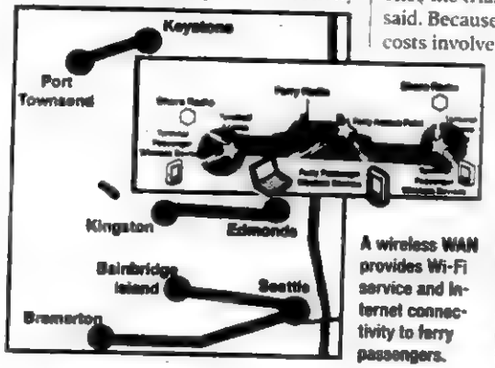
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IRONPORT

Rebuilding the World's Email Infrastructure

Continued from page 1

Disaster Plans

age networking environments.

Firms were asked what recovery strategies they use, what they consider to be best practices and what cost/risk trade-offs and regulations are driving their strategies. They were also asked what investments in disaster recovery they will make in the next year.

For security reasons, the banks were unwilling to share specific strategies publicly, but Baumann said a common concern was the need to find a data recovery methodology that's efficient and scalable and meets the needs of internal customers.

"We'd all like to have an open checkbook to do everything right now. We'd like to do it at a price tag our companies are willing to spend," Baumann said. "It's not so much getting the money. It's putting together the right business case to say, 'Here's why we should be doing this.' "

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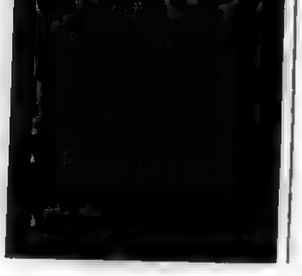
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SOURCE: FINANCIAL SERVICES TECHNOLOGY CONSORTIUM

Participating Banks



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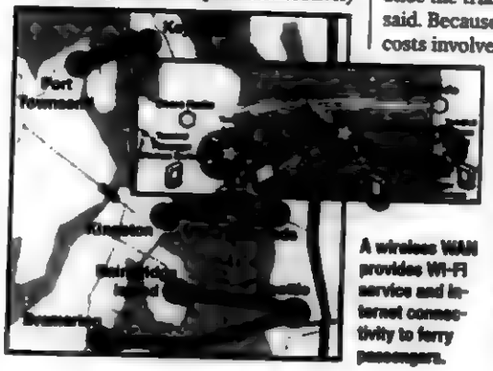
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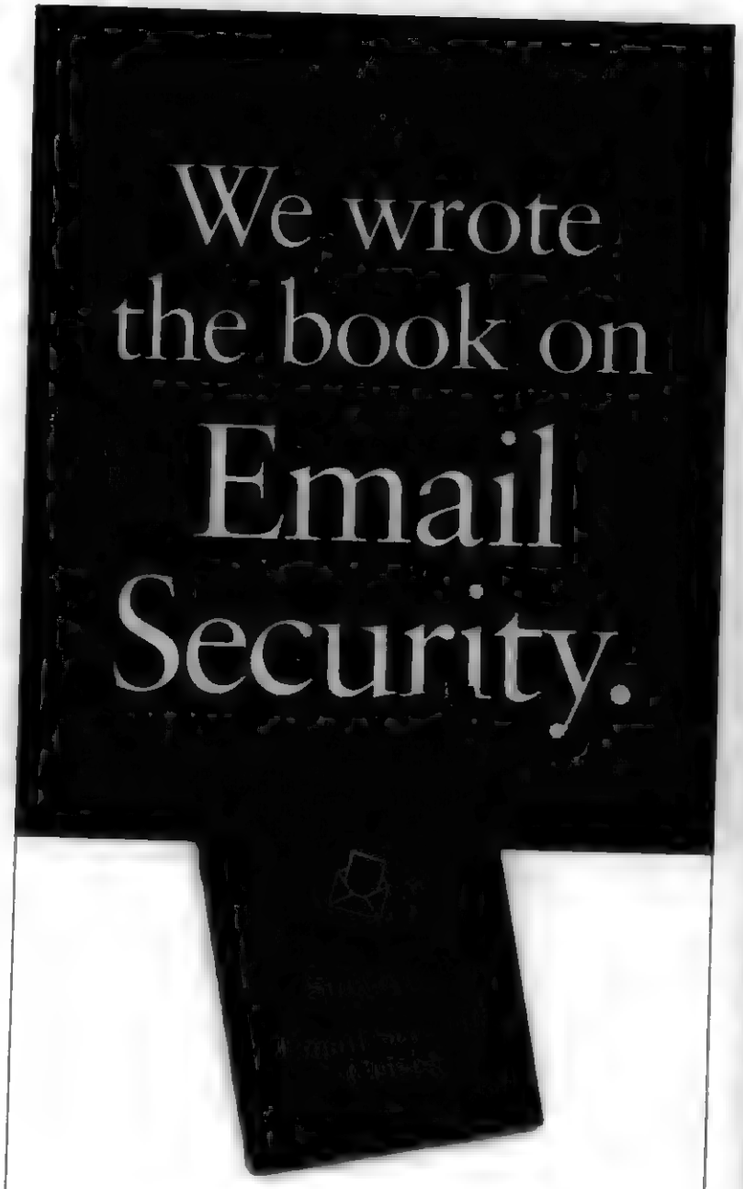
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MARYFRAN JOHNSON

Open-Source Obligations

SOMEONE in the open-source community should send a nice bottle of champagne to Charlie Ward, manager of technical architecture at Duke Power. What's worth celebrating? The way Ward and his crew of developers poured 1,000 hours into building a framework to support application development on Microsoft's .Net technology, then turned their work over to the open-source community ("Utility to Make IT Framework Open-Source," QuickLink 48960).



What made this front-page news for us last week was the significant size, relative rarity and potential impact of this corporate embrace of open-source. It's one thing for developers to turn over a few sanctioned pieces of corporate code to their open-source playmates. It's quite another for a major utility to throw open the doors to the results of a costly, complex software project.

Open-source just climbed up another rung on the enterprise ladder.

"This is somewhat of an experiment to see how much value can be gained from the open-source community," Ward said. Building a framework for application development doesn't give an energy company any particular competitive advantage, he observed, but getting continued support and improvements donated by a dedicated community of developers is clearly a benefit.

The appeal of open-source is rolling rapidly across the corporate landscape. More than 60% of 140 companies surveyed this spring by Forrester Research said they were either using or planning to use open-source products — everything from databases and development tools to Web servers and desktop software. And now the feds are officially encouraging open-source adoption across all government agencies.

"Open-source is just a more efficient, effective software business model," says John Roberts, founder of SugarCRM, one of the first open-source business application companies to attract venture funding. "It's more than just cheaper software. It's a shift, a movement reshaping the dynamics of a modern software company."

I think he's right about those fundamental shifts, which are also changing — and further complicating — the landscape of software licensing. For example, even at companies where open-source products aren't in evidence yet, the lines of responsibility are blurring as vendors fold portions of open-source code into their own proprietary products.

One CTO I spoke with last week had just encountered a novel situation with a new software package from a major vendor. His developers found a flaw in the code and alerted the vendor, which denied responsibility, saying that the piece of code containing the flaw was open-source. The customer argued for the fix and ultimately got it — but the experience raised a red flag for the CTO.

It should do the same for you. IT executives need to educate themselves about the rights and obligations involved in open-source — even if it's not in-house yet.

"What you need to look out for is what you give up" as well as what you gain in an open-source licensing agreement, says Larry Rosen, author of *Open Source Licensing: Software Freedom and Intellectual Property Law* (see "No Free Lunch," QuickLink 48482). If you choose to share your open-source development with other companies, for example, you may be obligated to use the same license with everyone.

It will be fascinating to watch how Duke Power proceeds with its open-source experiment, its licensing arrangements and the business value that comes from it. Here's hoping it'll be worth another bottle of champagne. **49072**



DAN GILLMOR

Microsoft Security's Weak Link

WINDOWS XP Service Pack 2 is now making its way onto computers. This major update is a step forward for a company that has had an abysmal record on security, and we should be happy for that much.

But it's only one overdue action. Users should also install more capable firewalls, antivirus software and anti-spyware applications. But the service pack also reminds us of a situation that Microsoft has never properly addressed: the retail/computer security problem.



If you buy a new Windows PC for your home and hook it up to a DSL service or a cable-modem line without first installing a hardware or software firewall, your computer could well be compromised by hackers before you've even had time to install Microsoft's "critical" security updates.

The PC may be turned into a spammer's toy, a zombie spewing thousands of mail messages per day, some of which could clog corporate networks. Or, worse, it may now have a keystroke logger in place, snarfing up personal and corporate log-ons and passwords and sending them who knows where.

This is a clear and present danger to corporate networks. If an infected home PC gets connected to the corporate network, via a VPN or other means, all the work IT does internally to keep things safe could be wrecked.

Yet this is reality. Why? Because Microsoft doesn't require computer makers and retailers to sell their PCs with totally updated operating systems. The computers likely will have XP with the most recent service pack, but no subsequent updates.

The same is true if you buy the Windows XP software by itself, in the box. It, too, will probably need updating to

be even remotely safe. In other words, despite monopoly profits and legions of talented programmers, Microsoft continues to allow retail versions of Windows to go out the door with known defects. Why?

Yes, there are complications in the retail channel. Microsoft and the manufacturers would have to put in a great deal more effort, and some added expense, to do the right thing. Given the wafer-thin margins in PC retailing, you can't expect the manufacturers or retailers to voluntarily take this on. That's why Microsoft should step in and do it for them.

At last count, Microsoft had more than $50 billion in cash. It plans to give some of that back to shareholders. Fine. But how about using some of it to make sure that computers sold at retail have the latest update of the operating system, with the firewall turned on?

Microsoft will never do that voluntarily. Its track record shows it to be a company that offloads as many costs as possible onto captive manufacturing "partners" that have no alternatives.

The logical people to intervene in this situation are state and federal consumer-protection officials. They'd never allow auto companies to sell cars with serious known defects. Why do they permit Microsoft and the PC makers to do so?

IT should be yelling from the rooftops about this. The situation is getting better only at the margins, and that's not nearly good enough. **48990**

PIMM FOX

Keeping the Skies Safe From Teddy

WHATEVER your political stripes, you would probably agree that Sen. Edward Kennedy (D-Mass.) is not a terrorist.

But when he tried to board a US Airways flight at Reagan National Airport near Washington this past spring, he was stopped because his name appeared on the government's secret "no-fly" list.

This database is supposed to be one of the many weapons in the country's fight against terrorism. And although the list hasn't led to any arrests, it has caused approximately 350 U.S. citizens to either be delayed or denied the right to travel. The FBI won't reveal who is on the list, which is maintained by the Transportation Security Administration, a branch of the U.S. Department of Homeland Security, which is run by Tom Ridge.



After that first incident, Kennedy, who you'd think is recognizable, was stopped repeatedly, even after his aides called the TSA to clarify the matter.

His name was removed from the list only after he personally phoned Ridge.

The reason Kennedy was on the list in the first place? Apparently, the name "T. Kennedy" has been used by a suspected terrorist as an alias.

Is that all it takes?

Is this the level of sophisticated technology being deployed to fight the war on terror? You might as well digitize the phone book.

Of course, the airline says it's the TSA's problem, and TSA officials say they're just doing their job and that glitches — well, they just happen. And, yes, they're going to get a bigger, better system.

And while the government says the TSA will issue a letter for those who are mistakenly on the list, how will you know you need the letter unless you're stopped at some airport or border crossing?

I have an English friend who possesses a valid U.S. green card and has worked legally in the U.S. for years. A technology professional who regularly travels from London to Seattle, he was stopped by U.S. immigration officials because he had a U.K. address on one of his documents. When he tried to explain that he goes back and forth on business, he was ushered into a small room and grilled by officers, who made it clear that they didn't believe a word of what he was saying.

Finally, after a rather nerve-rattling experience, a supervisor was called to the scene, inspected the documents and let my friend proceed.

Technology is often touted as savior or scoundrel when it comes to big government projects. The government is spending boatloads of borrowed cash to install massive databases designed to link all sorts of lists, from tallies of delinquent student loans or driver's licenses to flight manifests. It's an interesting idea to build a web of interlocking information to trap terrorists. But the execution is a direct contradiction to the openness, freedom and common sense that characterizes civil society.

The moral of this story isn't that technology is the culprit. Using IT to make the government more efficient, more transparent and more accessible to more people is a liberating and powerful concept. Every day, individuals click through the business of renewing driver's licenses, e-mailing elected officials or checking on government programs, using the sublime magic of the microchip.

But technology that's misused is a problem. The no-fly list is a no-win in the fight against terror. **48972**

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READERS' LETTERS

Critics Fire Back at ITAA Over E-voting

ACCORDING TO the article "ITAA Fires Back at Critics of E-voting" [QuickLink 48210], a recent survey by the Information Technology Association of America showed "that 77% of registered voters are unconcerned about the security of e-voting systems," and ITAA President Harris Miller believes that "critics who claim to be concerned about the security of e-voting systems are really using the issue to push a political agenda on behalf of the open-source community."

I'm pretty sure those same 77% of registered voters aren't concerned about the security of their home PCs, given the widespread problem of worms, viruses and spyware.

If asking proponents of open-source software to comment on the security of electronic voting systems is, as Miller says, "like asking a bunch of clergymen what they think of premarital sex," then asking end users about computer security is like asking a bunch of prostitutes what they think of family values.

Joe Sestilrich
LAN administrator, Pittsburgh

I WORK IN THE IT section of a bank, and if we were to go about our normal operations without any hard-copy audit trails, the federal government would shut us down in a heartbeat. How is it that something as important as selecting the man who will run and represent our country doesn't warrant the same scrutiny as processing our money?

Frank Thomas
Pittsburgh, fthomas@comcast.net

THE ITAA'S views and statistics are a smokescreen. This e-voting issue has nothing to do with open-source vs. proprietary, and all to do with reliability, security and auditability. I belong to an e-voting watchdog group in North Carolina, and I would say 90% of the members have no idea what open-source is. They just want a verifiable election.

Jim Franz
Programmer, Greensboro, N.C.

THE ITAA'S statement is ridiculous! Did the survey respondents know what "security of e-voting systems" means? This is a world where 95% of the people cannot program their VCRs. My guess is that most voters would think a policeman at the polling place constitutes good security for the e-voting systems. Read *Computerworld*'s Shark Tank to get a better understanding of the level of computer knowledge out there.

S. Duffy
Senior system analyst, Minneapolis

IF E-VOTING is as flawed as the logic in Harris Miller's justification, then we need to bury the idea immediately. The percentage of people uninformed about an issue does nothing to condemn or defend it.

Chuck Hinkle
Houston

MANY PEOPLE I have known in my 27 years in the industry have no clue about what a secure computer system involves. I've even had a conversation with someone who writes software for the Internet as a profession who believes that simply restricting traffic to Port 80 will keep your server safe.

If 77% of registered voters began to keep up with the security patches on their PCs, stopped opening e-mails and executing attachments from unknown sources, then *maybe* I would begin to trust their opinion on a secure computer system. Until then, the issue is not open-source vs. propriety software; it's about the ability to audit the system. Until major strides are made in computer security, including getting rid of unethical people from the computer profession, a paper trail will be a requirement to guarantee the accuracy of a voting system.

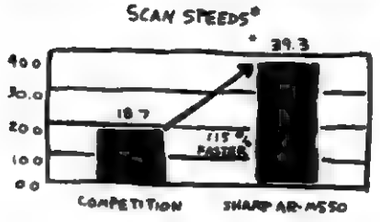
Michael Quigley
Systems analyst/programming coordinator, New Knoxville, Ohio

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Directory Assistance
Virtual directories provide applications with a single point of access to user data when the information requested is located in more than one directory. **Page 24**

QUICKSTUDY
Fuzzy Logic
While Boolean logic solves problems with a binary, yes-or-no answer, fuzzy logic solves problems when data is vague or imprecise. **Page 26**



SECURITY MANAGER'S JOURNAL
Company Secrets Hit the Exits
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ORGANIZED CRIME INVADES CYBERSPACE



Once the work of vandals, viruses and other malware are now being launched by criminals looking for profits. BY DAN VERTON

Launched against SCO and Microsoft Corp.," says Hyppönen. "But nobody was paying attention to what was happening behind the scenes."

And what was happening, according to Hyppönen, was the beginning of a concerted, unabashed effort to turn virus and worm infections into cash.

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ANTIVIRUS RESEARCHERS have uncovered a startling increase in organized virus- and worm-writing activity that they say is powering an underground economy specializing in identity theft and spam.

"The July outbreak of MyDoom.O was yet another reminder that spammers are now using sophisticated, blended threats that mix spam, viruses and denial-of-service attacks," according to Andrew Lochart, director of product marketing at Postini Inc., an e-mail security services provider in Redwood City, Calif. In July alone, Postini's customers reported more than 16 million directory harvest attacks, which are attempts by spammers to hijack a company's entire e-mail directory.

The link between viruses, worms and the underground criminal economy, however, goes back to long before the latest version of MyDoom, says Mikko Hypponen, antivirus research director at F-Secure Corp. in Helsinki, Finland. Starting with the initial outbreak of MyDoom in January, Hypponen began to notice that what had previously been considered little more than a rogue virus-writing subculture actually had a significant link to organized efforts to use malicious code to make money.

"MyDoom got press coverage because of the denial-of-service attack it launched against SCO and Microsoft Corp.," says Hypponen. "But nobody was paying attention to what was happening behind the scenes."

And what was happening, according to Hypponen, was the beginning of a concerted, unabashed effort to turn virus and worm infections into cash.

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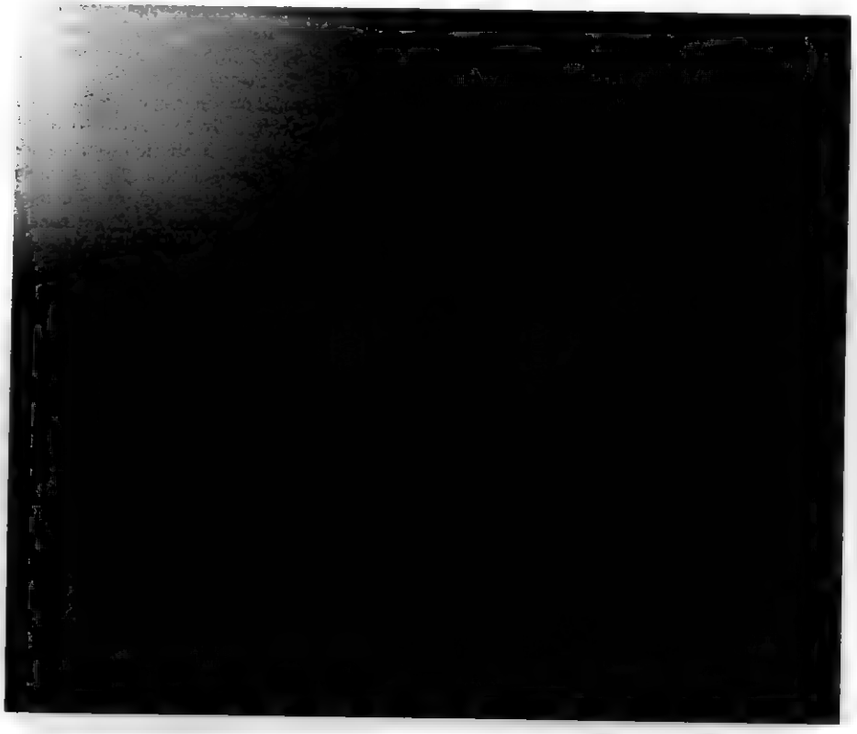
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Continued from page 19

door left by the worm, said Hypponen. The attackers searched for systems with a Trojan horse called Mitglieder installed and then used those systems as their spam engines. As a result, millions of computers across the Internet were now for sale to the underground spam community.

Of course, spamming viruses aren't new. Security professionals have been dealing with them for years. However, the appearance of MyDoom and more recent viruses and worms signaled the beginning of much larger problems, says Hypponen.

By the end of January, Internet users were busy dealing with the Bagle mass mailer. And although the first version wasn't particularly successful, at least a dozen variants soon followed, including variants that carried Mitglieder.

But the real clues that organized gangs were using Bagle and MyDoom to sell spam proxies — as well as links to phony Web sites that exist only to harvest identities and personal financial information — came when the writer behind Netsky.R posed a direct challenge to the so-called professional virus writers.

In addition to attempting to remove Bagle and MyDoom from infected computers, Netsky conducted a denial-of-service attack against Web sites known to be fronts for identity thieves, according to Hypponen.

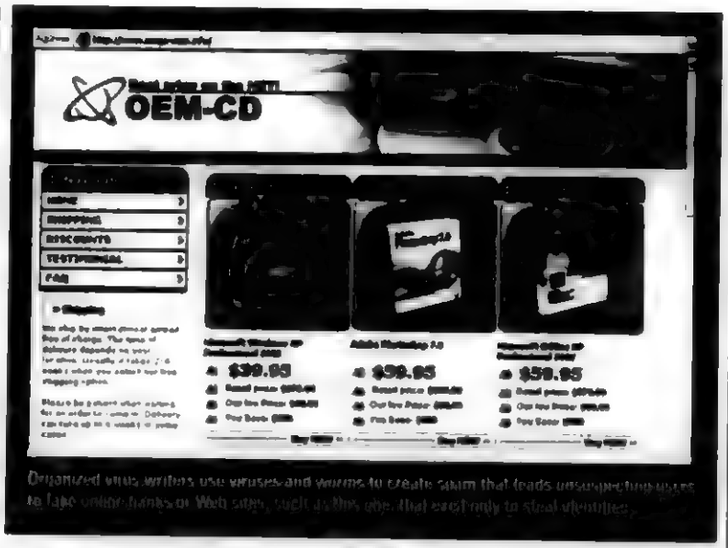
When F-Secure analysts decoded the encrypted messages hidden within a subsequent version of Bagle (Bagle.J), they discovered a threat of a virus war if the Netsky author continued to "ruin" the "business" of the professional virus writers.

"We have information that the writers of both MyDoom and Bagle may be Russian immigrants living in various European countries," says Hypponen.

Whoever is behind it, they are organized and running a thriving business, says Hypponen.

Brian Dunphy, director of global analysis operations at Symantec Corp.'s Security Operations Center in Alexandria, Va., acknowledges that it's difficult to discern the intent behind many viruses and worms in the wild. In addition to planting back doors, some worms, such as the latest MyDoom variant, have embedded peer-to-peer updating capabilities, he says.

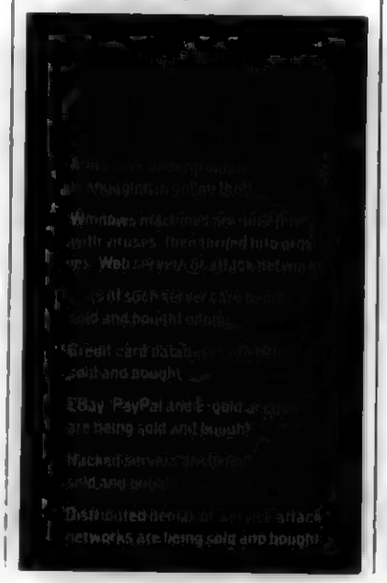
"What we used to see are worms and viruses that did not have a reach-back-and-call-home capability," says Dunphy. "What we saw with MyDoom, however, was that infected systems were aware of other infected systems, and they automatically built a peer-to-peer network of sorts."



Organized virus writers use viruses and worms to create spam that leads unsuspecting users to fake online banks or Web sites, such as this one that exists only to steal identities.

In fact, Symantec's analysis of the recent MyDoom.M outbreak discovered a mechanism that's used to maintain a list of all known infected systems and permits the worm's author to update all MyDoom.M-infected systems with new arbitrary malicious code with little risk of its network being hijacked by rival worm authors, says Alfred Huger, senior director of Symantec Security Response.

In addition to propagating spam proxies and setting up peer-to-peer networks, viruses and worms are being used to install Web servers on vulnerable systems. Those Web servers are then used to host everything from pornography and pirated software sites to fake banks, Hugos says.



Underground bartering and selling is conducted on Web sites such as a Russian site that, among other things, sells subscription services to compromised computers.

Various other Russian and Chinese message boards exist for the sole purpose of selling spam hosts. Accepted payment methods, shown clearly on the Web pages, include E-gold transactions and WebMoney and Western Union money transfers. Ironically, organized e-criminals don't accept credit cards.

For Sale: Your ID

Viruses and worms carrying Trojan horse code are also powering massive identity theft rings.

At sites like *www.oemcd.biz*, *www.mega-oem.biz*, *http://huge-sales.info* and *www.atlantictrustbank.com*, among hundreds of others, users are presented with the opportunity to buy popular software at tremendous discounts, sometimes at one-tenth the retail price. And while these sites look authentic, Hypponen offers a word of caution.

"The one thing all of these sites have in common is that none of them exist," he says. "If you buy something from them, you'll get nothing, and they will never charge your credit card. But what they will do is steal your identity." In fact, identities and bulk credit card "dumps" are available to the highest bidder at some sites.

Tracking down virus writers and other online criminals can be more difficult than anybody ever imagined. It's particularly difficult in the case of fraudulent domain-hosting schemes, which often use IP addresses that expire every two minutes, Hypponen says.

"If you refresh these sites, the domain name points to a different IP address every two minutes," he explains. "And then if you look at the IP addresses, you'll see that they are in places like Japan, Portugal, Brazil, Canada and elsewhere."

Hackers and malicious-code writers are increasingly automating the Internet shell game that keeps many of them one step ahead of law enforcement. The Kuwaiti hacker group Q8See is a case in point.

On March 8, a Russian source reported to F-Secure analysts the existence of a Trojan horse created by Q8See called Slacke. But what made Slacke unique was the extraordinary lengths to which its authors went to hide their tracks and the mystery that remains about the group's intent.

First, the worm downloaded code from a Web site hosted in São Tomé and Príncipe, a small island nation located off the Atlantic coast of Africa. Analysis by F-Secure, however, showed that the domain rights for the Web site had been sold to a company in Sweden. But registration information listed the company name as JordanChat and the location as Irbid, Jordan. The contact name was TeR0r.

As thousands of infected computers downloaded the malicious code from the Web server in São Tomé and Príncipe, they were then linked to an Internet Relay Chat system operated by CNN in Atlanta.

Once logged into CNN's IRC server, the systems connected to an IRC channel in Mexico called Noticias. And when Hypponen and his analysts studied the channel, they were astonished at what they saw.

"There were 20,000 clients just sitting on the channel doing nothing. They looked like people, but they were bots," he says, referring to programs that perform repetitive, automated functions.

The bots, however, weren't alone. According to Hypponen, three Kuwaiti users, presumably members of Q8See, were sitting on the channel and sending commands to the bots to scan various ranges of IP addresses. And while CNN eventually shut down the chat server, nobody knows for sure what the hackers were doing.

"We may never know," says Hypponen. "Whether or not this is traditional organized crime doesn't matter — because they are organized, and what they are doing is criminal." 46794

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Directory ASSISTANCE

Virtual directories offer a fast and efficient way to get identity management software and other directory-dependent applications online. **By Robert L. Mitchell**

THE BOEING CO. has a diverse directory infrastructure that includes products like Sun ONE, Microsoft Active Directory and Oracle. Having a heterogenous directory infrastructure in a company the size of Boeing is a practical necessity, but it also creates headaches for the aerospace company, which has 900 directory-enabled applications that serve some 150,000 employees.

The problem is that most identity management systems, Web portals and other directory-dependent applications are designed to access just one directory, but the data each requires may reside in many. Even when requested data is available in a single repository, it may not be structured in the way the application wants to see it.

As a result, getting each application to work with the directory infrastructure can become a big project, says Marty Schleiff, a cyberidentity specialist at the Boeing Shared Services Group.

"Every requirement means changing an existing directory without breaking it for existing clients or setting up a new directory," Schleiff says. A third option, customizing the application, can be costly. Unlike with internal application development projects, the money spent customizing a commercial application can't be leveraged by other applications, and customization adds to the amount of code that must be maintained, he says.

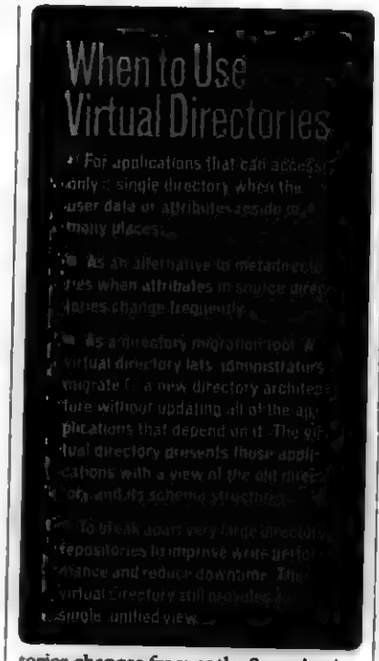
To solve the problem, Schleiff is turning to virtual directory software, an emerging class of products that he says offers a more flexible approach to providing applications with access to user account data and other attributes.

Boeing has piloted and is ready to begin a phased rollout of Virtual Directory Engine from OctetString Inc. in Schaumburg, Ill. To the application, the virtual directory looks just like the target directory it expects to see. It takes requests for data from the application, retrieves it from the back-end directories, performs any transformations needed and presents it to the application in the format required. No modification to the application or target directories is needed.

"We're deploying it to support many client applications. We're trying to create a shared service," Schleiff says.

The Virtual Difference

Virtual directories are similar to another tool: metadirectories. Both can access user data from different repositories. Metadirectories, a core element of user provisioning tools, copy data into a new repository that must be created, maintained and synchronized. The need to keep data updated can be a headache when data in source directories changes frequently. Some business units may also object to the idea of creating a second repository for customer data that will be outside of their control, citing regulatory or strategic concerns.



In contrast, virtual directories access the attributes requested from each directory or database on the fly. The software uses a cache to speed performance but typically doesn't store data locally.

Virtual directory deployments can cost substantially less than alternative strategies. The software, licensed by the server, may cost $10,000 to several hundred thousand dollars for a large project. But that's a small price to pay compared with the cost of rebuilding an enterprise directory or reworking each application, says Schleiff. "Anytime you're considering spending money to customize an application so that it can use your directory, you should look at virtual directory technology," he says.

The technology can even help applications that aren't sophisticated enough to deal with more complex directory mechanisms such as Lightweight Directory Access Protocol (LDAP) referrals. A virtual directory can follow the reference to locate the data and return it to the application.

But virtual directories also have a few drawbacks. Although they don't create an additional repository, they do create another layer of complexity because they require applications to access information indirectly through the virtual directory server rather than going to the directory that actually holds the data.

"There's a discomfort with adding another layer of infrastructure. If something happens to our Web single sign-on, our critical applications are down," says Schleiff. "Virtual directories . . . both simplify and make the service offering more complex."

Another potential weakness: Virtual directories are only as good as the directories behind them. If a directory tends to go down frequently or offers poor response, a metadirectory that has its own data source may be a better choice. But users say virtual directories have advantages here, too. They have load-balancing and fail-over features that can be configured to redirect a request to an alternative data source. If the connection drops in the middle of a request, for example, the virtual directory retries another repository and returns the rest of the data.

Starting Small

Boeing is one of the first companies to make the virtual directory an integral part of its directory service, but programmers and directory specialists at many large companies have been quietly using the tools for several years for specific, one-off applications or departmental development projects.

Jeff Sobel, a senior analyst at New York Independent System Operator (NYISO), a wholesale electricity pro-

vider in Albany, was building a Web application to let customers place bids over the Internet. He chose RSA Security Inc.'s ClearTrust access management software to authenticate users, but the product could point to only one LDAP directory. His user data resided in an Oracle database and an LDAP directory. At RSA's suggestion, he brought in RadiantOne virtual directory software from Radiant Logic Inc. in Novato, Calif. Sobel says he had the software up and running within a month. "It's not a long cycle time to get it running," he says.

NYISO wasn't always sold on virtual directories, however. The company looked at the tools a year ago and decided that most weren't mature enough. Although a few virtual directory tools have been around since the late '90s, they've improved significantly since then, says Gerry Gebel, a Fairfax, Va.-based analyst at Burton Group. Several vendors have added graphical point-and-click user interfaces to the tools that make setting them up much easier than the previous, text-based interfaces and configuration files. "But you still have to understand LDAP, database structures and things of that nature," Gebel cautions.

The manager of directory services at a large family entertainment company, which he asked not be named, says a virtual directory made sense for his application for both political and technical reasons. The company uses a flat directory structure, but its identity management software expects user data to be organized hierarchically. Using a metadirectory to transform the data was out because management "really put the hammer down about replicating data to different business units," he says. Rebuilding the source directory would have required eight months, versus just one month to deploy a virtual directory. The technology provided a hierarchical view of the data "without provisioning our data all over again," he says.

Choosing a virtual directory means looking at very small vendors, since the big directory players have yet to offer full-blown virtual directory products. The virtual directory vendors — about a half-dozen in all — are typically small, privately held firms with fewer than 30 employees and anywhere from five to 50 or more customers. Yet the vendors count many of the world's largest companies among their customers. "The larger and more complex the organization, the more need they have for this technology," says Gebel.

One way to mitigate the risk of going with small vendors is to leverage agreements they have with identity management software vendors and integrators. Radiant Logic has agreements with RSA and Accenture Ltd., for example, while OctetString has allied itself with Oblix Inc. Users can take other steps as well, says Gebel. "If you're implementing something that is higher risk, you need to take measures such as getting source code in escrow or going through a larger vendor," he says.

Another potential concern is scalability, says Gebel, although vendors disagree. While the products have been shipping for several years, they're evolving and have yet to prove themselves in many large-scale deployments, he says.

But those concerns don't bother NYISO's Sobel. He says he plans to use the technology as part of a broader, single-sign-on project involving more than a half-dozen directories. "Because we aren't tied down to a true directory ... it's easier to add repositories as time moves on." 48758

Virtual Players

VENDORS OF VIRTUAL DIRECTORY SOFTWARE are generally small companies with 30 employees or less and a customer base measured in tens of users. Some vendors offer only a virtual directory, while others offer a mix of products and services. Here's how they differentiate themselves.

Radiant Logic and Trondheim, Norway-based **MaXware** Inc. offer both metadirectory and virtual directory products and promote integration features between the two. The MVD MaXware Virtual Directory offers a flexible and easy-to-use interface, says Burton Group's Gerry Gebel. RadiantOne adds a "persistent cache," blurring the distinction between its metadirectory and virtual directory products. Both BEA Systems Inc. and SMC Software Inc. include Radiant Logic's technology in their product lines, while MaXware has partnered with Hampshire, England-based integrator BT Syntegra.

OctetString started with a Java LDAP directory that it transformed into its Virtual Directory Engine. The product has flexible joining, mapping and transformation features and a newly released 3.0 version adds features that make the product easier to use. Oblix resells the technology with its CoreID product.

Symlabs SA in Lisbon, Portugal, is the smallest vendor in the group; it focuses on high-performance, large-scale deployments. Telecommunications companies are among the early adopters of its Directory Extender product. Paris-based **Calendra's** Directory Manager includes a complete development environment and workflow component. The vendor has experience in developing Yellow Pages-type applications, says Gebel.

Persistent Systems Pvt., an established software development outsourcer in Pune, India, is by far the largest vendor in the group. It has experience building metadirectory connectors for other vendors. It has about 1,000 employees, although only about 30 support enQuire Virtual Directory. That product, part of the enQuire Identity Server, also supports a persistent cache.

-Robert L. Mitchell

Metadirectory ● Virtual Directory





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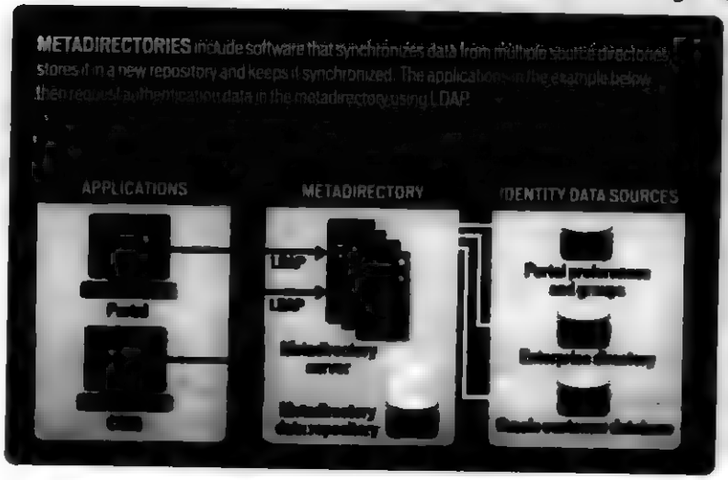
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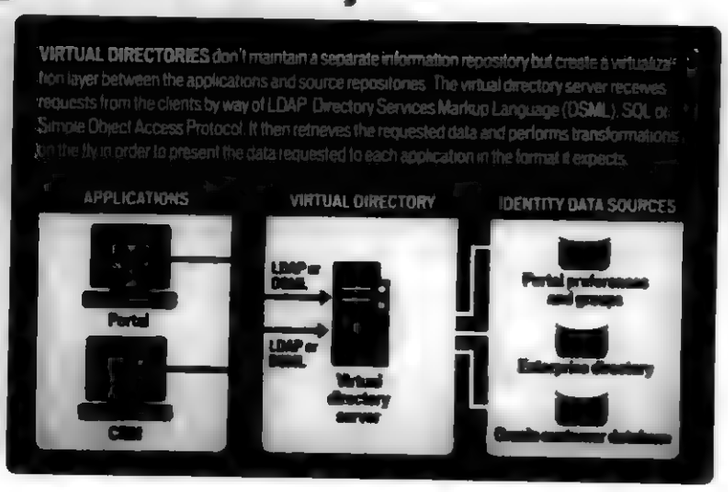
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Metadirectory vs Virtual Directory





Fuzzy Logic

Fuzzy logic is an extension of classic Boolean logic designed to work with imprecise or vague data, with the concept of partial truth. Where classical reasoning requires *yes* and *no* values, fuzzy logic can handle concepts such as "maybe," "nearly" and "very."

BY RUSSELL KAY

THE DIGITAL computing world is built on a structure of Boolean logic applied to binary values — one or zero, yes or no, in or out. But this powerful structure is a gross oversimplification of the real world, where many shades of gray exist between black and white. In everyday life, we use quasi-metric notions that are clearly related to numerical concepts or values but lack precision or demarcation.

What time is it? If I'm a server time-stamping thousands of files, digital certificates or transactions, I need very fine distinctions. But if I'm asking a co-worker what time it is, do I really care that it's 11:49:54 a.m. Eastern Daylight Time? Or do I just want to know if it's time for lunch yet?

Or take the weather. If it's 90 degrees Fahrenheit on a July day, that's hot for Massachusetts but mild for Arizona. A total of several inches of rain that month might constitute a drought in Massachusetts but a welcome relief from one in Arizona.

Get Fuzzy

The real world simply doesn't map well to binary distinctions, and numerical precision is often unhelpful in making qualitative statements. Fuzzy logic gives us a way to deal with such situations.

In fuzzy systems, values are indicated by a number (called a truth value) in the range from 0 to 1, where 0.0 represents absolute falseness and 1.0 represents absolute truth. While this range evokes the idea of probability, fuzzy logic and fuzzy sets operate quite differently from probability.

If I tell you that my height is 5 ft. 6 in. (or 168 cm), you may have to think a bit before deciding whether you consider me short or not short (i.e., tall). Moreover, you might reckon me short for a man but tall for a woman. So let's make the statement "Russell is short," and give that a truth value of 0.70.

If 0.70 represented a probability value, we would read it as "There is a 70% chance that Russell is short," meaning that we still believe that Russell is either short or not short, and we have a 70% chance of knowing which group he belongs to. But fuzzy terminology really translates to "Russell's degree of membership in the set of short people is 0.70," by which we mean that if we take all the (fuzzy set of) short people and line them up, Russell is positioned 70% of the way to the shortest. In conversation, we would say Russell is "kind of" short and recognize that there is no definite demarcation between short and tall. We can state this mathematically as mSHORT(Russell) = 0.70, where *m* is the membership function.

Another difference becomes visible when we look at some logical operations, particularly *or* and *and*. In probability, we calculate the *and* (intersection) of two independent events by multiplying their individual probabilities together and the *or* (or union) as the sum of individual probabilities less their product. For fuzzy logic, we evaluate *or* as the maximum of individual truth values, while *and* is the minimum of those values. As we incorporate more factors into the mix, even those with high values — the overall probability continues to drop, eventually approaching 0.0. For fuzzy logic, however, the truth value remains high. Similarly for the *or* operator, incorporating more factors increases probability to near 1.0, while adding more fuzzy sets doesn't raise the combined value at all, and the limit will be the largest of the individual membership values.

Hedging Your Bets

One thing that makes fuzzy systems useful is the ability to define "hedges," or descriptive modifiers, to represent fuzzy values. This keeps the operations of fuzzy logic closer to natural language and allows us to generate fuzzy statements through mathematical calculations.

Defining hedges and the operations that use them is a subjective process, and it can vary from project to project. But the system lets us use operators and produce compound results using the same formal methods as classic logic.

For example, let's change the statement "Bob is old" to "Bob is very old." Here we're using "very" as a hedge or descriptor, and this particular hedge is often defined as equivalent to the square of the base value. Therefore if mOLD(Bob) = 0.80, then mVERYOLD(Bob) = 0.64.

Other hedges include "more or less," "somewhat," "rather" and "sort of." All have subjective definitions but transform membership/truth values in a systematic, reliable manner. **48634**

Kay is a Computerworld *contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.*

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QUICK STUDY

SEVEN TRUTHS OF FUZZY LOGIC

1. Fuzzy logic isn't fuzzy. Fuzzy logic isn't intrinsically imprecise, doesn't violate common sense and produces unambiguous results. "Classical" Boolean logic, in fact, is merely a special case of fuzzy logic.

2. Fuzzy logic is different from probability. With probability, we're trying to determine something about the potential outcome of clearly defined events that may occur at random. With fuzzy logic, we're trying to determine something about the nature of the event itself. Fuzziness is often expressed as ambiguity, not imprecision or uncertainty; it's a characteristic of perception as well as concept.



3. Designing fuzzy sets is easy. Fuzzy sets reflect, in a general way, how people actually think about a problem. It's usually quick and easy to rough out the approximate shape of a fuzzy set. Later on, after some testing or experience, we can adjust its precise characteristics.

4. Fuzzy systems are stable and easily tuned and can be validated. It's faster and easier to create fuzzy sets and build a fuzzy system than it is to create conventional knowledge-based systems, since fuzzy logic handles all the interlocking degrees of freedom. These systems are validated much like conventional systems, but tuning them is usually much simpler.

5. Fuzzy systems aren't neural networks. A fuzzy system attempts to find the intersection, union or complement of the fuzzy control variables. While this is somewhat analogous to both neural networks and linear programming, fuzzy systems approach these problems differently.

6. Fuzzy logic is more than process control. Although some people view fuzzy logic mainly as a tool for process control and signal analysis, that interpretation is too limiting. Fuzzy logic is a way of representing and analyzing information, independent of specific applications.

7. Fuzzy logic is a representational and reasoning process. Fuzzy logic is a powerful and versatile tool for representing imprecise, ambiguous and vague information. It can't solve all problems, but it helps us model difficult, even intractable problems.

– Adapted from "The Seven Noble Truths of Fuzzy Logic," by Earl Cox, Computer Design, April 1992

Fuzzy Logic

DEFINITION

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QUICK STUDY

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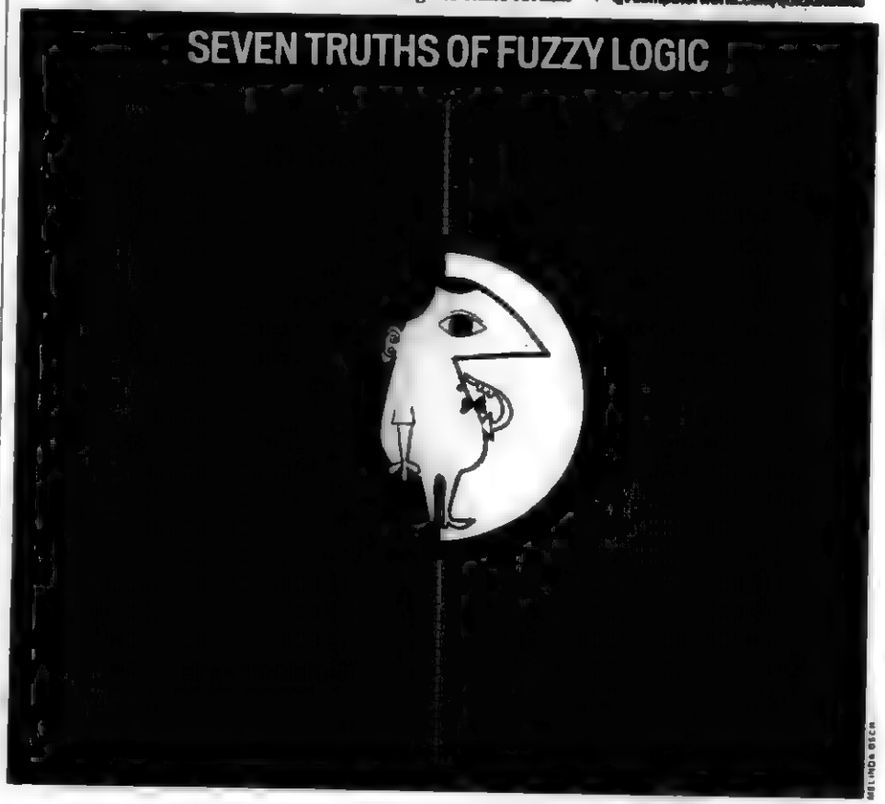
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Company Secrets Hit the Exits

It does no good to worry about hacker attacks if departing executives are free to leave with sensitive programs and data. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

THE OTHER DAY, I found out that an executive in my company was leaving. Normally, that wouldn't be a big deal. After all, in a large company people come and go all the time. But this executive's employment contract included a clause that lets him keep his laptop. As a security manager, I find this alarming, but it's a common practice when hiring executives here.

While executives have always departed with their computers, until now no one has bothered to erase the sensitive programs and data on those machines. Computers in the sales and marketing group, for example, contain customer contact lists, confidential price lists, e-mail correspondence, and merger and acquisition information.

The executive in question was part of an inquiry a few months ago that required obtaining an image of his laptop's hard disk drive. A member of the legal department, hearing of his planned departure, remembered that inquiry and called me. This person was leaving the company under good terms, he said.

Nonetheless, I asked for his laptop right away so that we could take another mirror image, wipe the drive and then install the standard baseline image on it. To my surprise and dismay, my request was met by a considerable amount of resistance from management. But in the end, less than 24 hours before the employee's departure, I finally received his laptop.

In the wake of this episode, the CIO established a policy that any laptop leaving with an employee must have its disk wiped. The policy statement will be included in future offer letters whenever retention of any company-issued computer equipment is part of the employment agreement.

With that problem behind me, I turned my attention to another pressing issue. Except for certain enterprise-class applications, such as PeopleSoft, Oracle and Siebel, my company develops in-house almost all of the software it uses. Prior to deployment, any application we develop must enter our project life cycle, which includes many reviews. Most of the items I am concerned with relate to access control, encryption, server and application security, and proper network segregation.

Unfortunately, this process is fairly new and is always being refined. We've only recently mandated IT security representation at the various stages of projects. Now, someone in my group attends the project planning meetings and all technical and critical design review boards. But sometimes smaller programming projects can slip by.

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A few months ago, I encountered an application that lets a user create and publish surveys. Since the program was designed for a group that was using the application for the one-time collection of nonsensitive data from the sales organization, we decided not to run it through the project life-cycle process. But I remember mentioning at the time that I was afraid other departments would find out about the survey tool and try to use it for gathering more-sensitive information.

Fears Realized

Since then, just as I feared, several departments have expressed an interest in this application. After getting wind of this, I insisted that if the application was to be used in a production environment for collecting more-sensitive data, it had to go through the formal project life-cycle path.

As part of the security review, we conduct a variety of security assessments. We assess both the application and the server on which it will reside. In addition, we review the application's architecture, which typically involves understanding which ports the application must use and any relationships between the application and other production servers. We don't want one compromised system to lead to the compromise of others by way of trust relationships. We also ensure that the appropriate firewall rules are defined and that only the necessary services are allowed.

The survey tool consists of a stand-alone application that creates a survey. The survey is then pushed to a Web server via an encrypted session. To enable that, firewall rules must allow only the server containing the stand-alone application to communicate with the Web server. We also needed rules to allow only Web traffic to the Web server and to our network operations center to monitor the server.

To conduct the server and application assessment, we used the open-source Nessus scanning program and Web Inspect from Atlanta-based SPI Dynamics Inc. In addition, we used scripts and other techniques as time permitted to further interrogate the server and the application. Any discrepancies in either must be fixed, or mitigating controls must be put in place.

For the survey-tool application, the server assessment came out perfect. That's because we have a top-notch baseline system image that has been hardened and patched. But the application assessment revealed a few items of concern, including a cross-site scripting vulnerability that could be exploited to cause the user to execute malicious code when viewing the survey. Once these vulnerabilities are fixed or mitigated, we plan to give the green light to the project leader to deploy this application.

Next, I'm back to trying to find an automated way to detect rogue wireless access points. We're testing Cisco Systems Inc.'s triangulation feature. If configured properly, it can detect an AP within a 10-foot radius.

The problem is that the APs are often hidden, and we still have to find them. So we're working on a way to automatically trace media access control addresses from our switches back to network jacks in individual offices. It's still not an ideal approach, but it's definitely a start.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1580**

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SECURITY LOG

Security Bookshelf



SOX Compliance Suite Launched

McAfee WebShield 3.0 Makes Debut

BRIEFS

Workshare Ships Protect Version 3.0

Workshare Technology Inc. in San Francisco announced Workshare Protect 3.0, software that's designed to detect and eliminate unwanted metadata from Microsoft Office documents before they're e-mailed. The tool also integrates with Lotus Notes and Novell GroupWise software. Available now, Workshare Protect 3.0 starts at $25 per seat.

Asset Management Tools Improved

LogicLibrary Inc. last week released a new version of its Logidex software development asset management tools for J2EE and .Net. Version 3.5 is compliant with the Web Services Interoperability Organization's Basic Profile, according to the Pittsburgh-based company. Logidex 3.5 starts at $10,000 per server and $1,000 per seat.

Iomega Adds 35GB SCSI Disk Backup

Iomega Corp. has introduced the REV 35GB, an entry-level external SCSI disk drive designed to replace tape drives without disrupting server operations. The external drive sells for $499; an internal model costs $449.



Imprivata Updates Password Manager

Imprivata Inc., a vendor of password management and biometric authentication products in Lexington, Mass., shipped OneSign 2.5. The appliance features self-service password management functions and enhanced fingerprint biometric capabilities that eliminate the need for users to enter or select a username prior to scanning, said Imprivata.

BRUCE SCHNEIER

Encryption Must Move Beyond SHA

AT THE Crypto 2004 conference in Santa Barbara, Calif., this month, researchers announced several weaknesses in common hash functions. These results, while mathematically significant, aren't cause for alarm. But even so, it's probably time for the cryptography community to get together and create a new hash standard.



One-way hash functions are a cryptographic construct used in many applications. They are used with public-key algorithms for both encryption and digital signatures. They are used in integrity checking. They are used in authentication. They have all sorts of applications in a great many different protocols. Much more than encryption algorithms, one-way hash functions are the workhorses of modern cryptography.

Ron Rivest invented the MD4 and MD5 hash functions in the early 1990s. Then the National Security Agency published a similar hash function called the Secure Hash Algorithm (SHA), followed by SHA-1, which today is the most popular hash function.

One-way hash functions are supposed to have two properties. First, they're one-way. This means that it's easy to take a message and compute the hash value, but it's impossible to take a hash value, and re-create the original message. (By "impossible" I mean "can't be done in any reasonable amount of time.") Second, they're collision-free. This means that it's impossible to find two messages that hash to the same hash value. The cryptographic reasoning behind these two properties is subtle, and I invite curious readers to learn more in my book, *Applied Cryptography* (Wiley, 1995).

Breaking a hash function means showing that either — or both — of those properties aren't true. Cryptanalysis of the MD4 family of hash functions has proceeded in fits and starts over the past decade or so, with results against simplified versions of the algorithms and partial results against the whole algorithms.

This year, Eli Biham and Rafi Chen, and separately Antoine Joux, announced some impressive cryptographic results against MD5 and SHA. Collisions have been demonstrated in SHA. And there are rumors, unconfirmed at this writing, of results against SHA-1.

The magnitude of these results depends on who you are. If you're a cryptographer, this is a huge deal. While not revolutionary, these results are substantial advances in the field. The techniques described by the researchers are likely to have other applications, and we'll be better able to design secure systems as a result. This is how the science of cryptography advances: We learn how to design new algorithms by breaking other algorithms. In addition, algorithms from the NSA are considered a sort of alien technology: They come from a superior race with no explanations. Any successful cryptanalysis against an NSA algorithm is an interesting data point in the eternal question of how good they really are in there.

As a user of cryptographic systems — as I assume most of you are — this news is important, but not particularly worrisome. MD5 and SHA aren't suddenly insecure. No one is going to be breaking digital signatures or reading encrypted messages anytime soon with these techniques. The electronic world is no less secure after these announcements than it was before.

But there's an old saying inside the NSA: "Attacks always get better; they never get worse." These techniques will continue to improve, and probably someday there will be practical attacks based on these techniques.

It's time for us all to migrate away from SHA-1.

Luckily, there are alternatives. The National Institute of Standards and Technology (NIST) already has standards for longer —and harder-to-break — hash functions: SHA-224, SHA-256, SHA-384 and SHA-512. They're already government standards and can already be used. This is a good stopgap, but I'd like to see more.

I'd like to see NIST orchestrate a worldwide competition for a new hash function, like it did for the new encryption algorithm, Advanced Encryption Standard, which replaced the Data Encryption Standard. NIST should issue a call for algorithms and conduct a series of analysis rounds where the community reviews the proposals with the intent of establishing a new standard.

Most of the hash functions we have and all the ones in widespread use are based on the general principles of MD4. Clearly, we've learned a lot about hash functions in the past decade, and we can start applying that knowledge to create something even more secure.

Better to do it now, when there's no reason to panic, than years from now, when there might be. 48921

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8:45am to 9:15am	**Industry Analyst Perspective**
9:15am to 9:45am	**Virtualization at CIGNA Corp.: Balancing Tactical IT Goals with Business Strategy** Ben Flock, VP of Virtualization and Application Frameworks, CIGNA
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Update from the Enterprise Grid Alliance (EGA)**
10:45am to 11:15am	**The View of Grid Computing from Iron Mountain** Bill Olsen, VP of Engineering, Iron Mountain
11:15am to Noon	**Key Considerations in Grid Computing Projects: An IT Executive Roundtable** Panel Moderator: Patrick Thibodeau, Senior Editor, Computerworld
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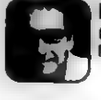
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MANAGEMENT 08.30.04

WHO'S WHO IN IT
The Thrill of Crisis
You may think that database administration is a skill, but DBA Gary Rue knows it's an art. In his world, a crisis is always just around the corner. **Page 36**

OPINION
Intelligent Disobedience
Executives with half-baked and hare-brained ideas can doom projects from the start, and scope creep threatens the rest. What's a project manager to do? Gopal K. Kapur has the answer: Just say no. **Page 38**

Petite Portfolio
Big projects get all the attention, but several small projects can add up to big risks. Managing them efficiently requires a careful balance of rigor and common sense. **Page 33**

Who Owns the Web?

When business units fight to control the corporate Web site, the company loses.

By Mary K. Pratt

WORKERS at Excel Switching Corp. spent months studying successful Web sites, mapping out a strategy and implementing their own Internet vision. But the planning couldn't eliminate a common problem: internal debates.

For example, engineers at the Hyannis, Mass., company, which sells hardware to the communications carrier industry, wanted graphics and information to dominate the site, while marketers wanted a more streamlined approach. "There is that push and pull," says Bill Kelly, Excel Switching's director of marketing programs, adding that the company takes a democratic approach in those struggles. "Whoever has the most influential argument, we'll go with it," he says.

Technology experts and business leaders alike say ownership of corporate Web sites is often up for grabs, as departments fight for placement, space and functionality. Marketing uses the Web site for branding, sales uses it to sell, and customer service uses it to minimize inbound phone calls. IT is left to support all the demands — within budget, of course.

But internal bickering comes at a price — lost leads, delayed launches and budget overruns — that can cost the company sales, brand recognition and customer satisfaction.

A 2004 report from Jupiter Research in New York highlights the problem: "Often there is neither an incentive for units to work together to accommodate each other's objectives, nor a governance mechanism to maximize the overall value of the Web site as a corporate asset."

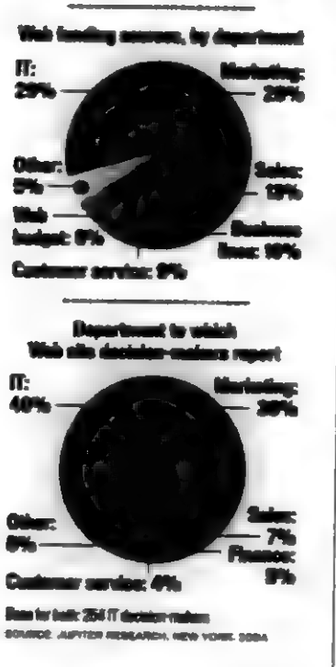
"The Web represents a confluence among different parts of the company," says Jupiter Research senior vice president David Schatsky, who wrote the report. He points to a well-known consumer travel company that also serves businesses. The company's business division wanted to promote its business-oriented products on the Web site, but other divisions thought that would puzzle the company's core clients: individual consumers. "In that situation you need a higher authority who can make a decision," Schatsky advises.

The Cost of Dissension

Jackie DiGiovanni, vice president of marketing and communication for U.S. Pensions at Toronto-based Manulife Financial Corp.,



Pieces of Web Pie



knows how costly those debates can be. When her division redesigned its Web site last year, the internal audit department wanted last-minute changes to the security features. Other departments disagreed with the proposal to assign new numbers and access codes to the 1.2 million participants who would use the site, but audit got its way, DiGiovanni says.

The change was a disaster, prompting frustrated plan sponsors and participants to bombard Manulife's customer service department with calls.

"What internal audit wanted ideally was not workable in the real world," DiGiovanni says. Manulife spent $500,000 and six months resolving the problem.

Now she tells team members to bring such disagreements to the attention of the next level of management. "We're more aware of needing to identify the conflicts and take more to the steering committee and let it get hashed out at that level," she says.

Web steering committees are typical at more sophisticated companies, Schatsky says. A financial institution, for example, might have leaders from IT, the mortgage unit, the credit card division and customer service on the committee, with the chairman reporting to a senior executive.

But Rick Swanborg, president of Icex Inc., a research and content management firm in Boston, says simply forming a steering committee isn't enough. "The companies that have done a better job at it have really put together a specialized group with people from IT, marketing (and) maybe some people from human resources who can think through the best way to build the corporate Web site," Swanborg says.

He suggests that a company form an entity that's focused only on the Web site and that holds ultimate responsibility and authority.

Jupiter Research's report recommends appointing "a single executive with responsibility for maximizing the value of the company's Web site overall." That executive's job would be to make sure decisions support the whole company's objectives rather than the goals of an individual department.

Companies also need to define a primary, high-level purpose for their sites. "It's crucial to getting to the next step," which is to maximize the Web site's return on investment, Schatsky explains.

When developing its initial site in 2001, New York-based Verizon Communications Inc. defined it first as a single door to the corporation and second as customer-focused, says Maria Malicka, executive director of e-commerce and call management. "We gained alignment around that, so we didn't experience infighting or major disagreements," she explains.

Verizon also instituted an e-commerce council of vice presidents and directors to address corporate-level questions and develop high-level strategies for the site. And the company has stakeholder forums, so leaders from different departments can hear and weigh in on proposed Web site changes. "Everyone was at the table from the beginning," Malicka says.

These steps haven't eliminated all debates about the Web site, she says. But they're crucial to resolving departmental conflicts so that the outcomes are best for the company.

"We are all in alignment on its goals, and if there are any disagreements, we have forums for discussion and negotiations. And when we focus on goals and customers, we don't have any issues that we can't resolve," she says.

A Clear Strategy

Randy Gravlin, president of Business Innovation Inc., a technology consulting firm with offices in Woburn, Mass., and Montreal, says that without a clear strategy, companies end up with "clusters" such as IT, business and marketing that ultimately have to come together to build a successful Web site. "We've heard it many times: 'This is going to be very hard. How do you bring these groups together to build a consensus?' But it is doable," he says.

Business Innovation worked with St. Louis-based Upbeat Inc. when the company spent nearly $1 million revising its Web site earlier this year.

Carla M. Russo, Upbeat's vice president of material management and MIS, says the site was reworked to integrate it with back-office functions, collect better data and drive more traffic.

The marketing department at Upbeat, which manufactures and markets indoor and outdoor products for business and government properties, controlled the Web site prior to its redesign, Russo says. But marketing also oversaw the production of 5 million catalogs annually, and the Web site had to compete for limited resources. Sometimes that meant Russo and the webmaster were overruled.

Russo remembers one instance where she pushed for photos to correspond with each item available for sale on the site, arguing that customers want to see exactly what they're buying. Marketing said no, citing limited time and resources.

But with the redesign, Upbeat's CEO agreed with Russo and ordered new photos. Russo sees this as one sign of the company's new focus on the Web.

"Prior to this redesign, the Web was there, but I don't know if anyone was really treating it as a channel," she says. There was no clear marketing plan, and there were no specific goals. "Nobody was really driving it," Russo says.

Russo now sees IT and marketing as having more equal standing, which means better decisions for the company overall. Upbeat even plans to add a new position staffed by someone who has both a tech background and marketing know-how to help bridge the two departments that run its site.

"Unlike other channels that can be owned by one department, the Web site is a unique animal. It just plays too interactively into other areas," she says. "It's the one channel where there has to be a clear collaboration." 48006

Pratt is a freelance writer in Waltham, Mass. Contact her at marlonary@mindspring.com.

First Among Equals

Companies often put functionality or time to market first when it comes to their corporate Web sites, but they should put security at the top of the list, says Jonathan G. Gossels, president of SystemExperts Corp., a Sudbury, Mass.-based provider of network security consulting services with nine offices throughout the U.S.

That means the security team must rank as a major stakeholder as sites are built and revised.

"Security should be part of the overall plan. That's early; that's before anything has been written," Gossels says.

Companies should have guiding principles when it comes to IT security, and those principles must apply to Web sites, says Bala Iyer, an assistant professor in the information systems department at Boston University's School of Management.

Without those guiding principles, companies "could drop the ball on security" as they build their Web systems, Iyer says. Still, he believes many companies push security down on their list of priorities.

Gossels recommends that companies empower workers "to blow the whistle when something isn't being built securely. The ownership of securing the firm is shared by everybody in the firm. Everybody's reputation suffers if the cargo goes out without shutting the door."

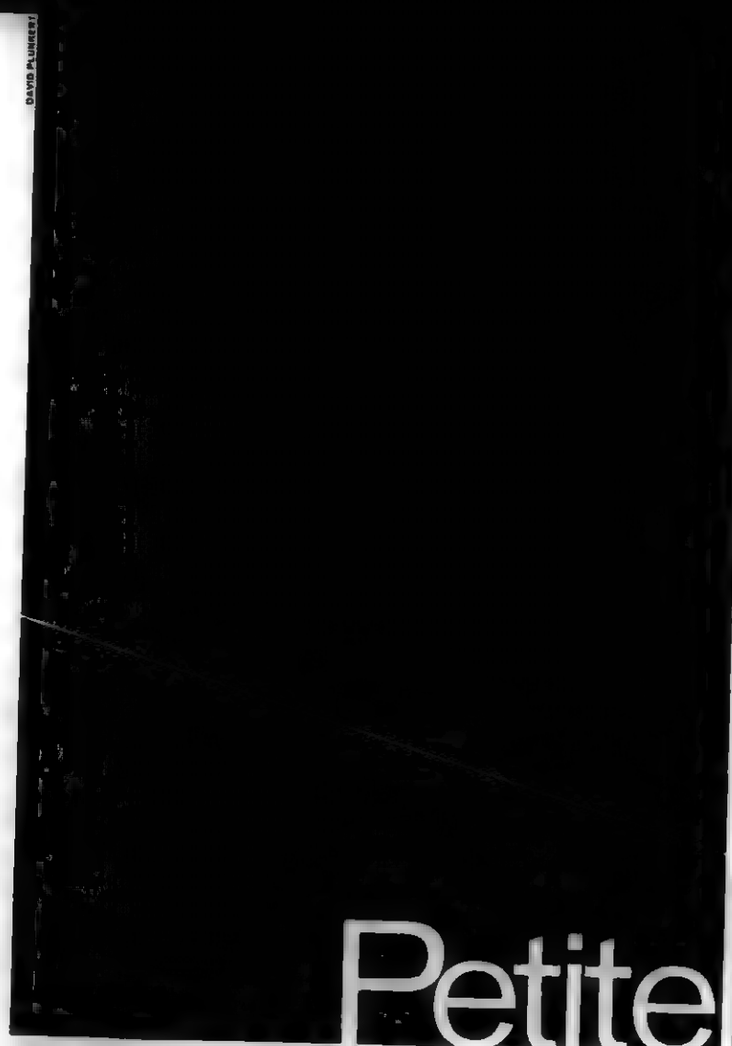
– Mary K. Pratt

Reaching Consensus

Web site operations are a never-ending series of upgrades and revisions, a process that invites input from every department under the sun.

Despite the various and sometimes conflicting orders that IT might receive from these stakeholders, experts say consensus is achievable. Here's how:

- **Define a high-level, primary purpose for your corporate Web site.** This will help guide decisions and serve as a reference point for resolving conflicts.
- **Name an entity – an individual, a steering committee or a new department – responsible for mapping the company's overall strategic objectives onto the Web channel and resolving conflicts.**
- **Invest in personnel who understand both marketing and technology,** the two divisions most likely to dominate corporate Web site planning.



DAVID PLUNKERT

Petite Portfolio

Managing small projects requires a careful balance of rigor and flexibility. By Thomas Hoffman

PROJECT MANAGEMENT experts will tell you that IT departments are doing a better job than they used to in delivering big projects on time and within budget. But shift the discussion to smaller projects — those valued at $250,000 or less — and their confidence starts to dwindle.

"There's a gap when it comes to small projects and the due diligence that should be applied to them," says Margo Visitacion, an analyst at Cambridge, Mass.-based Forrester Research Inc.

With small projects, IT project managers often spend less time on critical areas such as testing and quality assurance, says Visitacion. And even if IT departments have fairly mature project management disciplines in place, "they apply the practices, but the rigor goes down," she says.

Other tasks that IT managers tend to downplay on small projects include documenting the business objectives, defining requirements and managing changes, consultants say.

While individual small projects may seem less significant, they add up. This year, for example, the U.S. Food and Drug Administration has 28 projects it defines as "major" on tap that cost at least $5 million per year or $20 million over the life of the project. But the 50 to 60 "nonmajor" projects in the pipeline this year represent $40 million of the agency's $200 million IT project budget, says Rod Bond, director of strategy and planning at the FDA in Rockville, Md.

What to Keep

Project managers understand that they can be more flexible with small projects but critical requirements remain.

At Capital One Financial Corp., effective small-project management starts with defining the criteria for a small project — those valued at $50,000 or less — and establishing a set of requirements that have to be met.

For instance, the manager of a small project at McLean, Va.-based Capital One will place greater emphasis on how changes directly affect end users and focus less on technical change management issues, says Ray Frigo, vice president of corporate technology management at the credit card issuer.

Since it began refining its project delivery approach three years ago, Capital One has scaled back documentation requirements for smaller projects so they don't become too cumbersome to manage, says Frigo. The tailored small-project methodology has helped the company complete projects 10% to 15% faster this year, he says.

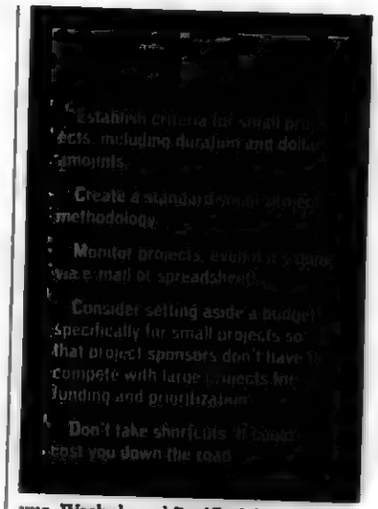
The FDA uses IT portfolio management software from Portland, Ore.-based ProSight Inc. to help ensure that small projects go through much of the rigor that bigger projects do. Project managers design a work breakdown schedule and a budget plan for each phase of every project, says Bond.

What to Drop

But other big-project requirements, such as documenting each step, can be waived. "For a $25,000 project, you'd spend more time documenting than you would building," Bond explains.

At Russell/Mellon Analytical Services LLC, managers prioritize and rank projects of all sizes with the help of a project management office (PMO) that was created four years ago, says Tammy Reuter, manager of strategic initiatives at the Tacoma, Wash.-based provider of investment analysis services.

The PMO mandates that project managers develop a business case for each effort, regardless of size. "We want to make sure that the smaller projects we pick are the most critical," says Reuter, whose group uses portfolio management software from Bellevue, Wash.-based Pacific Edge Software Inc.



But certain efforts don't meet the threshold for project rigor. For example, if the company has a $20,000 software enhancement to complete, "we don't do much management of that other than determining which tweaks will be done first," Reuter says.

A business case also has to be made for projects of all sizes at Brown Brothers Harriman & Co., a private bank in New York. The difference is that a smaller project might not require the same amount of detail. "Maybe a two-page business-requirement document instead of a 50-page document," says Rick Berk, the bank's CIO.

The bank's senior management monitors all projects using a combination of weekly and monthly reports developed with portfolio management software from Redwood City, Calif.-based Niku Corp.

Large projects still command more quality assurance staffers than small projects, Berk says. But to ensure that smaller projects are held to a consistent standard, the bank's IT staff has written test scripts for them. That enables the bank to perform faster and more automated regression testing that's "less of a burden for smaller projects," says Berk.

IT shops vary in their approach to small projects, but Forrester's Visitacion says smart project managers agree on one thing: "You can scale down the rigor, but you can't throw away the requirements." ● 48650

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The Thrill Of Crisis



DBAs are often the last to be involved in planning but the first to be called when things go wrong.

THIS IS THE FIRST IN A PERIODIC SERIES EXPLORING HOW IT PEOPLE SEE THEIR JOBS.

What is a database administrator? Someone who maintains and supports the database engine. In database administration, there are the people on the design and architecting of the database — the logical side — and then there's the physical component, where we take the logical and make it into the physical and administer the database after it's up and running. The area that I manage is more on the production and physical side of database support.

What is the most important contribution you make, and how do you make it? Our most important contribution is to keep the database running. It's an on-call function; you never know what might happen. Half the branch was up all night last night restoring a database because of a failure. Data recovery is very important, and so is performance tuning and problem solving. In IT, you tend to start at the back end and work out to see where the problem lies, so generally, we're one of the first areas that will be contacted when a problem occurs.

What is the most important IT skill or aptitude you need to do your job? We need to understand how the database engine works. We need to understand the technical components of the application environment, the processes within the environment and the relationships of all the people surrounding the environment. There's science, but there's art as well.

What is the most important "soft" skill or personality characteristic you need to do your job? We have to be good sounding boards. We have to help others identify and solve their own problems. They tell us what they think is wrong, but we have to get them to see outside of where they think the problem is, because if they really knew, they wouldn't be talking to us in the first place. A good database administrator has to see the relationships among the technology pieces, the people, the systems. We have to see the bigger picture and relate it. Sometimes we have to take a very technical piece and translate it to people at all levels of technical knowledge. That's hard to do.

What is the biggest misconception about what you do? We're a very tactical group — we have to be. But there's a strategic part of what we do so we can apply the tactical parts appropriately. For example, a developer says, "Create these tables." But for us to really do a good job, we need to know why. We need to know how and when those tables are going to be accessed. We need to understand the system so we can apply appropriate security. We also have to understand what type of data recovery scenarios we need to address, how and when to do the backups and where they will be stored. And we need to go through all types of scenarios to adequately recover that database.

What do you like best about your job? The people we work with. The systems people, developers — they're all problem solvers. They're all smart, creative IT people. And being in support, a crisis is always just around the corner. I like the thrill of the crisis. I like being put on the spot to find a way to solve a problem.

What do you like least? I don't like to take care of problems that, if I'd gotten enough information upfront or the right information, we could have dealt with it then. I don't like to put something in production and then have to fix it because future possibilities hadn't been considered.

What should IT people know about your role? Today's developers have databases on their desktops, so they think they're mini-DBAs. When we get involved, it's always after the implementation. Lots of issues could have been addressed if we had been involved earlier in the development process. Also, we do have a recovery role, and we should be asked about the recovery possibilities when a database goes down. IT people sometimes think they know how to recover, so generally we get brought into it because they have recovered incorrectly.

What should business people know about your role? Business people think IT can do anything, but they need to know that there is a cost associated, and sometimes the cost is too high to implement certain features. There are still priorities you have to set.

What would enable you to do your job better? Having more database tools and early interaction during the development process.

If you were not a data architect, what would you be? A detective. Trying to dig information out of people, the ability to look at disparate pieces of information and apply them appropriately to determine how an event happened — you have to be a little bit of a detective as a DBA.

How does the future look for your role? I think of us as the hub. The business user, the developer, the operations person, the systems person — they all relate to the database in some way. Our job changes slightly with new technology, but I think a DBA will be a very, very important role for years to come. And besides, everybody needs someone to point the finger at. **48895**

Interview by Kathleen Melymuka. Rue can be contacted at gary.rue@ky.gov.

From IT Governance To Hacking

Recent management books provide tips on IT governance, CIO survival, agile project management and understanding hackers.

BOOK REVIEWS

IT Governance: How Top Performers Manage IT Decision Rights for Superior Results, *by Peter Weill and Jeanne W. Ross (Harvard Business School Press, 2004; 269 pages, $35).* IT governance is a pressing issue these days, particularly since technology spending accounts for up to half of all capital expenditures at many companies. But few managers can accurately describe IT governance within their companies, much less quantify the impact of good governance on their bottom lines.

Weill and Ross, research scientists at the Center for Information Systems Research at MIT's Sloan School of Management, do just that and more. For instance, a CISR study of 256 global companies reveals that the profits of companies with top-notch IT governance practices are 20% higher than those of companies with poor IT governance. [illegible] important [illegible] authors [illegible] roughly describe what IT [illegible]overnance is, [illegible]lassify the approaches used to govern IT and offer advice on how to set up an IT governance committee.



While the authors acknowledge that there is no one-size-fits-all approach to effective IT governance, their research finds that companies that are focused on either profits or growth tend to have similar governance models.

The book is aimed at for-profit companies, but it has a chapter devoted to government agencies and not-for-profits. This is highly recommended reading for anyone who's struggling with these issues.

Agile Project Management: Creating Innovative Products, *by Jim Highsmith (Addison-Wesley, 2004; 277 pages, $34.95).* Although agile software development has been practiced for several years, many companies continue to be hampered by process-laden, top-down project management approaches. Enter agile project management, a more responsive and flexible approach to project management. This approach places more authority in the hands of project leaders and line workers who are doing the executing while concentrating on delivering customer value.

Don't assume that agile project management is "PM lite." In Highsmith's view, agile project management doesn't dismiss the importance of effective quality assurance, documentation or testing, but it does de-emphasize them as core principles.

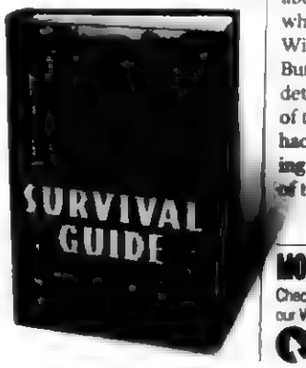


Instead, Highsmith effectively cites forward-thinking project management principles that have been espoused by his peers and pulls them into a cohesive, usable approach. He also goes to great lengths to explore the single most critical component of effective project management: people.

CIO Survival Guide: The Roles and Responsibilities of the Chief Information Officer, *by Karl D. Schubert (John Wiley & Sons, 2004; 294 pages, $45).* This up-to-date how-to book is useful for seasoned CIOs as well as newcomers who have recently transitioned into the role.

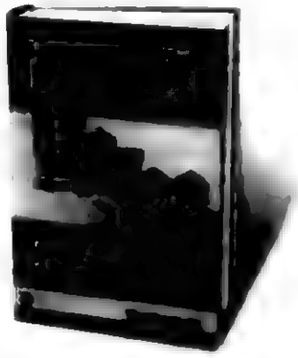
Schubert, a former chief technical officer at Dell Inc. who's currently chief operating officer at network storage provider Zambeel Inc., offers readers a logical approach to the CIO's role and challenges, including tips on building relationships with company executives, business partners and other key constituents.

Particularly useful are checklists such as "Ten Questions the CIO Must Ask the CEO."



Schubert's work draws upon insights from several leading management gurus, including Harvard Business School's Clayton M. Christensen and John Seely Brown. This book is a good read for any CIO who's trying to thrive or simply survive.

Know Your Enemy: Learning About Security Threats, *by The Honeynet Project (Addison-Wesley, 2004; 768 pages, $49.99)* Founded in October 1999, The Honeynet Project (www.honeynet.org) is a nonprofit research organization of security professionals who built a computer network, wired it with sensors, put it up on the Internet and recorded what happened. (The actual IP address isn't published and changes regularly.) Hackers' activities are recorded as they occur: how they try to break in, when they're successful and what they do once they break in.



This is a fairly technical read with quite a bit of information about how honeynets work and what goes into both Unix and Windows computer forensics. But the authors also provide a detailed sociological analysis of the white-hat and black-hat hacker communities, including an extensive examination of their motives. **48699**

— Thomas Hoffman

MORE REVIEWS

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EXEC TRACK

CXO Names CTO

ALOK BATRA has been named chief technology officer at CXO Systems in Waltham, Mass. In his previous role as vice president of engineering, Batra led the development of the company's management dashboard products. He co-founded Dashboard Systems, which is now CXO Systems.

Transplace Picks Cashman for CTO

ROY CASHMAN has joined Transplace Inc. as CTO. Plano, Texas-based Transplace is a transportation logistics management provider. Previously, Cashman was CIO at Ryan Transportation Management Systems.

Carver to Head IT Unit at Dana Corp.

BRUCE C. CARVER is now CIO at Dana Corp., an automotive products manufacturer in Toledo, Ohio. Previously, Carver was division CIO for PepsiCo Beverages and Foods, a unit of PepsiCo Inc., and CIO at The Reynolds and Reynolds Co., a provider of automotive software.

Certoma to Lead IT At Wachovia Unit

SUSAN CERTOMA has joined Charlotte N.C.-based Wachovia Corp. as CIO of the company's corporate and investment bank. Previously, she was a vice president in the global sales technology organization at Goldman Sachs & Co.

Holeman Moves To Sentient Jet

DAVID HOLEMAN has been named vice president of IT at Sentient Jet Inc., a Norwell, Mass.-based private jet service. Holeman will be responsible for specialty technology as well as for CRM and call center technology. He was previously CIO at Monitor Group in Cambridge, Mass.

GOPAL K. KAPUR

Intelligent Disobedience

DISCUSSIONS with project managers about the key causes of failed and challenged projects always raise two primary issues: half-baked or harebrained ideas becoming projects, and excessive scope creep.

Traditionally, senior management is charged with conceiving ideas that will drive the organization toward profitability and industry leadership. Hence, there is immense pressure on executives to deliver innovative ideas that can be turned into products and services for profit and competitive advantage. Unfortunately, these visions are often intertwined with any number of half-baked and, at times, harebrained ideas. When half-baked and harebrained ideas get communicated to them, many project managers don't object because of a culture of not questioning the senior people. The general thinking is, "How could they be wrong?"



Another big contributor to failed and challenged projects is the inevitable scope creep. We all know that at times customers can be unreasonable and unrealistic in their expectations, but they're also subject to external pressures they can't control — government regulations, competitive positioning, emerging opportunities and the classic "silver bullet" syndrome, also known as Management by Magazine. (This occurs when the customer reads an article on an airplane while 35,000 feet over Kansas and forms a new vision.)

But forcing the team to agree to continuous scope creep is clearly not the solution. And you get hit with a double whammy when projects are built around half-baked ideas. A half-baked idea that turns into a project with extensive scope creep is a nightmare.

What can project managers do to minimize these problems? Simply stated: Learn to say no.

Of course, project managers may feel that they don't have the ability or wherewithal to say no and that their only option is to do as they're told, even though they know that the outcome may harm the organization. This begrudging compliance is an unfortunate attitude in any circumstance. In the extreme case, it can lead to disaster.

This is where the concept of intelligent disobedience comes into play. Intelligent disobedience is a trait clearly illustrated by guide dogs for the blind: At an intersection, based on traffic sounds and a general sense of safety, the blind person initiates the move to cross the street, giving a signal to the dog. If traffic is blocking the crosswalk, however, the guide dog will disobey the move-forward command. In guide-dog training lingo, intelligent disobedience is the dog's response when it senses that the path ahead is dangerous. It disobeys even though the owner wants to proceed.

Now consider a different scenario: The dog disobeys the owner's command because it sees traffic blocking the intersection. The dog's owner punishes the dog for its disobedience until the dog finally proceeds. You can imagine the consequences.

It's important to note that dog owners are trained to trust their guide dogs because the two have to work as a team for the protection and safety of the owner.

The essence of the intelligent disobedience behavior as it applies to project managers is to say a firm "no" to the demands of executives and customers when such demands will put the project, and hence the organization, in harm's way. Humans are supposed to be smarter than dogs, but it's amazing how difficult it is to teach humans to exercise intelligent disobedience.

Intelligent disobedience requires empowerment and trust. It's important that project managers be well trained in reading the danger signals and empowered to push back when they believe that a proposed project will put the organization in harm's way or that the requested scope creep will create undue risk. Project sponsors and customers have to learn to trust their project managers to do the right thing.

Unfortunately, project managers can't change the culture on their own because many lack the political chips and the skill to negotiate with overbearing executives and unreasonable customers. They need the sponsor's help and support.

For intelligent disobedience to become accepted, sponsors must work to establish an environment of open and forthright communication with trust and respect for their project managers.

Whether project managers react with intelligent disobedience or begrudging compliance largely depends on the organization's culture. Are project managers in your organization encouraged to practice intelligent disobedience? **40878**

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8:15am to 8:45am	**Consolidation and the Data Center: Boosting Business Performance and Application Availability** Richard Villars, Vice President, Storage Systems Research, IDC
8:45am to 9:15am	**User Case Study — Hilton Hotels: Considering the Next Generation Network** Damien Bean, Vice President, Corporate Systems, Hilton Hotels
9:15am to 9:45am	**User Case Study — MasterCard International** Jerry McElhatton, Senior Executive Vice President, Global Technology and Operations, MasterCard International
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Infrastructure Makeover: Moving the U.S. Air Force Toward Network-Centric Services Delivery** Brigadier General Brad Butler, Deputy Chief Information Officer, U.S. Air Force
10:45am to 11:15am	**Customer Challenges and Solutions: Real-Life Scenarios Connecting Data Centers Over Distance** Steve Adolph, CTO, Enterprise Solutions Group, CIENA
11:15am to Noon	**Panel: Overcoming Management Barriers — Making the Case for Consolidation** Panel Moderator: Don Tennant, News Editor, Computerworld Panelists: Damien Bean, Vice President, Corporate Systems, Hilton Hotels; Frank Enfanto, Vice President, Operations Delivery & Information Security, Blue Cross Blue Shield of Massachusetts; Steve Goldman, Director, Network Architecture, Chicago Mercantile Exchange; Ron Kifer, Vice President, Program Management, DHL Express; Jerry McElhatton, Senior Executive Vice President, Global Technology and Operations, MasterCard International
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(Glen Mills, Pennsylvania and other locations through the U.S.) Perform accurate analysis and effective diagnoses of client issues and manage day-to-day client relationships and project teams. Responsible for assisting client organizations in developing roadmaps to establish customer analytics environment and support business growth. Evaluate the existing customer care processes including Siebel implementations for telecommunications industry clients and define, develop and deliver training programs to enhance user acceptance. Perform business process reengineering, strategic planning and knowledge management related to development and implementation of new business and system processes. Define systems strategy, develop system requirements, administer testing and training, and define support procedures for systems including CRM systems (Siebel), and application portal (Broadvision). Identify and evaluate control structures especially for IT-enabled processes. This includes identification of inadequate practices, testing of control systems, recommending measures for improvement, and establishing plans for ongoing monitoring. Actively evaluate client's systems in relation to the competitive landscape, identify efficiency frontier and develop reinforcing activities and capabilities for sustainable competitive advantage.

The wage offered is $95,000 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree in Computer Science, Engineering (any), Management Information Systems or Business Administration + 2 years of experience in the job offered or 2 years of experience as a Senior Consultant, Consultant, Systems Analyst or related occupation. Related experience must include at least two years of consulting experience in the telecommunications industry with at least one year of CRM Systems knowledge including Siebel development and Broadvision. Please send your resume, referencing Job Order Number **WEB446348** to the PA Careerlink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

Recognition Algorithms Dev Engineer - Recognition problem classification w/respect to real-life images & analysis of system requirements. Mathematical formalization of specific recognition problems using Probability Theory, Neural Networks, Pattern Recognition & Metastroika Theory. Development of program architecture & interfaces. Development of algorithms of statistical data analysis. Image processing algorithms, algorithm & SW development for field location on forms, form removal, document structure analysis, phrase & word segmentation. Implementation of algorithms using C/C++ & Assembler in actual recognition products. Tuning & customization of recognition products for specific data sets. Optimization, support & improvement of the code for Win & UNIX platforms. BS Comp Sci or related field + working knowledge of Algorithms development & implementation, Probability Theory, Statistics, Neural Networks and Metastroika Theory. Document analysis for handwriting recognition; C/C++ & Assembler $70k/yr M-F 40 hrs/wk. Boulder, CO. Must have proof of legal authority to work permanently in U.S. Application by resume only to Workforce Development Programs, PO Box 46547, Denver, CO 80202. Ref job# CO6068878.

SENIOR SOFTWARE ENGINEER. Responsible for design of back end products (Service Monitor) used by company's major products. Design XML/COM property set based communication architecture between back end and high level front ends using Visual Basic script. Design client script based setup program for remote deployment. Design libraries, programming tools and unit testing tools for Service Monitor programming environments. Supply samples and programming guidelines. Responsible for technical lead and training with Microsoft technologies. Visual Basic and Visual C++ multitier applications using WIN32, ATL, COM, COM+ and .NET. Responsible for WIN32 and COM design and programming technical support. 40 hrs/wk. Bachelors degree in Computer Science. 4 yrs. exp. in job offered or 4 yrs. related exp. in software engineering and/or consulting. $101,068/yr. Apply at the nearest Employment Security Commission office of North Carolina or submit resume to Employment Security Commission, 742-F East Chatham Street, Cary, NC 27511. J.O. # NCS7059907 and DOT code 030.062-010. All resumes must include applicant's Social Security Number. AD paid by an Equal Opportunity Employer.

Seeking qualified applicants for the following positions in Memphis, TN: Senior Business Systems Analyst. Develop major applications systems requirements, testing and controls. Requirements: Bachelor's degree or equivalent" in business, computer science, engineering, mathematics, MIS or related field, plus 5 years of experience in systems planning and design or systems development and integration. Experience with mainframe systems support, invoicing/revenue testing, and writing and executing test plans and test scripts also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to David Hanks, Federal Express Corporation, 3680 Hacks Cross Road, Bldg H, 1st Floor, Memphis, TN 38125. EOE M/F/D/V.

Oracle Clinical Consultant to plan, design study in Oracle Clinical 4.0; develop DCMs, remote data entry screens, DCIs etc; design, develop validation procedures using PL/SQL in Oracle Clinical's validation module; develop SAS, SQL views using TOAD, SAS, Oracle Clinical; perform CRF designing, database building, randomization, query resolution, reporting, subject randomization algorithms using Oracle Clinical, Normlab, SAS, SPSS, Adobe Framemaker. Require: MS in CS, Computer Engg or Statistics, and 6 months exp in Oracle Clinical, SAS. Competitive salary, F/T, travel involved. Resumes to: Scott Bryant, Judge Technical Services, Inc 3 Davol Square, Suite 3A, Providence, RI 02903.

COMPUTER

T&T Solutions seeks Software Engineers, Sr. Software Engineers, Systems Analyst, Oracle Apps., technical consultants etc. Salary commensurate w/education & exp. Fax resume to (818) 676-1272 or e-mail to jobs@ttsus.com c/o HR Dept.

SYSTEMS ANALYST - Udr. sprvsn. analyze usr. telecomm. reqs. to install & improve syst. Req: BS in CS or Comp. Info. Sys. & fluency in Japanese & English. Resumes: Syscom USA, Inc. 55 Broadway, 17th Floor, NY, NY 10006. Attn: S. Sato.

Denso Manufacturing is looking for Process Engineer responsible for heat exchange process introduction (Evaporator area) including jig specs, control plans, ergonomics, leaks & scrap improvement. Min is BS with exp in XRD, Unix. Send resumes to One Denso Rd, Battle Creek, MI 49015. EOE.

K&M Softech is looking for programmer/system system, software/project engineers, IT professionals. Both entry & experienced levels needed. Some positions require travel. Skills in C/C++, VB, Oracle, SAP, SQL, Java are plus. Please send resumes to: Recruit@kmsoftech.com. EOE.

Systems Analyst II. BS in Comp. Sci. or rel field + 2 yrs rel exp, incl exp w/GAAP principles, insurance & mortgage business concepts & calculations & s/ware dvlpmt using Windows or Intranet/Internet platforms. Demonstrated oral & written communication skills. Send applications to Taj Dhawan, 1601 - 48th St., Ste. 220, West Des Moines, IA 50266.

Software Developer. Under senior supervision, analyze, design, implement and maintain software for banks in mortgage industry including consulting w/ financial projects; design and model databases on database servers; and develop new software not currently existing in the industry. Must have Bachelor's degree in Computer Science, MIS or related, 1 year experience in job offered or Software Engineer or related, and experience must include working with Java, Eclipse, XML, SWT/Jface, UML and Rational Rose. Send resume to Praxis Technology Group, LLC, Attn: Mark Loomis, 1500 NW 118th St., Des Moines, IA 50325.

In-Venture Soft is seeking IT consultants to design & develop applications for various projects. Applicants must have BS/MS with solid background in Oracle, WebSphere, Java, EJB, ASP. We offer competitive wage with full benefit. Travel maybe required. Apply at resume@invinc.net. EOE.

RouteOne, a joint venture developed to create a more efficient automotive finance process for dealers, has openings for IT professionals to develop Java applications. Qualified applicants must have BS/MS with IT experience. Please contact careers@routeone.com. No calls. EOE.



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Programmer Analysts to analyze, design, test, implement and maintain software systems in client server envir using C, Java, HTML, VB, ORACLE, MS Access, etc under Windows, UNIX OSs, write documentation to describe program development and logic, perform onsite/offsite maintenance, debugging, testing, and code optimization. Require BS or foreign equiv in CS/Engineering (any branch) with 2 yrs exp in IT. Competitive salary F/T travel involved. Resume to HR, Ordusion Technologies Inc, 3883 Rogers Bridge Road Suite 504, Duluth, GA 30097

Principal Software Engineer. Primary responsibility for the development of networking software. Responsible for functional spec dev, arch design, implementation and verification. MS or foreign equiv in EE or CS plus 5 yr exp that must include 3 yr with one or more network protocols including IP, TCP, ARP, DHCP, DNS, SNMP,and firewall. Must be familiar with IP QOS protocols and RFCs. Must have development exp with Linux and in C/C++. Please send resume to Ucentric Systems, 2 Clock Tower Place, Suite 550, Maynard, MA 01754. Attn to Pat Riley

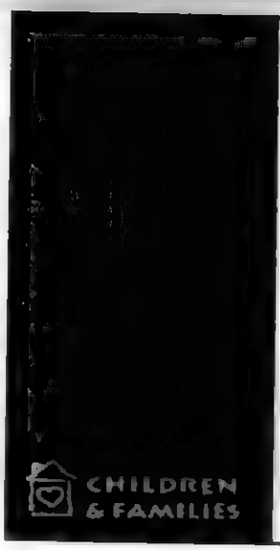
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- WEB ARCHITECTS/ DEVELOPERS
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- WEB GRAPHIC DESIGNERS
- NETWORK ENGINEERS
- PROGRAMMER/ANALYSTS
- SOFTWARE ENGINEERS

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- COLD FUSION • SPECTRA
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- COM, DCOM • JSP • HTML
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Chief Information Officer

Requires effective interaction with customers and developers to ensure the successful delivery and implementation of projects, updates and modifications to the production environment. Must be able to work effectively with senior departmental managers as well as executives with other state agencies to achieve smooth and timely project development and conversion for clients. Desire strong background and demonstrated success in deploying productivity tools for workforce and agency processes. Responsible for charting agency strategic direction in client/server and distributed/decentralized processing. Qualifications: Excellent organizational analytical writing and public speaking skills are desired. A bachelor's degree from an accredited college or university and progressively responsible leadership experience in analytical and/or technical data processing fields. Prefer experience in a managerial capacity for a medium to large data center. Experience as described above can substitute on a year-for-year basis for the required college education.

Submit resume and/or State of Florida employment application to: Jo Moore, Department of Children & Families Technology Centre, 1940 North Monroe Street, Suite 80, Tallahassee, Florida 32399-0710, FAX (850) 487-8173, Jo_Moore@DCF.State.FL.US. DEADLINE: 5 P.M., September 8, 2004. EEO/AA Employer/Veterans Preference. Those persons who require special accommodations during the selection process should call Jo Moore at (850) 487-8169.

Sr Database Specialist. Northern VA and unanticipated client locations in the U.S. needed to install, implmt, maintain & customize DB2 on OS/390, Windows and UNIX platforms. Incl related ISV program products & config of SNA & IP netwk'g between platforms. Provide task mgmt, to d-base specialists. Req. B.S. in CS, EE, Computing, or Math. Must have 8+ yrs of work exp in job or as a DBA & knowledge of DB2 internals, DB2 DDF, BMC tools, DB2 tuning/design/security/backup & recovery. 40 hrs/wk OT as needed. Send copy of ad w/resume to Networking for Future, Inc., Attn: H. Fatemi, 1420 Spring Hill Rd., Ste 600, McLean, VA 22102

Sr Software Developer needed to provide solutions to business & technical problems: dsgn & dvlp applic s/ware using Unix, C, C++, Java, Oracle, VB, UML, TCP/IP & Win NT; dsgn & dvlp automation systms on client-server architecture; apply OO techniques. Resume to: Global Consultants, Attn: Hireme, 8800 Grand Oaks Circle, Ste 100, Tampa, FL 33637.

Software Development Manager - provide business software development solutions for Fortune 500 clients; engage in business modeling, analysis & design of complex software applications; architect & manage J2EE solutions for clients in the areas of portals, Content Management and Business Intelligence/Data Warehousing using Cognos ReportNet, Crystal Reports & J Reports; lead a team of analysts/engineers in the design, development, testing & deployment of custom Cognos ReportNet on IBM Websphere platform using J2EE; implement all Rational tools including Requisite Pro, XDE, ClearCase & Clearquest; mentor development teams in technical aspects of J2EE, ATG-Dynamo, SAP, Cognos & Websphere. Requires BS (or MS) in computer science, information systems or engineering plus 5 YR progressive exp (3 years with MS). Email resumes to Command Technologies, Inc. an MTC Technologies Company at ddubinskas@commtechinc.com

Software Engineer-Applications. Sought by Englewood Colorado consulting company to work in various unanticipated locations throughout the U.S. Duties: Develop, create and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. Analyze and design databases within an application area. Use of Novell, Visual Basic, C++, PowerBuilder, Java, ASP, PL/SQL, SQL Server and Windows NT. Reqs: Masters or equivalent in Computer Science, Computer Engineering, Engineering (any field) or related field. Plus 1 years in the job offered or 1 year in a related occupation, including Programmer Analyst, Systems Engineer or Software Engineer. Will accept a Bachelors degree plus five years of progressive experience in the field or related occupation in lieu of required education and experience. $73,231.00/year, 40hrs/wk, 8AM-5PM. Respond by resume to: WORKFORCE DEVELOPMENT PROGRAMS, P.O. Box 46547, Denver, CO 80202, and refer to Job Order No. CO5088418

Software Engineer-Applications

Design and develop software application solutions for the investment banking/financial, telecomm and IT industries. Must have Masters Degree in Computer Science or in a related field & 2 yrs exp or 2yrs exp in a related position w/ability to use JavaScript, Struts, Lynx Framework, and Pro*C. 40.0 hrs./wk, 8:00 AM - 6:00 PM.

Applicants send cover letter and resume to Cyber Korp Inc., 400 West Lake Street, Suite 216, Roselle IL 60172-3572. Attn: HR MGR

Support Mgr Dallas, TX. Manage team of prof. support consultants & provide back end support in deployment, installation & troubleshooting of Amtrix & TSIB. Liaison w/develop team in integration, stress & load testing of Amtrix & TSIB. Use Weblogic, Exceed, AMTrix & TSIB; Oracle 8i & 9i on Unix & WinXX OS. Req. BS in comp sci & 1 yr exp AMTrix integration, configuration, support & troubleshooting. Resumes to M. Williams, Velocity Inc., 3475 Piedmont Road, Suite 1700, Atlanta, GA 30305

IT PROFESSIONALS

Technical Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.) Provide technology consulting services for public sector engagements involving implementation, testing development, maintenance and enhancement of software packages and applications utilizing Object-Oriented design and analysis. Oracle 9i, MS SQL, Javascript, Java, VB Script, CGI scripting, server administration skills, Visual Basic, C, C++ and Pascal as well as IBM MQ Series, PAM and Solaris. Participate in formulating and defining computer information systems scope and objectives through research and fact-finding to develop or modify information systems tailored to client management requirements. Prepare detailed technical and business requirements from which software will be written. Analyze and revise existing system logic and documentation. Supervise systems analysts and programmers conducting any of the above activities.

The wage offered is $75,780 per year. The work schedule is Monday-Friday, 8:30 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree or foreign equivalent* in Computer Science, Engineering (any type), Management Information Systems, Computer Information Systems or Math + 5 years of experience in the job offered or 2 years of experience as a Consultant, System Analyst, Web Developer, Database Administrator or Programmer. Prior consulting and project/team management experience must include system analysis, design, implementation testing and deployment for Public Sector client engagements using Object-Oriented design and analysis, Oracle 9i, MS SQL, Javascript, Java, VB Script, CGI scripting, server administration skills, Visual Basic, C, C++, Pascal as well as IBM MQ Series, PAM and Solaris.

*Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited educational evaluation service.

Please send your resume, referencing Job Order Number WEB447614 to the PA Careerlink, FLC Unit, 235 West Chelten Avenue, Philadelphia, PA 19144. EOE

Sr Systems Analyst/Project Mgr needed to lead analysis of client bus. process/acctg requirements for implement. of custom ERP business/acctg software. Requires degree + exper. & Microsoft Navision certification. Exper must incl Gap-fit anal, reporting, Microsoft C/SIDE programming, demonstrated understand of gen acctg procedures. Based in Santa Monica, CA - Travel up to 80% to client sites in N. CA & S. CA. Send resume to: S. Mauser, Specialists in Custom Software, 2120 Colorado Ave., Suite 150, Santa Monica, CA 90404. Must be able to work without employer sponsorship.

Software Developer - Austin, TX. Usr S1 corp standard dev tools & project method to develop, install & test solutions to specific user tech & bus. problems within context of S1 Bank products using Borland Delphi 7. Req: BS comp sci, engg, or related, 2 yrs consultant or engg. & knowledge of Delphi, java, UML design tools, ISS, SQL, and ClearCase. Perm US workers only. Resume to: N. Green (TX), S1, Inc., 3500 Lenox Rd., Ste 200, Atlanta, GA 30326

Prog/Analysts to analyze design software apps using C, C++, Compile Tools, Oracle, Informix-4GL, Informix Online, SQL Server, OR Java, JSP, Servlets, XML, ASP, Visual Basic, EJB, JavaScript, HTML, DHTML - under Windows, UNIX OSs; design APIs for backup/recovery framework; provide on site maintenance support such as debugging, modification, fine tuning & code optimization. Require BS or foreign equiv in CS/Engg (any branch) & 2 yrs of exp in IT. F/T competitive salary. Travel involved. Resumes to: HR, Semator Technologies, Inc., 3300 Holcomb Bridge Road, Ste212, Norcross, GA 30092.

IT PROFESSIONALS

Senior Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.) Responsible for the analysis, design, development, testing and implementation of Data Warehouse, Data Mart and Business Intelligence solutions and other related application development to ensure that implementations meet technical requirements, including those for performance and disaster recovery. Responsible for gathering functional requirements, defining technical architecture, system implementation and client management. Utilize technical expertise in all stages of the software development life cycle, including the planning, analysis, design, development, and testing stages. Perform logical and physical data modeling, optimize database performance and develop backup and disaster recovery strategies. Utilize PL/SQL to combine database and procedural programming language in Oracle. Responsible for writing technical documentation of projects and transferring knowledge to clients in order to support the application upon completion of the project. Responsible for logical and physical data models for Data Warehouses and Data Marts utilizing ERWin, designing universes and reports utilizing Business Objects and Web Intelligence. Online Analytical Processing (OLAP; tool and data extract, transform and load (ETL) functions using Informatica. Participate in the installation, configuration, design and development of Relational Database Management Systems, including Informix, Sybase and Oracle systems as well as the Business Objects and Web Intelligence OLAP tool and Informatica ETL tool. The wage offered is $82,000 per year.

The work schedule is Monday-Friday, 8:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree to equivalent in Computer Science, Engineering (any) or Business Administration + 5 years of experience in the job offered or 5 years of experience as a Senior Consultant, Consultant, Engineer or related occupation. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials evaluation service. Related experience must include at least one year with Relational Database Management Systems (Oracle, Informix and Sybase); SQL, PL/SQL, ERWin for data modeling, Business Objects and Web Intelligence OLAP tool, and Informatica for data extraction, transformation and loading (ETL). Please send your resume, referencing Job Order Number **WEB447641** to the PA Careerlink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE



Computer Programmer/ Analyst wanted by IT company located in Southfield, MI. Must have B.S. in Computer Science and 1 1/2 years exp. Respond to: Atrient Technologies, P.O. Box 250575, West Bloomfield, MI 48325.

COMPUTER PROFESSIONALS Radiant Systems, Inc. a Nationwide Technology provider located in NJ, CT, TX & FL req Professionals w/ Hardware &/or Software skills incl: C, C++, Java, JavaScript, XML, UML, Perl, HTML, SQL, Pro*C, VB, PB, VC++, MFC, SDK, GuptaSQL, Informix, Crystal Reports, Sybase, Dev 2000, LotusNotes, Unix, WinNT/95/XP, RTOS, Sun OS, Help Desk/PC-Support, SAP, R/2-R/3, ABAP/4, SAP Scripts, PeopleSoft, IDMS, AS/400, COBOL/CICS/ DB2, MVS, RPG/400, SQA, WinRunner, LoadRunner, SNMP, COBRA, ASP, Active-X, DTM/TDMA, FDMA, Routers, DSP/ATM, FRAME RELAY, TCP/IP, ISDN, DCOM, CDM, PL/1, SAS, VxWorks, VHDL, SONET/ SDH, SNMP, HP OpenView, Proj Mgr, Tech Writers. Candidates w/a BS(or equiv) & 2yrs exp. as P/A and/or MS (or equiv) & 1yr exp. as S/E. Travel & reloc., req to anywhere in USA as assigned. Excel Benefits. E-Mail: radiants@radiants.com Attn: H.R. Dept 109-A Corporate Blvd., S. Plainfield, NJ 07080

Engineering Manager Job Duties: Lead a team of engineers for full chip level testing/verification from block to system level. Create test suites and testing environments. Direct and train Engineering team and co-ordinate testing/verification of system on chip integrated circuit designs. Assist research and engineering team with testing/verification of electronic circuits. Perform design validation of communication blocks/networking/consumer products using C/C++ on unix/windows environment. Create testcases from Architecture/Micro Architecture specification and develop test suites using perl/awk/sed and C-shell. Conduct trade-off analysis for various tools and flows. Validate/test processing systems and designs using FPGA. Conduct behavioral modeling of electronic circuits. 40 hrs. week. Salary $108,500/year. Master's degree in Science, Engineering or Technology with at least four (4) years of exp. in job offered or a Member of Technical Staff. Special requirements: Applying electronic series and concepts to integrated circuit design, development and testing for communication and networking products. Development of software and hardware for consumer communication products using HDL languages. Must be willing to relocate, if necessary. Send Two (2) copies of resume/letters of application to: Job Order # 2004-077, P.O. Box 989, Concord, NH 03302-0989.

Systems Engineer. Temple Terrace, FL - develop telecom applications utilizing TELON, a computer-aided software engineering tool, information management system database/data communications (IMS DB/DC), COBOL and DB2; design and implement system solutions for business requirements to national on-line ordering system, for the telecom industry, utilizing design methodology, software and hardware knowledge; provide support and troubleshooting techniques, analyze, design and implement solutions, provide customer support. Requires Bachelors degree in Computer Science and either 5 years experience in the job offered or 5 years experience in developing telecom applications utilizing TELON, IMS DB/DC, COBOL and DB2. Salary $63,100/yr, 40 hrs/week, 8 AM to 5 PM, Mon - Fri. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to Job Order #FL-2549132.

Texcel, Inc. seeks Lead Network Engineer in our Cleveland, OH loc. Creation & integration of advanced computer technologies into client environments. Identify & configure equipment, software/hardware, manipulate data & other components to meet client needs. Implement solutions individually or as part of a team. Must have Bachelors degree in Engineering or related field + 5 yrs relevant experience.

Resume to Texcel, Inc. CommercePark II, 23220 Chagrin Blvd., Ste 202, Beachwood, OH 44122-5409.

IT CAREER OPPORTUNITIES

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Positions require a BS and relevant experience, a combination of experience and college level education may be accepted. The flexibility to travel and be on-call may be necessary. Proof of legal authorization to work in the U.S. is required.

Please forward your resume to Computer Sciences Corp. Attn: J. Le, 2100 E. Grand Ave., Mail Code A209, El Segundo, CA 90245. Please indicate the specific location for which you are applying.

Lansa, Inc. is seeking a LANSA Latin America Sales Technical Support for Downers Grove, IL. Candidate will provide phone and on site pre and post sale technical advice to Latin American partners and manufacturing, distribution, financial, government and retail industry LANSA clients. Will build prototypes and proof of concept applications for prospective customers and provided post sale software guidance to insure client's LANSA projects are successful. Will review sales proposals to insure technical accuracy while using knowledge of application development involving the following: (1) User/Client interface: Windows Client, 5250/Character (2) RDBMS: DB2/400 and SQL Server. Will use knowledge of the following LANSA products: Visual LANSA, LANSA client, LANSA Open, RUOM, LANSA for iSeries. Will conduct post sale education classes on the use of these LANSA products and well as using knowledge of 3GL programming languages. Please fax resumes to (630) 874-7001 and reference job title when applying.

PROGRAMMER/ANALYST

Analyze, design, develop, test software applications to meet customer requirements. Applications need to be developed using C++, C#, .NET, CLR, VB, Java, MFC, ATL, COM/DCOM. Use the software tools such as Oracle, SQL Server, IIS, Web Logic Server, Rational Rose, CVS, Remedy, Clearcase, PVCS tracker. 8:00 a.m. to 5:00 p.m., $55,000/year. Bachelor's degree in Computer Science/Engineering. Five years of experience in job offered or related occupation such as software development. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, 590 Iowa Street, Dubuque, IA 52004-0757. Please refer to Job Order #IA1101900. Employer paid advertisement.

Computer

SOFTWARE ENGINEERS to design, develop, debug, implement, test and/or analyze computer software programs for applications. May assist in porting, documentation, and/or defining requirements. Analyze operational requirements; provide recommendations for software architecture and system performance optimization. All levels may require a Master's degree in Computer Science, Engineering, Business, Math, Physics, or related technical discipline, and 2 years work experience in designing, developing, and implementing software applications, including (1) RDBMS concepts and internals, performance tuning, and security, (2) SQL/PSQL code optimization, (3) defining software development lifecycle and architecture for technology stack integration, 4) developing software coding standards and procedures for enforcing standards compliance, and (5) designing infrastructure for software packaging, patching, release and deployment. Send resumes for all level and all types to: Oracle Corporation, 500 Oracle Parkway, MS # 3OP8648, Redwood Shores, CA 94065, Attn: Job Code: 385 6764. Oracle supports workforce diversity.

Primus Global Services, Inc., is seeking IT professionals in several areas: **Functional Consultants - Oracle DBAs** - Administer & consult on Oracle ERP & data warehousing solutions/implementations using Oracle 8i/9i & .Net on UNIX/Windows platforms. **Programmer Analysts** - 1) Program & implement XML web services & coding for Oracle & SQL Server back-ends using VB & .Net or 2) Code & implement web based applications for UNIX & MVS using COBOL, DB2, SQL & shell programming. Code user interfaces using IBM Web Sphere & MQ Series middleware, IBM's Apache Web Server, J2EE and JDK. **System Administrators** - support & maintain operations of UNIX server, networks, applications production & systems environments. Send resumes to: jobs@primusglobal.com.

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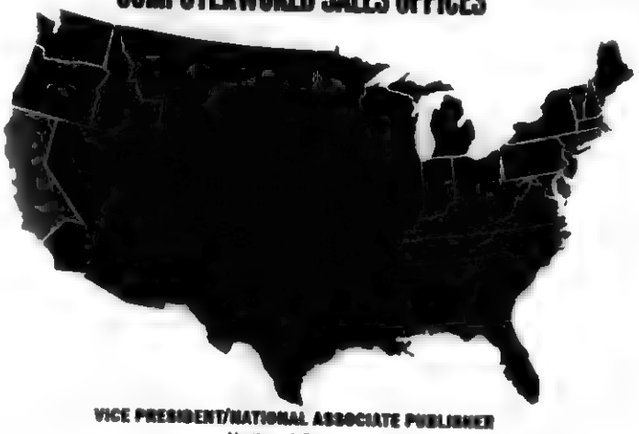
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SP2

peak season," said Mike Jones, CIO at Circuit City Stores Inc. "While I'm happy to see that Microsoft has put out SP2 in response to known issues and weaknesses over time, it just doesn't work out timing-wise for us."

Jones said the Richmond, Va.-based retailer won't deploy SP2 until the first or second quarter of next year. And he was hardly alone in determining that the SP2 deployment will have to wait at least four months.

Fifteen of the 26 respondents who now have at least some XP in their desktop environments indicated either that they would wait until next year or that they had no near-term or set plans for SP2. The remainder said they plan to deploy SP2 when they complete testing, with three of them saying they expect that will be within two months and another within four months.

"We are very concerned about this service pack breaking some of our applications," said Bill Lewkowski, CIO at Metropolitan Health Corp. in Grand Rapids, Mich. "In fact, we had one of our vendors give us notice that their applications would not work."

That vendor was McKesson Corp., a San Francisco-based provider of health care applications, he said. Lewkowski added that he isn't sure when Metropolitan will finish testing SP2, since it will need resources and money that hadn't been budgeted. He said the IT department will work with its more than 400 vendors, but he isn't sure it will ever get to the point where it can deliver SP2 to its users.

But Steve Kleynhans, an analyst at Meta Group Inc., said his firm is advising companies to roll out SP2 as fast as they can. He said he expects it will take most companies four to six months to complete the certification and engineering process to prepare for the rollout. "SP2 is mandatory. You don't have a choice," he said. "Anything in the future is going to be built on SP2."

Yet the application compatibility problems that some companies are encountering can be difficult to work through. John LaBrue, a team leader in distributed computing at OGE Energy Corp. in Oklahoma City, said some applications that the IT department tested broke because of the new Windows Firewall.

MORE ON SP2
Visit our XP SP2 special coverage page online:
QuickLink a4910
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"There are methodologies in place to disable the firewall, and we have deployed those in our test environment. We are still having issues," LaBrue said. "So it's not alleviating the problems we are experiencing."

LaBrue said OGE also has several custom applications for mobile data that are in a "broken state." Its Citrix Systems Inc. application also failed, but staffers stumbled upon a fix that worked, even though it wasn't designed for that problem.

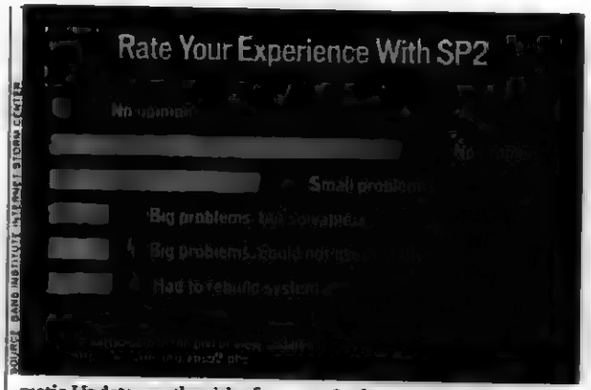
In addition to concerns about application incompatibility and firewall issues, DHL Worldwide Network SA/NV is worried about SP2's size making it cumbersome to deploy to users who may be connected via slower network links, according to Meg Plummer, director of front-end services at the international courier.

The full SP2 package checks in at about 265MB, according to Microsoft. The average download is expected to be much smaller because of "smart download" technology that installs only what users need. For XP Professional, the SP2 download is expected to be about 100MB, Microsoft said.

Preemptive Moves

Some companies have had to disable Automatic Update to make sure users don't download SP2 before they've had a chance to test their applications. John Foley, a network planning analyst at Werner Co. in Greenville, Pa., said that even though his company distributes security updates through an internal server, he made a change to the group policy setting in Active Directory to block users from downloading SP2 via Automatic Update or Windows Update.

Companies that rely on instructing users to disable Automatic Update run the risk of experiencing frustrating consequences. According to a source at a manufacturing firm who requested anonymity, two users there downloaded SP2, despite messages instructing them not to install it. Now the machines won't boot and must be fixed.



But SP2's timing will work well for some companies. Allstate Insurance Co. expects to start rolling out Windows XP on April 1 next year, so the company is doing SP2 and XP application compatibility testing at the same time.

Still, that's no small undertaking. Kevin Rutherford, a workstation strategist at the Northbrook, Ill.-based company, said Allstate has about 1,000 applications to test.

So far, Greg Lavigne, an Allstate systems consultant, has already observed that the insurer's WRQ Reflection terminal-emulator software has been flagged by Microsoft on a Web page carrying the headline "Some programs seem to stop working after you install Windows XP Service Pack 2."

Jon Murchinson, a Windows client product manager at Microsoft, said customers should take advantage of SP2's enhancements right away. But the company also recognizes the need for application compatibility testing, he said, and it recommends that customers test SP2 in a closed environment before rolling it out to their entire enterprises. **49104**

Early SP2 Adopters Got Extra Help Solving Problems

Hawaiian Electric Co. got a dose of special attention whenever it encountered an application compatibility problem with Service Pack 2.

As part of Microsoft's Technical Adoption Program, the Honolulu-based power company worked closely with the vendor on the migration of its 1,200 desktops to Windows XP Professional, SP2 and Office 2003.

But even with assistance close at hand, Hawaiian Electric sometimes found it painful to deal with the shifting sands of multiple beta releases. The company often had to spend time determining whether a problem was caused by XP, SP1 or SP2 before it could seek a resolution, according to Les McCarter, director of IT infrastructure and operations.

McCarter said problems were more often related to XP compatibility – not to SP2. "We have not seen as many headaches with SP2 as has been purported out there," he said.

One problem that was traced to SP2 involved the company's Infocom Ltd. ERP software. McCarter said Microsoft investigated the matter and incorporated a solution into the next beta.

Other compatibility issues surfaced with the company's Xerox Corp. scanning software and with its voice-over-IP software. McCarter said that Hawaiian Electric also had to become skilled at configuring SP2's firewall to allow applications to communicate through it.

But McCarter noted that out of several hundred applications the company had to test, it found compatibility issues with only three. He added that the time spent implementing SP2's security improvements was "well worth it."

Another organization that made an early move to SP2 was the government of Fulton County, Ga. Its CIO, Robert Taylor, said the county had an agreement with Microsoft to participate in the testing of SP2.

Taylor said the county identified some application compatibility problems during prerelease testing, but it has encountered none since then. Only one of its vendors, Accela Communications, warned the county about deploying SP2, but not until last week, he noted.

– *Carol Silva*

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Shred, Burn, Erase

HOW DO YOU DEAL WITH the sensitive data on your high-tech junk? One way is to send your old PCs to a company that makes a business of handling decommissioned corporate computers. These days, they'll charge you an extra $10 to $30 just to make sure the hard disks are completely erased [QuickLink 49063].

Sure, that's more than you want to spend. But it's a bargain compared with what a lawsuit might cost if sensitive customer information leaks out of your company on the unerased hard disk of a discarded PC. It's a small price to pay for peace of mind.

But if what you want is peace of mind, it's nowhere near enough.

Does that sound a little paranoid? Maybe it is. But I've purchased thrift-store PCs and junk-shop hard disks. And yes, I've scanned through their contents before repartitioning the drives. I've seen personal letters and business correspondence, contracts and legal papers, Social Security numbers and other customer data. All you need is to scan a few recycled hard disks to gain a healthy paranoia about junkers that contain valuable information. I've scanned dozens.

I've also seen the results of projects by researchers such as Simson Garfinkel at Sandstorm Enterprises, who found high-tech vendor source code, financial information from investment firms, thousands of credit card numbers and even internal Microsoft e-mails on second-hand hard disks he bought at swap meets and used-computer stores and on eBay.

So my peace-of-mind threshold is pretty high when it comes to data on high-tech junk. Maybe yours should be, too.

After all, that PC recycler may do a highly professional job of wiping your junked PCs' hard disks. But before that happens, those PCs will sit on your loading dock — then on a truck, then on the recycler's loading dock. There may be plenty of opportunities for someone to walk off with your data.

How do you keep it safe until it's wiped? The simplest answer: Use a $50 commercial software package to wipe the disks yourself, before they go to your loading dock. Then pay the PC recycler's fee to have them wiped again. Sure, that's a belt-and-suspenders approach, but it cuts the risk of a stolen junker exposing sensitive data. It also eliminates the single point of failure of one disk-wiping session.



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

But that's not the only small price you'll have to pay to protect your data. There's probably data hiding on other high-tech junk, too.

Backup tapes are easy enough to deal with. You *are* using a $100 bulk eraser to wipe them before you trash them, right?

You can also use that to handle many kinds of recordable media that users copy sensitive data with. That means floppy disks, Zip disks and cartridges for lots of other removable-media magnetic drives.

Then there are recordable CDs and DVDs, the bane of any IT shop that's trying hard to keep from leaking data. They're high-capacity, unerasable, tough to destroy and easy to drop into the wastebasket — which makes them easy pickings for anyone who decides to dig through your Dumpster.

How can you get rid of them? There's no simple, standard answer. People have tried microwaving, burning, sanding off the surface, even dissolving them in acetone. The easiest may be to run the disks through a heavy-duty paper shredder — that will run you $500 or more, but your office probably already has one.

But before you can shred those CDs or erase those Zip disks, you have to collect them from users. They may think you're a little paranoid for trying to track down every piece of high-tech junk that might contain sensitive data.

Just remember: All it takes is one large dollop of that data in the wrong hands to make your worst fears a reality. Compared to that, users thinking you're paranoid really *is* a small price to pay. 49071

Just Keeping His Options Open

For this online sales form, there are 60 pages of specs identifying whether fields are required or optional. "But during beta testing, the VP of sales goes ballistic because we don't let them submit a quote without the required fields," says developer pilot fish. "He tells us that the fields are only required if the user knows the information – otherwise they're optional." How can IT know if the user knows the information? "He replies that he's just responsible for the requirements," fish says. "It's our job to figure out how to do it."

SHARK TANK

Just Ask Him, OK?

When this pilot fish is laid off, he tries to convince his bosses that he should brief the people who will do his job. But they insist that the remaining staffers know all they need to know. "Fine," says fish, "ask them how to change the server-room combination lock." Turns out no one knows. Then what do the bosses do? "They called the building facilities group to change the combination," fish says. "*They* couldn't figure it out. So they spent $725 to have a new lock installed – all just to avoid calling me and asking a simple question."

Just What Fits

State agency's IT staffers do a careful job of spec'ing out PCs, but somehow many of the computers arrive with the wrong hard-disk capacity and missing options. What happened? "Seems the purchasing unit was using a purchase order form that could not hold the PC's entire specification, and there was no continuation sheet," sighs pilot fish. "We only got what would fit on the form!"

Just Like No Laptop At All

College registrar's office asks IT for laptops to use for the big class-registration day at the campus center. Why laptops? "For the convenience," an IT pilot fish reports. How convenient are they? "About an hour into it, the users decided they needed keyboards," he says. "Another half-hour later, they needed mice. By the end of the day, they were complaining that the screen was too small, so a 17-in. LCD was placed at each workstation."

Just in Time

For weeks, this IT pilot fish has been trying to resolve a critical issue after installing a big software vendor's flagship product. When he finally gets to the vendor's highest tech-support level, a programmer calls to tell fish that the problem was fixed in the most recent patch – it's fish's fault for not being up to date. Fish knows that's not the case, but he checks the vendor's site anyway. "Sure enough," he says, "a new patch had been added – that morning."

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FRANK HAYES ■ FRANKLY SPEAKING

Shred, Burn, Erase

HOW DO YOU DEAL WITH the sensitive data on your high-tech junk? One way is to send your old PCs to a company that makes a business of handling decommissioned corporate computers. These days, they'll charge you an extra $10 to $30 just to make sure the hard disks are completely erased [QuickLink 49063].

Sure, that's more than you want to spend. But it's a bargain compared with what a lawsuit might cost if sensitive customer information leaks out of your company on the unerased hard disk of a discarded PC. It's a small price to pay for peace of mind.

But if what you want is peace of mind, it's nowhere near enough.

Does that sound a little paranoid? Maybe it is. But I've purchased thrift-store PCs and junk-shop hard disks. And yes, I've scanned through their contents before repartitioning the drives. I've seen personal letters and business correspondence, contracts and legal papers, Social Security numbers and other customer data. All you need is to scan a few recycled hard disks to gain a healthy paranoia about junkers that contain valuable information. I've scanned dozens.

I've also seen the results of projects by researchers such as Simson Garfinkel at Sandstorm Enterprises, who found high-tech vendor source code, financial information from investment firms, thousands of credit card numbers and even internal Microsoft e-mails on second-hand hard disks he bought at swap meets and used-computer stores and on eBay.

So my peace-of-mind threshold is pretty high when it comes to data on high-tech junk. Maybe yours should be, too.

After all, that PC recycler may do a highly professional job of wiping your junked PCs' hard disks. But before that happens, those PCs will sit on your loading dock — then on a truck, then on the recycler's loading dock. There may be plenty of opportunities for someone to walk off with your data.



How do you keep it safe until it's wiped? The simplest answer: Use a $50 commercial software package to wipe the disks yourself, before they go to your loading dock. Then pay the PC recycler's fee to have them wiped again. Sure, that's a belt-and-suspenders approach, but it cuts the risk of a stolen junker exposing sensitive data. It also eliminates the single point of failure of one disk-wiping session.

But that's not the only small price you'll have to pay to protect your data. There's probably data hiding on other high-tech junk, too.

Backup tapes are easy enough to deal with. You *are* using a $100 bulk eraser to wipe them before you trash them, right?

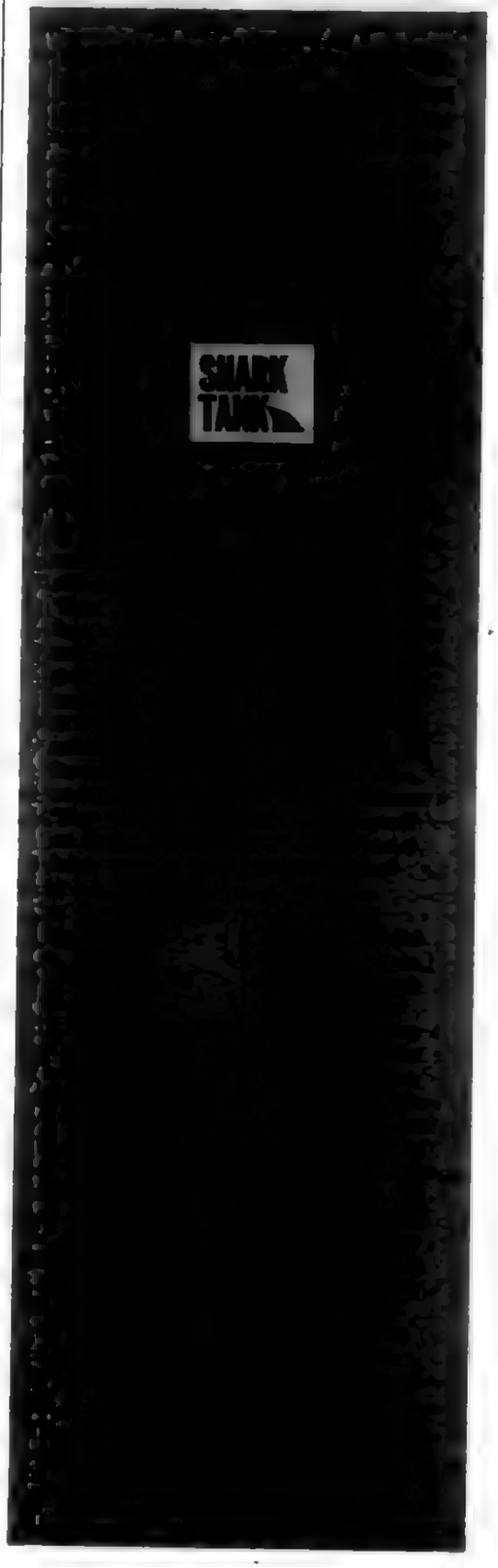
You can also use that to handle many kinds of recordable media that users copy sensitive data with. That means floppy disks, Zip disks and cartridges for lots of other removable-media magnetic drives.

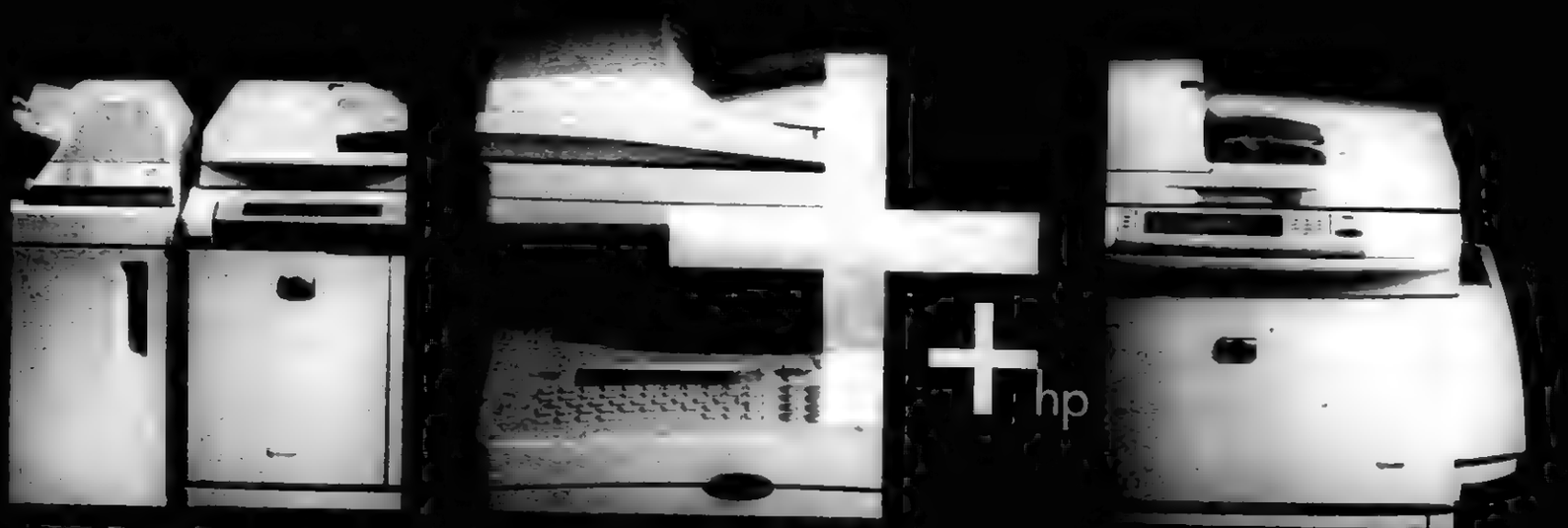
Then there are recordable CDs and DVDs, the bane of any IT shop that's trying hard to keep from leaking data. They're high-capacity, unerasable, tough to destroy and easy to drop into the wastebasket — which makes them easy pickings for anyone who decides to dig through your Dumpster.

How can you get rid of them? There's no simple, standard answer. People have tried microwaving, burning, sanding off the surface, even dissolving them in acetone. The easiest may be to run the disks through a heavy-duty paper shredder — that will run you $500 or more, but your office probably already has one.

But before you can shred those CDs or erase those Zip disks, you have to collect them from users. They may think you're a little paranoid for trying to track down every piece of high-tech junk that might contain sensitive data.

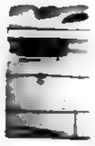
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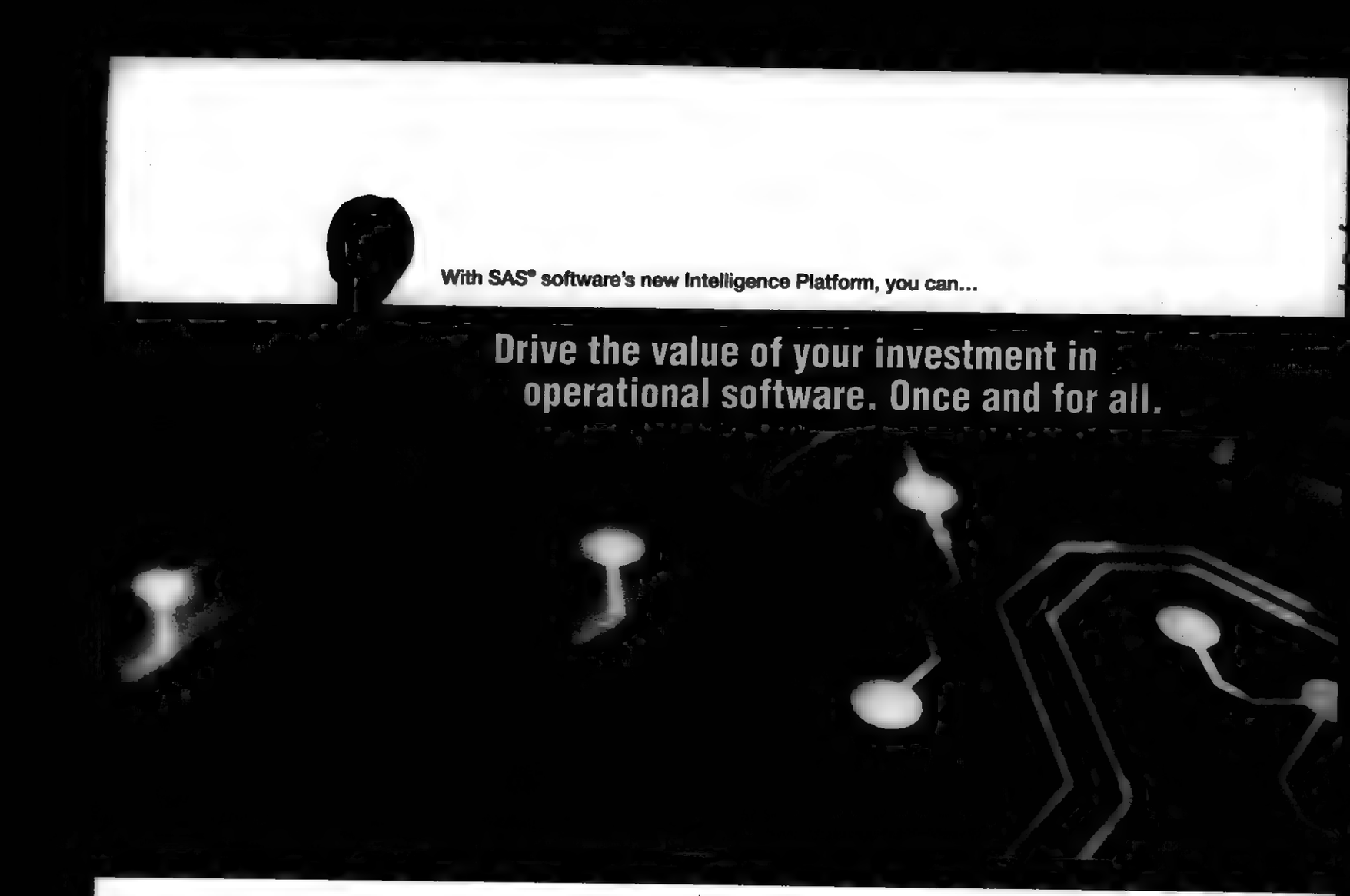
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2004

IBM will try, try again with a disk array built around iSCSI technology.
U.K.-based CP Ships learns some unpleasant truths from its SAP finance applications.

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CIOs Foresee Modest Boost In IT Spending

New investments being eyed for 2005 aim to cut infrastructure and labor costs

BY THOMAS HOFFMAN

ONLINE

As the IT budget season heats up, CIOs interviewed last week said they're guardedly optimistic about their 2005 spending plans. But many IT managers are expected to increase spending on hardware and outsourcing primarily in response to pressure from corporate executives to cut IT infrastructure and labor costs.

For instance, a survey of 195 North American CIOs released last week by Forrester Research Inc. indicated that companies plan to increase their overall IT spending by an average of 7% next year. Spending on hardware is expected to jump by 14% over this year's levels, it said.

However, some of the anticipated hardware growth is being driven by investments companies are making in less expensive machines that are expected to produce operational cost savings over the

IT Spending, page 14

Spending Increases Not Likely To Trickle Down to Tech Workers

Analysts last week offered words of caution to IT staffers: Don't translate next year's expected growth in IT spending into visions of fatter wallets.

The widespread availability of low-cost labor overseas has meant fewer bonuses and raises for technology professionals in the U.S., said Barbara Gomolski, an analyst at Gartner Inc. and a *Computerworld* columnist. And that isn't likely to change, according to Gomolski and other market watchers.

Forrester Research estimates that companies will increase the head counts of their U.S. IT staffs by just 5% between now

Tech Workers, page 14



Norma Vela '74 works part time at The Aerospace Corp.

Staying Power

Gone today, back tomorrow. Some IT retirees are returning to work on their own terms. Julia King reports on why smart companies are encouraging them. PAGE 37

Many Users Are Unfazed by Scaled-Back Longhorn Plan

But some want WinFS instead of 3-D graphics

BY CAROL SLIWA

The next major Windows release, code-named Longhorn, is due to arrive so far into the future that many corporate users aren't particularly bothered by Microsoft Corp.'s plan to scale back the product.

Prior to its late-August announcement, the company had pledged that Longhorn would feature three innovative new elements: the Avalon graphics subsystem, boasting special 3-D effects; the Indigo communications subsystem for building advanced Web services; and the WinFS storage subsystem, which aims to provide advanced data organization and management capabilities and make it easier to search for information.

But in order to hit its targets for delivering the Longhorn client in 2006 and the server operating system in 2007, Microsoft said it won't include WinFS. The storage subsystem will be in beta testing when the Longhorn client is released, the company noted.

"It isn't that big of a deal,"

Longhorn, page 53

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Microsoft



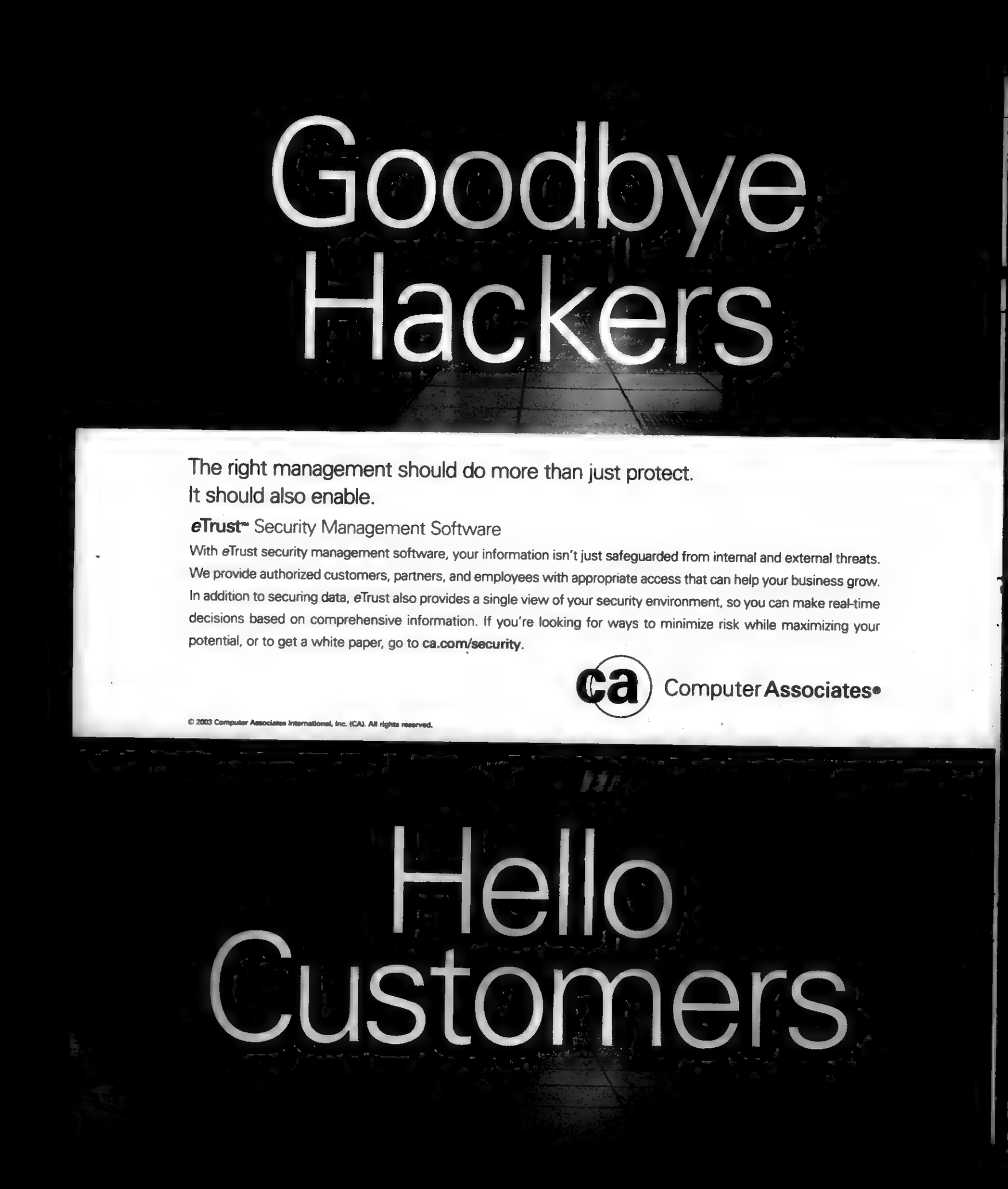
"We got to market six months faster, and saw 14 percent in cost savings over Linux, using Windows Server System.™"

—Owen Flynn, Chief Technology Officer
Equifax Inc.

Equifax, a leading provider of consumer and commercial credit information, chose Windows Server System because it allowed them to deliver new and improved services with a 14 percent savings in total cost of ownership. With their new Windows-based supercomputer cluster, Equifax is able to manage its database of over six billion data components with dramatic increases in performance and efficiency. To get the full case study, other case studies, or third-party findings, visit microsoft.com/getthefacts

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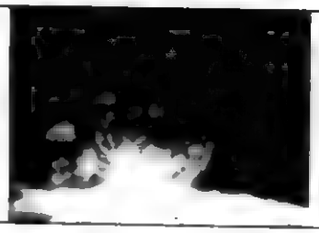
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Avoiding Armageddon

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Succeeding With Open-Source

SOFTWARE: In this book excerpt, Bernard Golden offers advice on how to evaluate an open-source application for possible use in your organization. **QuickLink 40149**

Mobile Interfaces: An End-User Perspective

MOBILE/WIRELESS: A business traveler armed with a laptop wonders why he can't simply click on an application while on the road and get some work done. **QuickLink 40234**

Mobile Directory Rings True

IT MANAGEMENT: Columnist Jay Cline says the proposed directory of cellular phone numbers includes all of the privacy controls it needs. **QuickLink 40194**

'Trial Close' at Your Next Interview

CAREERS: Columnist Jay Litton suggests that you earn the confidence of potential employers and reduce their risk by offering them a 90-day guarantee. **QuickLink 40091**

Hot Topics

SCO's Linux battle, offshoring, Windows XP Service Pack 2 and more. See *Computerworld.com*'s collection of special coverage pages, highlighting news, analysis and opinions on today's top IT issues. **QuickLink a1400**

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AT DEADLINE

IBM Recalls 225k Notebook Adapters

IBM is recalling about 225,000 AC power adapters for its notebook computers because of concerns about fire and electrical shock hazards. The company jointly announced the recall with the U.S. Consumer Product Safety Commission, which has received at least six reports of overheating incidents involving the adapters. IBM said it will replace the devices, which were sold in 1999 and 2000.

Oracle Releases Software Patches

Oracle Corp. issued patches designed to plug nearly three-dozen security vulnerabilities in its databases, application server software and Enterprise Manager tools. The holes were reported to Oracle early this year by security researcher David Litchfield and came to light in July [QuickLink 48683]. Oracle gave some of the flaws a "high" risk rating and said there are no work-arounds that will fully address the problems.

Intel Lowers Its Q3 Sales Forecast

Citing weak sales, Intel Corp. cut its third-quarter revenue forecast and said the fourth quarter may be tough as well. "Our current outlook for the third quarter, and the remainder of the year, reflects a weaker market than we had expected," said Chief Financial Officer Andy Bryant. Intel expects revenue of between $8.3 billion and $8.6 billion this quarter.

KeyCorp Taps USAA Exec to Be Its CIO

Cleveland-based KeyCorp named Steve Yates CIO, effective last Friday. Yates had been president of USAA Information Technology Co., the IT services arm of San Antonio-based USAA. He replaces Robert Rickart, who left KeyCorp in late July to become the CEO of a health-care-related start-up.

IBM Rolls Out Arrays, Tries Again on iSCSI

Re-enters storage device market based on low-cost data-transport protocol

BY LUCAS MEARIAN

IBM ANNOUNCED a pair of entry-level workgroup disk arrays last week, including a scaled-down reincarnation of an iSCSI-based device that the company dropped two years ago.

IBM's new offerings include the iSCSI-based TotalStorage DS300, as well as the DS400, a Fibre Channel array that scales up to 5.8TB and is priced from $5,000 to $7,000. Both arrays can be managed by IBM's ServeRAID tools and support remote data mirroring and copying functions, the company said. They're also the first new products to be sold under the DS brand name, which will eventually be extended to all of IBM's arrays.

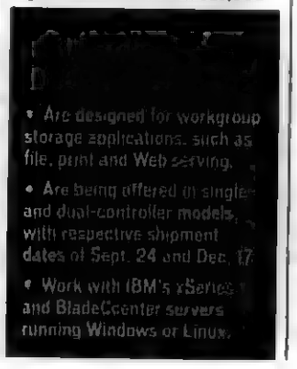
The DS300 is a native iSCSI array similar to the 200i, which IBM first offered in 2001 and withdrew a year later after selling fewer than 500. The 200i was the first iSCSI array on the market; at the time, IBM said it was stopping development of iSCSI-based arrays and instead pursuing partnerships that would let its other products use the low-cost data-transport protocol via gateways [QuickLink 30960].

When the 200i was introduced, "it really wasn't as cost-effective as it needed to be for the market space we were going after," said Cindy Grossman, IBM's director of storage marketing. "I think it was ahead of its time, frankly." But, she added, IBM's sales teams have been hearing more and more demand from users for a low-cost iSCSI array to consolidate data stored on Windows and Linux servers.

The DS300 is priced from $3,000 to $4,600 and can store up to 2TB of data, compared with the 3.5TB capacity that was offered on the 200i.

A network coordinator at a large insurance firm in California said that given a slowdown in IT spending at his company, iSCSI makes for a cheap alternative to Fibre Channel storage, as long as applications with high I/O rates aren't involved. "ISCSI isn't good for that because of the TCP/IP overhead and bottleneck caused by Ethernet," he said.

The network manager, who asked not to be named, said he has been using a 1.5TB iSCSI array from StoneFly Networks Inc. in San Diego for the past year to store data from three Compaq ProLiant servers. The systems were using about 90% of their internal storage space before the addition of the array, which cost about $25,000 and took one hour to install.



"It's proved to be dynamic," he said, describing one situation in which a server went down and IT staffers at the insurer were able to use Microsoft Corp.'s iSCSI initiator driver to reconnect the array to another server and then attach it to the company's databases.

Enterprise Strategy Group Inc. in Milford, Mass., estimates that there are about 1,500 iSCSI-based storage-area networks in use now and that the number will exceed 2,000 by year's end. Tony Asaro, an analyst at the firm, said the use of iSCSI is quickly ramping up because of its cost-effectiveness. Users who adopt iSCSI don't have to invest in more expensive Fibre Channel disks, host bus adapters or switches, he said.

Asaro added that the number of iSCSI-based products offered by vendors has steadily increased over the past two years, helping to validate the technology for users.

IBM also replaced its FAStT midrange storage brand with the DS name last week and said it will do the same with its Enterprise Storage Server high-end arrays later this year. "We wanted to start building a lot more commonality in our storage server line," Grossman said. **49230**

HP, Sun to Resell New High-End Hitachi Array

BY LUCAS MEARIAN

Hewlett-Packard Co. and Sun Microsystems Inc. both plan to announce tomorrow that they will resell a high-end disk array being introduced by Hitachi Data Systems Corp.

Hitachi declined to comment on its new array in advance of a press conference it's holding in New York. But Shebly Seyrafi, an analyst at Merrill Lynch & Co., said Hitachi plans to unveil the third generation of its Lightning array, ratcheting up its competition with EMC Corp in the high-end storage market.

Hitachi launched its first Lightning array in 2000 and followed that two years later with its current Lightning 9900V models. EMC lost market share to Hitachi after both product announcements, Seyrafi said. But early last year, EMC launched a new Symmetrix DMX high-end line. "We do not foresee EMC losing as much share as in prior Lightning announcements, as it has a much-improved product, but we do expect some share loss," Seyrafi said.

HP said it plans to market the new array as its StorageWorks XP12000 model. The XP12000, which starts at $450,000, can scale up to 165TB of capacity across five cabinets, according to HP officials. It can also be integrated with previous XP-model arrays through an external storage tool kit, they said.

Sun confirmed that it will also resell the new Lightning device, but the company declined to comment further until tomorrow's announcement.

The Next Phase

IDC analyst Robert Gray said the high-end arrays that HP and Sun now offer are made by Hitachi, "so all they're doing is rolling over to the next technology."

HP said it has added software to the XP12000 that will support clustering and failover functionality. "If you have a power outage in a building or experience some other man-made or natural disaster . . . you can seamlessly fail over to another data center up to 100 kilometers away," said Kyle Fitze, HP's director of marketing for online storage.

HP's existing midrange and high-end arrays, the XP128 and XP1024, scale up to 18TB and 149TB of capacity, respectively. In addition to the capacity boost that the XP12000 will provide, the new array is less of a monolithic system than the XP1024 is, Fitze said. He noted that the XP12000 also adds support for external storage, cache partitioning and continuous access journaling, which ensures that data being mirrored between two arrays is synchronized. **49251**

U.S. Tennis Association Nets Cost Savings From Server Consolidation

IBM combines scoring, Web publishing apps for tournament on iSeries system

BY THOMAS HOFFMAN
NEW YORK

Andy Roddick's 152 mph serve wasn't the only power move on display last week as the U.S. Open tennis tournament began its two-week run here. From an IT perspective, all eyes were on a new iSeries server that was put in place for the tournament by IBM.

The company, which manages computer operations for the United States Tennis Association, last month completed a consolidation of the Internet-based scoring, data staging and Web publishing applications used during the U.S. Open from three of its xSeries servers onto a single i5 520 system that runs Linux.

The server consolidation was finished on Aug. 20 and has helped IBM reduce the USTA's cost per end user by 40% compared with last year's tournament, thanks to reduced disk requirements and more efficient workload processing, said IBM project manager John Kent. He noted that the iSeries machine can automatically move workloads from one server partition to another, providing more processing flexibility than the xSeries systems did.

The i5 520 is located at the U.S. Tennis Center in the Flushing Meadows section of Queens. The USOpen.org Web site is supported by another iSeries machine at an IBM data center, and Web publishing data is sent to two other IBM facilities for workload provisioning and data redundancy. IBM declined to disclose the locations of its data centers.

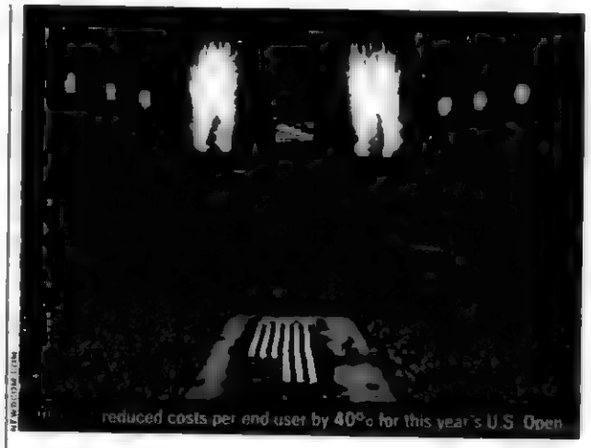
When a point is made during a match, the chair umpire uses an IBM-branded Palm handheld computer to enter the score. The data is then fed into IBM's DB2 Universal Database software, which is installed on one partition within the i5 520 server. A group of 30 USTA writers, editors, producers and audio/video engineers process information for the tournament's Web site using a Linux-based x365 system that runs IBM's WebSphere Portal content publishing software.

A staging server runs in another i5 520 partition and combines data from the Internet scoring system and the content publisher to create the USOpen.org Web pages.

Meeting Demands

IBM's on-demand computing approach has helped the tennis association handle wide swings in processing demands, according to USTA officials.

"This [tournament] is like our Super Bowl," said Ezra Kucharz, managing director of interactive media for the USTA in White Plains, N.Y. "Our information needs here are 50 times what they are the other 50 weeks of the year, so it doesn't make sense for us to invest in that kind of infrastructure on an annual basis."


reduced costs per end user by 40% for this year's U.S. Open

Haverty Furniture Cos. is another IBM customer that said it has benefited from a server consolidation project involving the iSeries, previously called the AS/400. The Atlanta-based company, which has about 100 retail outlets in the southeastern U.S., converted from nine AS/400s to three iSeries machines in January to support its core applications, including point-of-sale operations, customer service and home deliveries.

Haverty CIO J. Edward Clary, who attended an IBM press briefing at the tournament, declined to quantify the company's cost savings from the server consolidation project. But he said the effort has freed up some of Haverty's 50 IT staffers to help support technologies such as Domino, Linux and WebSphere. **49250**

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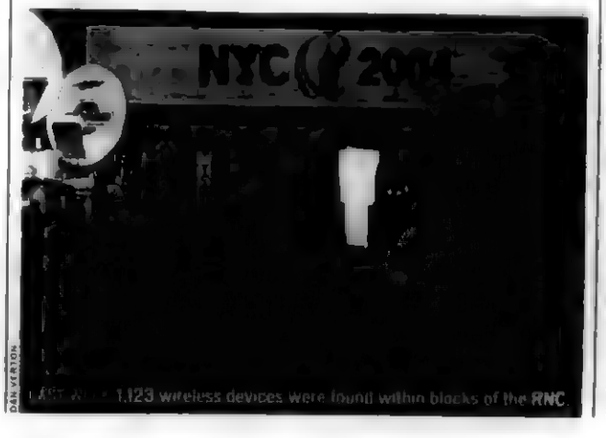
'War Drive' Reveals New York's Hidden Security Flaws

BY DAN VERTON
NEW YORK

While physical security was tightened to unprecedented levels here last week for the Republican National Convention, IT security researchers uncovered an unsettling number of unencrypted wireless devices that they said created a potential information security nightmare for convention organizers and delegates.

During a two-hour "war drive" around the site of the RNC as well as Manhattan's financial district, security researchers from Boston-based Newbury Networks Inc. discovered more than 7,000 wireless devices, 1,123 of which were located within blocks of Madison Square Garden, including a network named "Wireless for Kerry." More important, 67% of those devices were access points that didn't have any built-in encryption protection.

During the war drive, to which *Computerworld* was granted exclusive access, Newbury technicians set up an unsecured wireless "honeypot" that masqueraded as a Linksys access point. According to a log analysis of Newbury's WiFi Watchdog monitoring system, a wireless device attempted to automatically connect to the honeypot every 90 seconds.



DAN VERTON
1,123 wireless devices were found within blocks of the RNC.

The findings underscore that while New York continued to focus on physical security for the convention, the large number of open, unsecured wireless networks represented a serious threat to the city's hard-wired infrastructure, said Newbury CEO Michael Maggio.

"A wireless-enabled notebook computer powered up inside Madison Square Garden by a conventioneer or media representative could automatically associate with wireless networks outside of the building," said Maggio, noting that such a security gap could allow an attacker to gain access to the wired network inside the facility. "All the security policies in the world can't stop a wireless intruder from accessing an open network signal emanating from a Wi-Fi access point or network card."

The two-hour drive around Manhattan also revealed as many as 2,161 access points and 821 client devices broadcasting unique service set identifiers. "The SSIDs beaconed by clients is really a valuable list for an attacker," said Brian Wangerien, senior product manager at Newbury. "Once the attacker knows that a client is beaconing for a particular SSID, he can change the SSID of his [access point] and trick the client into connecting to the attacker's access point." **49249**

NO VOTES FOR WIRELESS
IT planners left wireless support out of the convention's network
QuickLink 49186
www.computerworld.com

Nortel's CEO Remains Optimistic in The Face of Cutbacks, Competition

Struggling vendor needs to improve its marketing capabilities, Owens says

BY MATT HAMBLEN
BILLERICA MASS

DESPITE NORTEL Networks Ltd.'s recent announcement of more workforce cuts and executive firings, CEO Bill Owens last week said the struggling vendor is still investing heavily in research and development and is looking forward to having a "pretty exciting future."

But in a roundtable discussion with reporters, Owens also expressed concerns about future consolidation in the networking equipment market and new competition from China-based vendors such as Huawei Technologies Co. Owens predicted that companies like Huawei will create downward pricing pressures on all networking vendors.

3Com Corp. has set up a Hong Kong-based joint venture with Huawei, and Owens said Nortel is considering different ways of protecting itself against the new competition, including the possibility of forming its own partnerships or joint ventures. "Everybody [in the industry] is talking to everybody," he said.

Marketing Improvements

According to Owens, Nortel devotes about half of its workforce to engineering and still spends as much per employee on R&D as its rivals do. But, he added, Nortel is trying to improve its marketing and has appointed a board-level business-development executive to help out with that effort.

"Nortel is not particularly good at marketing . . . and that's one of the reasons I'm here," said Clent Richardson, the Brampton, Ontario-based company's vice president of global marketing. Richardson also took part in the roundtable along with Owens.

Zeus Kerravala, an analyst at Detwiler, Mitchell, Fenton & Graves Inc. in Boston, said Nortel has long been known for "good engineering, poor marketing." However, Kerravala said that the financial reporting problems now plaguing Nortel haven't been a big concern for the company's customers.

John Haltom, network director at Erlanger Health System in Chattanooga, Tenn., said he hasn't seen any impact from the latest reorganization at Nortel but added that he regrets the additional layoffs. Erlanger is installing networking gear and 1,700 voice-over-IP phones from Nortel, and Haltom said he thinks that sticking with the vendor is paying off as Nortel adds fault tolerance and other advanced capabilities to its products.

Haltom noted, though, that he's bemused by Nortel's plan to change the name of its Succession 4 voice switch as part of the marketing improvement effort. Nortel will begin using the name Communication Server 1000 in the fall — a change that marks the fourth time the switch has been renamed since Erlanger began using it several years ago, according to Haltom. "They are starting to wear me out with name changes," he said.



"We will be pure, as pure as I can make this company."
BILL OWENS,
Nortel president and CEO

Nortel, which is restating its financial results back to 2001, last month said it would lay off about 3,500 of its 35,000 workers. It also fired seven finance executives, continuing a series of management changes that began when Owens was named president and CEO in April [QuickLink 46579].

Owens said last week that he's appointing a vice president of ethics and compliance, but he denied that there's an entrenched culture of wrongdoing at Nortel.

"We will be pure, as pure as I can make this company," he said. **49207**

REPORTING DELAY

Nortel again postpones the filing of its restated financial results.
QuickLink 49220
www.computerworld.com

SAP ERP System Uncovers $41M in Accounting Errors

Shipper restates earnings; rollout gets part of blame

BY MARC L. SONGINI

An ongoing installation of SAP AG's financial software at a London-based container shipping firm has exposed flaws in its legacy accounting systems, forcing the company to lower its earnings over the past three years by a total of $41 million.

Officials at CP Ships Ltd. said the SAP rollout itself contributed to the need for the restatement, which was announced last month. Demands placed on business units while the software was being installed early this year led to delays in transferring information between shipping operations and the finance department, making it hard to update cost estimates in a timely manner. The processing of actual cost data was also delayed, CP Ships said.

On the plus side, the company said the SAP applications have delivered new visibility into its financial operations. The installation "revealed some deficiencies in former systems and related business and accounting processes, for which corrective action has been taken and continues," CP Ships said in a statement.



The use of the software has also improved financial controls on transactions and account balances, particularly ones involving different internal operating units, said CP Ships. That helped executives identify $8 million in erroneous account balances that had been reported as part of the company's financial results for 2003 and this year's first quarter.

CP Ships rolled out the SAP-based system to five of its seven lines of business in January. Chief Financial Officer Ian Webber said during a webcast briefing about the restatement and the company's second-quarter results. Webber noted that the software has also allowed CP Ships to improve its financial reconciliation procedures.

The company is working to strengthen its accounting operations through steps such as using the SAP applications to speed up the processing of financial data and customer invoices, Webber said.

The applications are scheduled to be installed at the other two business units by early next year, which would put the entire company on common operational and accounting systems. CP Ships said it doesn't expect the last phase of the rollout to result in "any significant transition issues" at the remaining units, one of which is already running an earlier version of SAP's financial software.

Officials at the company declined requests for more information about the SAP project, including the cost of the rollout. "We're still in the process of completing the implementation," said a spokeswoman, adding that further comment would be "a bit premature."

CP Ships Chairman Ray Miles said during the webcast that the company's numbers appeared to be valid until July, in part because of the delays in processing cost data.

To ensure that the new figures were accurate, there was a "huge amount of activity" by the company's audit committee to investigate and nail down the actual results, Miles added. **48225**

MORE APPLICATION NEWS

Oracle plans to add software for managing supplier contracts on a global basis.
QuickLink 48242
www.computerworld.com

Problems Bedevil EDS Case Management Project for U.K.'s Child Support Agency

$806.5M system should be unplugged if flaws aren't fixed, says legislative report

BY MARC L. SONGINI

A child-support case management and telephony system that's expected to cost the U.K. government $806.5 million over 10 years is in danger of being unplugged if the agency overseeing the project can't fix technical and operational problems within the next few months.

The implementation involves a Java-based application that was developed by Electronic Data Systems Corp. for the U.K.'s Child Support Agency (CSA), which oversees the assessment and collection of child-support payments from parents who have separated. The project also includes a companion call center system built by BT Group PLC's consulting and systems integration unit.

The mixed system, which went live 18 months ago, was the subject of a damning report issued in July by the British Parliament's Select Committee on Work and Pensions, the legislative body that's charged with oversight of the CSA.

The complaints about the system include missed rollout deadlines, an inability to add new cases and migrate existing ones to the system, and an "appalling level of service" on telephony, the report said. It noted that about 170,000 child-support cases need to be entered into the system and that the backlog is growing by 30,000 cases each quarter.

The report added that the case management and telephony systems don't work well together, resulting in calls "being routed to the wrong place and cases disappearing from the caseworker's screen as staff try to answer a telephone inquiry."

In the report, the committee recommended that the telephony system be abandoned and replaced if it isn't fully functional by May.

The panel also said that a contingency plan should be readied if the application built by EDS can't fully process new cases by Dec. 1 and the CSA can't guarantee the ability to migrate existing cases by May.

The CSA is part of the Department for Work and Pensions (DWP), which has two months to respond to the recommendations, said Rob Marris, a member of the parliamentary committee. That deadline is flexible, Marris said, but he added that the response will likely be issued next month.

"We are not saying the system should be abandoned come December," Marris said. "What we are saying is the government should draw a line in the sand if DWP cannot come up with a guarantee."

Continuing in Parallel

Because of the technical problems, the CSA is continuing to run its older applications in parallel with the new system, which is known as CS2. Some of the agency's workers still rely solely on the old system, which isn't fully automated and requires heavy use of paper documents. Other employees have been migrated to the new one.

Marris said the troubles on the CS2 project illustrate a general problem with contracts between government agencies and IT services firms. "You don't have enough experts [within agencies], so you can't know about and police what the outside supplier is doing," he said.

A spokeswoman for the DWP confirmed via e-mail that there "have been technical problems with the IT and telephony systems, which we are working on with our supplier, EDS."

Plano, Texas-based EDS declined to comment last week, except to reiterate a statement it issued in late July. "While there have been problems with several aspects of the program, the DWP-EDS team is executing a joint plan to resolve the outstanding IT and business issues," Tom Warsop, managing director of the DWP account for EDS, said in the statement. "The IT system is now delivering a robust service and is constantly improving." 49248

> The slow pace of processing new claims is also unacceptable and represents a very disappointing level of service. . . . The present performance falls some way short of what most people would describe as the proper sense of 'working.'

Federal Audit Raises Doubts About IRS Security System

BY LINDA ROSENCRANCE

Software performance and functionality problems continue to plague a system designed to detect hacking and other unauthorized activities on computers at the Internal Revenue Service, according to auditors within the U.S. Department of the Treasury.

The problems are limiting the ability of business managers and IT security workers at the IRS to identify improper uses of new applications that provide online tax services and information about refunds, the auditors said in a report issued last month by the Office of the Treasury Inspector General for Tax Administration.

The auditors themselves have also been unable to use the Security Audit and Analysis System (SAAS) to check whether IRS employees are accessing taxpayer data without authorization, according to the Treasury Department report.

It added that the problems call into question whether the IRS should proceed with its IT modernization plans.

"Not having an effective audit-trail review process is a significant security weakness that should weigh heavily on whether to accredit future modernization applications," the report said.

According to the report, the auditing system collects information about application usage and stores it in a central database. Users should then be able to tap the audit trail data to generate reports and run ad hoc queries in order to determine whether any improper activity has taken place and reconstruct how it happened.

SAAS was developed for the IRS by Computer Sciences Corp., which delivered an initial version of the system in late 2002. But the software problems are preventing users from accessing the database, the Treasury Department auditors said in their report.

Aware of the Problems

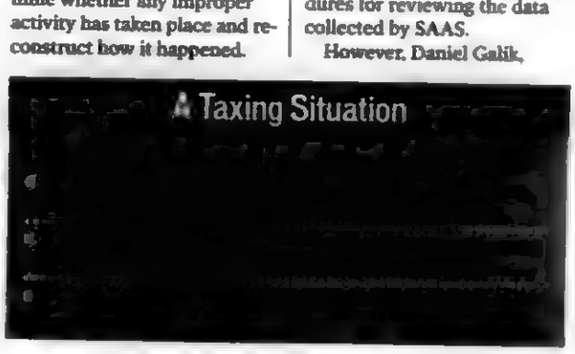
The inspector general's office claimed that the IRS was aware of the problems from the outset but accepted delivery of SAAS with the stipulation that CSC would address the deficiencies. The problems still haven't been fully resolved, the report said, adding that the IRS also hasn't developed internal operating procedures for reviewing the data collected by SAAS.

However, Daniel Galik, chief of mission assurance for the IRS, said in a written response to the report that SAAS met all defined requirements and passed all tests before it was accepted. Galik wrote that the IRS is taking steps to correct the system problems and expects all the major components of SAAS to be fully functional by the end of October.

He deflected a recommendation by the inspector general's office that the IRS develop alternatives for reviewing application audit trails in case the problems with SAAS can't be fixed. The agency is prepared to commit more resources to ensure that the system can be used effectively, Galik wrote.

The SAAS document was the third report about IT shortcomings at the IRS issued by the inspector general's office in recent months [QuickLink 48391].

An IRS spokesman said the agency had no comment beyond Galik's response. El Segundo, Calif.-based CSC, the prime contractor for IT modernization projects at the IRS, declined to comment on the SAAS report. 49208



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$806.5M system should be unplugged if flaws aren't fixed, says legislative report

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EXCERPT

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An IRS spokesman said the agency had no comment beyond Galik's response. El Segundo, Calif.-based CSC, the prime contractor for IT modernization projects at the IRS, declined to comment on the SAAS report. 49206

A Taxing Situation

The inspector general's office said that because of the system problems:

IRS business units can't use SAAS to identify questionable activities on the agency's e-Services and Internet Refund Fact of Filing applications.

Workers in the IRS's Computer Security Incident Response Center are unable to access the system to detect possible network intrusions.

Treasury Department auditors can't use the system to investigate whether unauthorized IRS employees have accessed taxpayer information.

BRIEFS

Two Flaws Found In Kerberos Code

The Kerberos development team at MIT released software patches designed to plug a pair of security holes in the network authentication protocol. The researchers gave a "critical" severity rating to one of the flaws, a so-called double-free vulnerability that attackers could use to execute code on systems running MIT Kerberos 5. The other flaw could be used to launch denial-of-service attacks and was rated "serious."

Veritas to Acquire Archiving Vendor

Veritas Software Corp. said it has agreed to pay $225 million in cash to buy KVault Software Ltd. (KVS), a U.K.-based vendor of e-mail archiving applications for Exchange users. The deal will be completed this month, said Mountain View, Calif.-based Veritas. KVS, which had revenue of $23 million last year, will become a separate unit within Veritas.

AMD Shows Off Dual-Core Chips

Advanced Micro Devices Inc. demonstrated its first dual-core processors and said they should be available for use in servers by mid-2005. The devices, which put two processor cores on a chip, will fit into systems built around AMD's Opteron processors. The demonstration preceded this week's Intel Developer Forum, where Intel Corp. will discuss its plans for dual-core chips.

IBM, Intel Open Specs for Blades

IBM and Intel said they're opening up the design specifications for a jointly developed line of blade servers to vendors that want to build supporting products, such as switches and adapter cards. But other companies still can't clone the blade servers, which IBM sells as its BladeCenter line.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FAULKNER

Pop by Your Service Provider in the . . .

. . . wee hours of the morning to prevent a data disaster. Good advice, especially when it comes from the CEO of a Web hosting company who thinks your mission-critical online operations are at risk if you use offshore services or even U.S.-based ones that clock out after sunset. "Go visit your hosting company at 3:00 in the morning and see if someone answers the door," suggests Mitch Gervis, the top executive at Dallas-based NeoSpire Inc. "Do it before you have a disaster." If your Web site delivers critical business functions 24 hours a day, the last place you want it is someplace whose systems administrators are all asleep in their beds at night, says Gervis, whose company hosts sites for Lowes Cineplex Theatres Inc., United Way of America, the Federal Reserve Bank of Dallas and other users. Gervis argues that all the sophisticated remote diagnostic and management tools in the world can't supplant a smart human on the premises. He adds that users shouldn't just demand that data be backed up and restored for free, which he says NeoSpire does. They actually should request backups to verify that the hosting company's procedures work. NeoSpire does five to 10 data restores a week at the request of users, for example. And being a Southerner steeped in the region's tradition of hospitality, Gervis invites you to drop by his data center — anytime.

Protect Your IP From Offshore . . .


Warns of offshore coding practices.

. . . developers who slip open-source code into your applications. It's not that Indian, Chinese or other programmers based outside the U.S. have malicious undermining of your intellectual property in mind, says Sridhar Balaji, CEO of SourceSentry Inc. in Houston. It's just that it's so easy to do. "Oftentimes, developers just grab something on the Web and put it in their code," Balaji says. His company has run scans of applications and discovered open-source elements. Inserting open-source code could upset your licensing plans, particularly if you intend to distribute your software but keep the source code proprietary. SourceSentry offers its BizCentury Methodology templates for ensuring that your offshore team follows strict security, privacy and best-practices procedures that go beyond standards such as BS 7799 [QuickLink 49098]. Balaji claims that there are thousands of start-up outsourcing companies in India alone, most of which need better controls. So choose wisely.

Paying for Middleware Is Soon . . .


Don't pay for middleware

. . . to be a distant memory. That's if Marc Fleury gets his way. He's the CEO of Atlanta-based JBoss Group Inc., which offers an eponymous open-source application server that competes with BEA Systems Inc.'s WebLogic, IBM's WebSphere and other commercial products. "Everything is game in middleware infrastructure," he says. Such as? Portals, workflow tools, connectors, messaging technology and more. He claims that JBoss will soon supply open-source tools across the entire middleware spectrum. What happens then? "The market can't sustain both open-source and proprietary technologies," Fleury says. And you can guess which one he thinks will win. Some venture capitalists obviously agree. They just poured $10 million into JBoss, something that wouldn't have happened a few years ago. Fleury recalls that when he presented the same ideas to a venture capitalist in 2000, he was told it was "not just a bad business plan — it was a horrible one." He now laughs at the memory — all the way to the bank.

JBoss, Tomcat, MySQL, Eclipse, Ant . . .

. . . and 95 other open-source technologies can be automatically installed, configured, integrated and maintained by BlueGlue from OpenLogic Inc. in Highlands Ranch, Colo. The GUI-based tool is sold for $399 per system as a subscription service. It needs to be installed on each machine, but the company says a new version due in the first quarter of 2005 will be able to be deployed across multiple machines from a single console. The top 100 open-source tools are fully evaluated to ensure complete integration, and tested updates are supplied to users through the service, OpenLogic says.

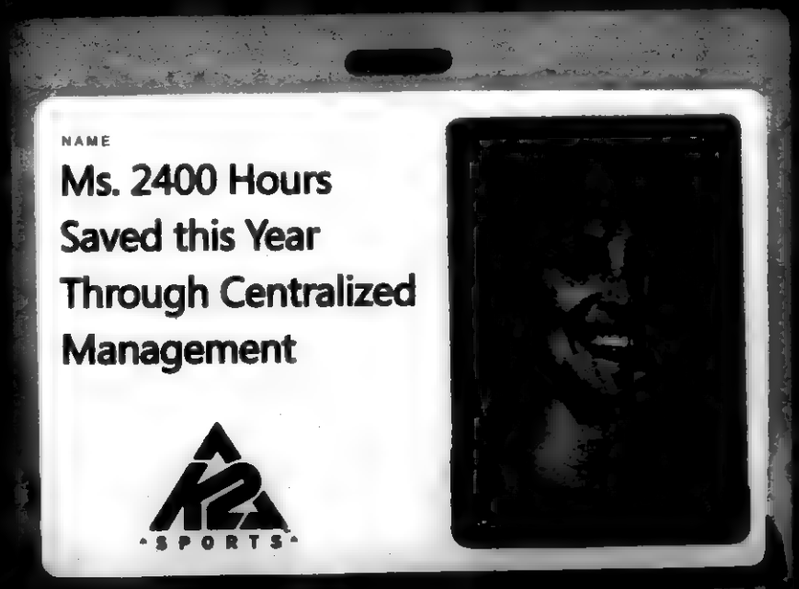
Software Seeks to Stop Spyware at . . .

. . . the source by certifying that Web sites and downloads are free of the insidious programs. Rick Carlson, president of Aluria Software LLC in Lake Mary, Fla., says that the company on Friday will unveil its certification program for spyware-free software to assure users that what they download from your site doesn't contain keyloggers, adware and other nasty code. The certification program is free and works like those from VeriSign Inc. and Truste, which give online visitors confidence about a Web site's integrity. Carlson claims that spyware is more than a nuisance to IT and is the No. 1 reason for poor PC performance and crashes. Join now while the price is right. **46241**

91% of PCs have spyware, says the National Cyber Security Alliance.

Microsoft

Your potential. Our passion.



Make a name for yourself with Windows Server System.™ Microsoft Windows Server System makes it easier to manage the infrastructure at K2 Sports. Here's how: By using Windows Server™ 2003 with Active Directory® and Exchange Server 2003, K2 Sports consolidated from 17 to 13 servers and now manages all of its end users from one location. This reduced the amount of time their IT staff spends on administration by 40 percent, and gave them time to plan and implement new projects. Software that's easier to manage is software that helps you do more with less. Get the full K2 Sports story at **microsoft.com/wssystem**

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Windows
Server System™

BRIEFS

SCO Reports Loss, Caps Legal Costs

The SCO Group Inc. reported a $7.4 million loss for its third quarter and said it has signed a deal to cap the legal costs of its anti-Linux campaign at $31 million. "The litigation business is now in control from a cost standpoint," said CEO Darl McBride. The cap agreement between Lindon, Utah-based SCO and Armonk, N.Y.-based Boies, Schiller & Flexner LLP entitles the law firm to a larger percentage of any settlement or award that SCO gets from its lawsuit against IBM.

Manugistics Shows President the Door

In a filing to the U.S. Securities and Exchange Commission, Manugistics Group Inc. said it terminated the employment of President Jeremy Coote effective last Tuesday. The move came just a month after Rockville, Md.-based Manugistics hired Joe Cowan as CEO. Coote joined the supply chain software vendor in June 2003 after working at SAP AG and Siebel Systems Inc.

VeriSign Files New Suit Against ICANN

After losing a federal court battle to the Internet Corporation for Assigned Names and Numbers, VeriSign Inc. has filed a breach-of-contract lawsuit against ICANN in Los Angeles Superior Court. VeriSign claims that ICANN violated the terms of an agreement giving VeriSign control of the .com domain registry. ICANN declined to comment on the suit.

Dell Adds Color To Its Printer Line

Dell Inc. announced its first self-branded color laser printers, adding three models to the product line it rolled out 18 months ago in an effort to lure users away from Hewlett-Packard Co. Prices range from $449 to $999.

F5, Redline Expand Technology For Speeding App Performance

Software upgrades work with switches to increase throughput for end users

BY MATT HAMBLEN

F5 NETWORKS INC. plans to announce an upgrade of its application traffic management software tomorrow, the same day that rival Redline Networks Inc. is due to release a tool that's designed to help IT managers limit the need to install more application and Web servers.

Both products fall into a category that analysts call "Web-enabled application delivery" or "application front ends." F5, Redline and other vendors offer appliances that usually consist of specialized switches running software that can speed up applications and make them more secure.

F5's software upgrade, called Big-IP Version 9 and code-named Buffalo Jump during development, took nearly three years to develop and includes a new traffic management operating system, said Erik Giesa, vice president of product marketing at the Seattle-based company. The software runs on three new appliances that are priced from $17,000 to $35,000.

Setting Priorities

Big-IP supports traffic management functions such as data compression, load balancing and Secure Sockets Layer acceleration. New features in Version 9 offer "rate shaping" capabilities that should help IT managers make sure bandwidth is available for high-priority applications, Giesa said.

Northwest Multiple Listing Service in Kirkland, Wash., has seen a demonstration of the upgraded software and plans to buy two of F5's new high-end 6400 Series IP Application Switch appliances for delivery in February, said Raymond Williams Sr., a network developer at the real estate listing service.

The service has been using Big-IP Version 4.5 for three years, but Williams said a new user interface in Version 9 should simplify administration "by far." And with 20,000 real estate agents in Washington state using the service via the Internet, the upgrade could help him set up rules to make sure certain applications get high priority. In addition, a new function called iRules could make it possible to ensure that the largest brokerages get guaranteed access to the listings, Williams said.

The application delivery products now on the market have been far too complex, said users and analysts. But F5's focus on a simpler user interface doesn't mean its new offerings are any less complex, said Mark Fabbi, an analyst at Gartner Inc. "These devices do an increasing amount of functions, and the amount of expertise needed to run them is increasing," Fabbi said.

Campbell, Calif.-based Redline said its new 3G Cache software offloads frequently used data from servers to speed up processing. The software starts at $5,000 and runs on Redline's E/X 3250 appliance, which costs $33,000.

F5 and Redline compete with major switch makers like Cisco Systems Inc. and Nortel Networks Ltd., as well as smaller ones such as Radware Ltd. in Mahwah, N.J., and Netscaler Inc. in San Jose. Fabbi said worldwide sales of the application-boosting technology exceeded $500 million last year.

Officials at Redline, Radware and Netscaler all said they offer functions that F5 is introducing in its new product, although Lynn Nye, an analyst at APM Advisors in Portland, Ore., said Radware still provides the features in separate boxes. **49229**

F5 Networks' 6400 Series IP App Switch

- Runs the company's **Big-IP software** and provides maximum data throughput of **20bit/sec.**
- Includes **16 Gigabit Ethernet** copper ports, plus two standard and two optional **fiber ports.**
- Is based on **dual processors** and provides **three slots for PCI** add-in cards.
- **Price:** $35,000



BMC Adds Tool to Track Batch Jobs

BY MATT HAMBLEN

Management tools vendor BMC Software Inc. tomorrow will unveil an application designed to help IT managers identify and respond to problems in batch-processing jobs.

The Batch Impact Manager software tracks batch data flows and can notify data center workers of potential delays, said Gur Steif, director of application management at Houston-based BMC. If batch processes fail, IT managers can restart the ones that are most important first.

Cambridge Integrated Services Group Inc. in Cranbury, N.J., has been using Batch Impact Manager for the past three weeks, primarily to help process workers' compensation claims, said Laurie Kenley, the company's production control coordinator.

IT staffers have to ensure that batch jobs for check processing and data warehousing are completed within a tight schedule mandated by service-level agreements between Cambridge and its customers, Kenley said.

"Long runtimes and delayed start times can throw our whole production cycle out of whack, and it can be very difficult to catch this before our deadlines will be missed," she said, noting that Cambridge also faces fines if it fails to meet state government deadlines for issuing workers' compensation checks.

Batch Impact Manager runs on top of BMC's Control-M batch management software, which Cambridge already used. Control-M gives Cambridge's IT staffers insights about individual batch jobs, but Kenley said Batch Impact Manager can monitor multiple batch data flows. She added that it "helps me correct an issue that was driving me nuts: How the heck do you monitor for 'what if'? Now I can."

"It's not at all unusual to have many batch jobs that must finish on time, and if there's something wrong early in a 10-hour processing window, you can have a real problem," said Rich Ptak, an analyst at Ptak, Noel & Associates in Amherst, N.H.

He added that large banks and insurers often use custom software to provide functionality similar to what's in Batch Impact Manager. Users would need to weigh whether converting from their current software to BMC's would be cost-effective, Ptak said. **49219**



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Health Care Firm Aims To Curb Printer Costs

Expects three-year, $15M deal with HP to yield efficiencies

BY TODD R. WEISS

CLEVELAND-BASED University Hospitals Health System last week said it's wrapping up a project with Hewlett-Packard Co. that will reduce the number of printers it uses by more than 60% and slash the total count of different models its IT staff has to support from 78 to just 12.

The printer consolidation moves are being done under a three-year, $15 million contract that HP and UHHS signed early this year. UHHS expects to lower its printing and imaging costs by $1 million to $2.8 million per year, according to Marc Richards, a divisional information officer who is responsible for the health care provider's IT infrastructure, including its data centers, PCs and peripherals.

UHHS, which operates more than 150 medical facilities in northern Ohio, had an installed base of about 3,300 printers for its 11,000 users before the consolidation project began, Richards said.

He added that the company was using printers from HP and 11 other vendors, causing nightmares for its technical support and help desk staffs and complicating efforts to keep replacement cartridges and parts in stock.

An audit conducted by HP found that too many printers were being used, increasing operating costs and workloads for support staffers, Richards said. He said that over the past eight months, UHHS has standardized on HP printers and chopped the number it has in place to about 1,250.

A Daunting Task

The number of facilities that UHHS owns made the task a daunting one, and Richards said it wasn't easy to get approvals throughout the company for replacing all of the existing printers.

"It took a long time to gain acceptance within the operational units," he noted. "Had HP not done their education with us, we would never have been to this point. On our own, to set up an operation like this? No way."

The new hardware includes multifunction devices supporting both printing and copying, monochrome and color HP LaserJet workgroup printers, and print server appliances, according to the two companies. IT administrators



...educed the number of printers in use at its 150 medical facilities by more than 60%, to about 1,250

at UHHS are using software utilities built into HP's printers to remotely monitor and control the printing systems and automatically reorder supplies only when they're needed.

HP, which also provides desktop computers and storage devices to UHHS, formed its Total Print Management services unit about 18 months ago. Last spring, the vendor announced a printer outsourcing deal with Ford Motor Co., which hopes to reduce its printing costs by as much as 30% [QuickLink 46749].

"Most customers don't know how many printers they have," said Dave Arndt, worldwide program manager for print management services at HP. "We're really at the beginning of this — kind of where PCs and servers were about eight years ago, when people would buy them and didn't think of managing them." 48252

Continued from page 1

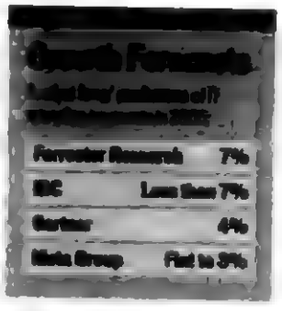
IT Spending

next 18 to 24 months, said Forrester analyst Tom Pohlmann.

"Many CIOs are coming around to see that it takes some investments in better price/performance platforms, such as new blade server technologies that are starting to hit the market, to cut costs over the long haul," Pohlmann said.

Robert Schwartz, CIO at Matsushita Electric Corporation of America's Panasonic division in Secaucus, N.J., said that some companies seem to be more willing to invest in IT as the economy shows signs of improvement. He added that he thinks corporate executives are also starting to get past concerns that their companies overinvested in technology during the dot-com boom and the Y2k remediation effort.

"This will fuel some level of growth, but it will be tempered by selecting only those initiatives which meet ROI requirements," Schwartz said. Panasonic's fiscal year begins April 1, and the company won't finalize its IT budget for the next one until December. Schwartz estimated that its IT spending could grow by as little as 4% or as much as 7%.



Spending predictions by market researchers for next year are also mixed (see chart). "We're not seeing CIOs becoming more optimistic about revenue growth and IT spending," said Howard Rubin, an executive vice president at Meta Group Inc. "No one wants to be hamstrung and spend more on IT and then have the economy collapse."

Instead, Rubin said, users are shifting around their IT investments. Last year, companies spent an average of about 65% of their IT budgets on "run the business" work and the remainder on new projects, according to Rubin. This year, many have tried to lower IT infrastructure costs to closer to 50% of their budgets and pump more money into new projects, he said. "Companies aren't spending more on IT; they're just spending it differently," Rubin said.

Hilton Hotels Corp. still allocates slightly more than 65% of its IT budget to supporting business operations, said Damien Bean, vice president for corporate systems at the Beverly Hills, Calif.-based lodging company.

Hilton's IT budget is likely to grow 5% next year, Bean said, although that includes the costs of supporting the planned opening of more than 140 new hotels. He added that savings Hilton has achieved through IT efficiency gains this year will be channeled into sales systems and security technologies next year.

But Bean said Hilton has standardized most of its hardware on Intel-based systems and has "already captured the benefits of commodity hardware and nonproprietary maintenance fees, all of which makes our cost structure extremely competitive but limits year-over-year savings."

IT spending at The Guardian Life Insurance Company of America is expected to grow 3% next year, driven by a 9% increase in infrastructure investments to accommodate upgrades to the New York-based insurer's disaster recovery and security capabilities, CIO Dennis S. Callahan said.

J. Edward Clary, CIO at Haverty Furniture Cos. in Atlanta, said he won't know what his IT budget will be for 2005 until mid-November, when the company's board makes its final approvals. But he does know that the budget won't be smaller than it is this year. "It would be too hard for us to recover if we tried to cut back on our infrastructure investments," Clary said. 48247

Continued from page 1

Tech Workers

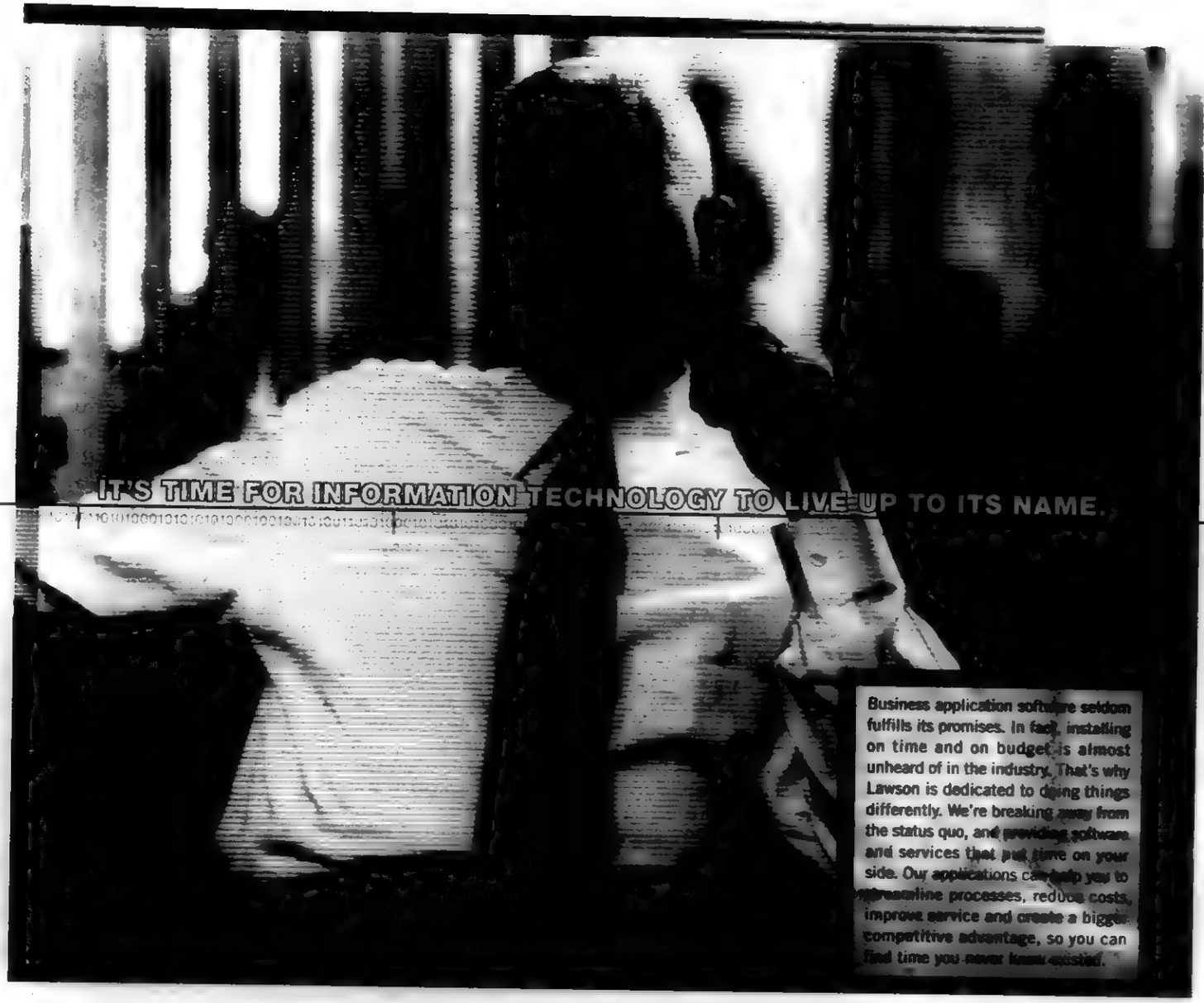
and 2008. "There'll be a little pickup in hiring next year, but salary and benefit growth will remain flat," said Forrester analyst Tom Pohlmann.

IT staffing levels aren't expected to change at Guardian Life Insurance next year, said CIO Dennis S. Callahan.

Robert Schwartz, CIO at Panasonic, also said he doesn't expect to expand his IT staff [illegible]

it's reliance on domestic and foreign IT contract workers.

But that type of approach could raise public relations problems for U.S. companies. And as corporate executives face increased pressure to retain IT work stateside, many firms will try to "bury their offshore activities" by means of creative accounting, said Howard Rubin, an executive vice president at Meta Group. "A company might say publicly that they only have 5% of the employees offshore, but they may have [illegible]



LAWSON

It's Time.

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MARYFRAN JOHNSON

Embracing Change

I DID THE CRAZIEST DAMN THING last week. I quit this wonderful job as *Computerworld*'s editor in chief and signed up to be the top editor for an emerging business unit at another publishing company. As I sit here writing my last editorial, I'm almost as stunned



about it as my staff is. I feel like I'm living that sardonic *Dilbert* one-liner: "Change is good. You go first."

I just never thought I would.

I've spent 15 very happy years at *Computerworld*, the past five as its chief editor. I've traveled a path from reporter to News editor to executive editor to editor in chief and company executive, and throughout it all, I've been a relentless cheerleader for our venerable brand, our editorial integrity and our award-winning staff. Always the biggest fan of our readers. Always loving what we do here.

None of that affection has changed. But along came change itself in the guise of an unexpected opportunity to create something entirely new. And I found I couldn't resist the invitation. I suddenly had to go first, despite my sorrow about leaving such a great publication. There was some joy, however, in seeing that new jobs and opportunities are flourishing once again in the IT publishing industry, which has limped along with the technology sector as we've all endured the economic downturn.

Change is unsettling, but it really can be a good thing. I offer as Exhibit A the way it opened up new opportunities for several talented *Computerworld* editors last week.

Our new editor in chief is Don Tennant, whom many of you already know as the accomplished moderator of CIO discussion panels at several of our past Premier 100 IT Leaders conferences. You've also seen the results — each week in these pages — of Don's work as our outstanding News editor. Under his direction, our reporters have earned more than 100 journalism awards from the American Society of Business Publication Editors, including the ASBPE's Magazine of the Year award earlier this summer.

With Don's promotion comes a change for assistant News editor Craig Stedman — a legendary reporter in our newsroom, perhaps best known for his unrelenting, in-depth coverage of failed ERP projects in the late '90s. Craig now takes over as News editor.

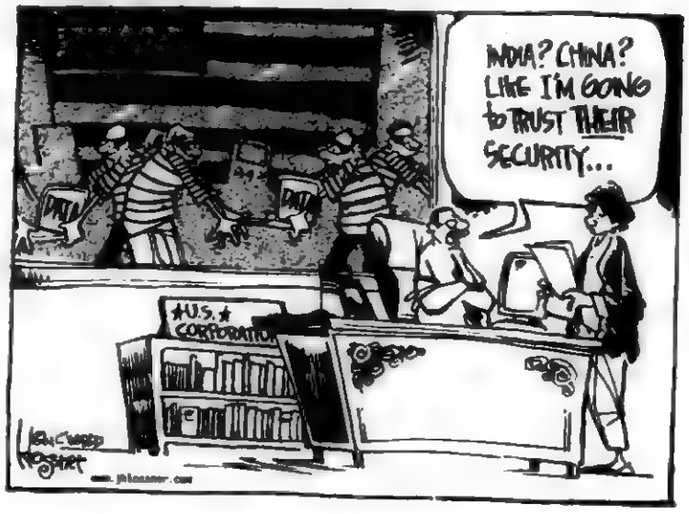
Also taking on a new position here is our Features editor, Mitch Betts, who last week was promoted to executive editor. This change expands Mitch's responsibilities to oversight of News operations as well as our Technology and Management feature sections. Those of you who are fans of our monthly Knowledge Centers have seen Mitch's fine work as the chief architect of this ongoing series of in-depth technology and business special reports.

Finally, we have a new editorial leader for *Computerworld*'s Premier 100 conference in Julia King, whose distinguished work as our national correspondent has consistently made its mark on our management, career and outsourcing coverage. Julia has also played a key role in the development and growth of the Premier 100, now entering its sixth year as the largest IT executive conference in the industry.

As news of my departure spread last week (a minor tempest in our media teapot), I was flattered to hear from so many of our readers and friends throughout the industry (some humorously inquiring about my mental health). But not to worry. I know our paths will cross again, and I leave you in very good hands.

Change is good. I'll go first.

49216



MICHAEL H. HUGOS

Something Bigger Than The Next Big Thing

IN THE PAST YEAR or so, an idea has been steadily working its way from the back of my mind to the front. This idea is starting to seriously influence the way I see my job as well as my participation in the IT profession. It starts with an observation: We in IT are still playing that goofy game of inventing TLAs (three-letter acronyms). The



problem with this is that the proliferation of TLAs just distracts us from appreciating a larger opportunity and draws us down narrow alleys in search of the next insanely great new thing.

TLAs — BPR, GUI, OOP, ERP, CRM — and great new things dominated IT in the 1990s. Some of those TLAs hit the big time, and lots of money changed hands because of them.

But that time is over. I don't use TLAs in conversation with my C-level peers, or with anybody outside of IT for that matter. Five or six years ago, sprinkling our conversation with TLAs might have made us sound important; today, it just makes us sound like dorks.

Because TLAs cause us to obsess over relatively small pieces of the total picture, we don't see the incredible opportunity that's staring us in the face. Let's imagine that we do some BPR and then we support those new workflows with systems that use EAI and SOA to tap into the functionality of existing ERP, CRM and other systems. New systems built this way can be assembled

very quickly. Next we apply BPM or BAM to those new systems and workflows. Now, moving beyond the acronyms, a truly amazing thing can occur.

If done right, these systems enable people to see their world in real time. Suddenly, they know what's going on day to day. They don't have to wait until two weeks after the monthly close to get good numbers. And because they can see clearly, they can act effectively. As they act, the systems send back real-time pictures of the results of their actions. Then they act again. And so on.

This sets up a powerful feedback loop where people learn fast and get better and better at what they do. This phenomenon is at the heart of what is called "the real-time enterprise." Organizations that start operating as real-time enterprises become like athletes who get more skillful as they play the game.

The real-time enterprise is to the information economy what the assembly line was to the industrial economy. It will be the great generator of wealth in the 21st century. Think about it: Industrial technology was in wide use by the mid-1800s, but the idea of using it to support a certain workflow process called the assembly line didn't catch on until the early 1900s. After companies did begin to organize production using the assembly line, the resulting productivity gains drove much of the economic growth in the 20th century.

Information technology has been widespread for the past 40 years or so. The technology itself is no longer a source of advantage. But the technology can be used to support a process called the real-time enterprise.

The real-time enterprise builds upon the efficiencies of the assembly line and then goes far beyond what an assembly line can do. It gives companies the ability to learn faster and respond more effectively than ever before.

In a world of constant change, the organizations that are the best at constantly adapting and improving are the ones that will thrive. They are the ones that will define the economy of the 21st century.

But we aren't going to convince management of this larger opportunity by telling them what we're going to do with BPR and SOA and ERP and CRM. Instead, we need to show them how IT can put all the technology together and lead in the creation and operation of systems that enable the real-time enterprise to come into being. **48852**

THORNTON A. MAY

Bright Skies or Dark Path for IT Leaders?

CURRENT THINKING on the future career path of IT leaders is polarized. The Lawson Software-sponsored "Habitat Report" has identified two fundamentally different expected career outlooks for executives leading IT organizations. One scenario, dubbed "Bright Skies," predicts an enlarged and increasingly admired role in the enterprise. The "Dark Path" scenario, on the other hand, predicts that IT leaders will face tough sledding in the years to come.

Those in the Dark Path camp posit that the role of the IT leader is diminishing in importance. This school of thought holds that computational functionality is becoming (or has already become) a commodity that can be purchased, provisioned and managed via rules-based logic. Dark Pathers forecast a bleak future for IT in which rules-based work is outsourced and the managing of rules-based work is automated via CIO-in-a-box artificial intelligence systems at the order of chief financial officers.



The few carbon-based life forms left in place will oversee outsourcing contracts, apologize for unmet service-level agreements and go to jail for catastrophic system failures. In the minds of Dark Pathers, IT leaders are losing power vis-à-vis the CFO.

The data about whom CIOs report to is ambiguous:

	CEO	CFO	OTHER
	38%	28%	34%
	30%	32%	38%

Taken at face value, the fact that fewer IT leaders today report to CEOs might lead one to believe that IT power is diminishing, but I tend to attribute the change in this number to two things: the e-commerce frenzy at the turn of the decade, and a change in top-of-house management styles. In 1999, the CEO managed a series of one-to-one relationships with his direct reports. In the new model, because of an increasing interconnectedness among all functions, the CEO manages the executive team. Those on the executive team, of which the IT leader is one member, manage relationships among themselves. Today, there is a growing tendency for the CIO to report to the chief operating officer.

Bright Skiers acknowledge and applaud the trend toward automating and outsourcing rules-based IT work. The Bright Skies scenario is driven by the assumption that the ever-expanding computational functionality identified by Moore's Law will affect what work gets done and how. Their hopeful outlook is predicated on the principle that realizing the full potential of technology investments requires that two things get done. The first of these is reorganizing existing work into rules-based, been-there-done-that Six Sigma routines. The second is implementing new patterns. In other words, working in uncharted territory is the high ground for IT leaders of the future.

In their brilliant new book *The New Division of Labor: How Computers Are Creating the Next Job Market* (Princeton University Press), Frank Levy and Richard J. Murnane write that the future belongs to people who excel at expert thinking (solving problems for which there are no rules-based solutions) and complex communication (interacting with people to acquire information, understand what that information means and persuade others of its implications for action).

Dark Pathers are working off the flawed assumption that most IT activity is rules-based. It is not. The IT leader of the future is going to be a world-class workplace diagnostician who is facile at understanding work and will strip pieces of work best done by computers (the rules-based drudgery) out of the hands of humans, streamline operations and imagine new, high-margin things to do with computational functionality. **49126**

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READERS' LETTERS

Offshoring: Unwise or Simply Inevitable?

THANK YOU for Virginia Robbins' interesting article "The Ragged Edge of Outsourcing" [QuickLink 48217]. As a former senior software engineer who, because of outsourcing, was forced into a middle-age career change, I find it refreshing to see someone question the wisdom of outsourcing. The Bureau of Labor Statistics recently reported a decline of 131,000 employed computer software engineers in the second quarter compared with the first quarter, bringing the total to just 725,000.

What is particularly galling is that by the time CEOs and CIOs realize that outsourcing isn't the panacea they think it is, the software engineering profession in America may no longer exist.

James Marino
Mesa, Ariz.

MY ADVICE to the authors of the three letters on July 26 bemoaning offshoring is to get over it and move on. Offshored jobs will no more come back than deceased relatives. In fact, we can expect even more IT jobs to be offshored in the very near future. I am 53 years old with 15 years of IT experience. Between 2000 and 2002, I worked on the average six months per year, and between 2002 and 2004, only four months. I have not worked at all this year. After feeling angry, frustrated and betrayed, I returned to graduate school, where I am now pursuing a master's in teaching English as a second language.

Globalization has made education a booming industry, especially in the Third World. I hope to teach English in China, where the economy is sizzling and the job opportunities for English teachers are red hot. The pay is good by Chinese standards, and if I do not like it there, I will move on to another country.

Here in Chicago, most of the people in my neighborhood are foreign-born. There are literally millions of legal and illegal immigrants in this country seeking work. Why can't we Americans do likewise and look beyond our borders for opportunities?

Julius Takacs
Chicago
Julius_Takacs@hotmail.com

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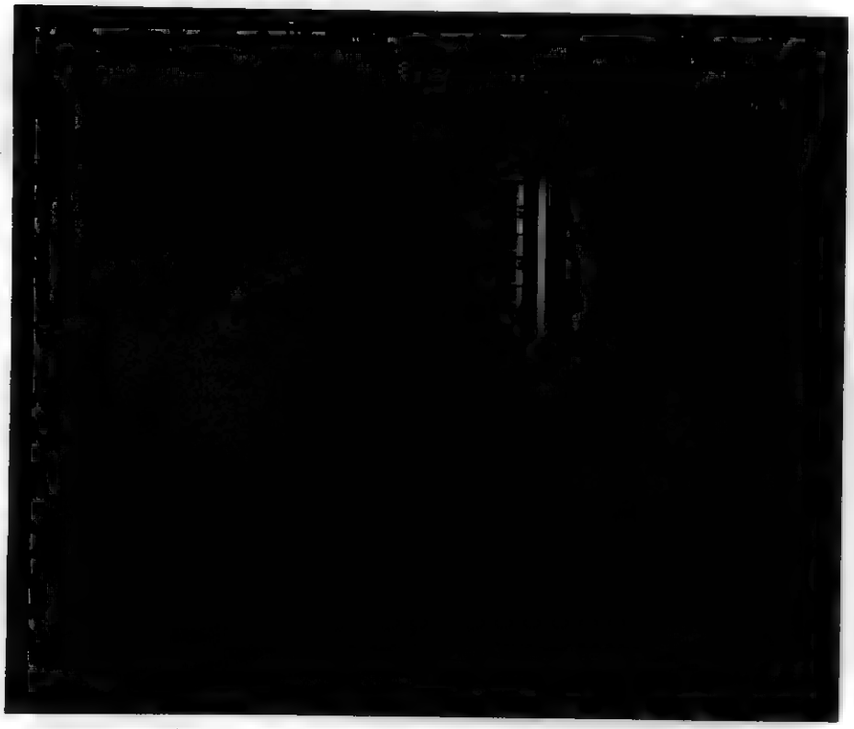
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Agents of Change
Autonomous agents promise to make everything from supply chains to telecommunications networks more efficient. But for now, most new applications remain in R&D labs and testbeds such as NASA's Earth Observing-1 satellite. **Page 24**

Survival of the Fittest
A regression-based analytic technique called survival analysis is moving from life sciences and engineering into mainstream business applications such as CRM, enabling companies to predict the behavior of their customers. **Page 27**

SECURITY MANAGER'S JOURNAL
Secure E-mail Stops At Corporate Borders
Providing internal e-mail security is one thing, but Roger Foix finds there are few good options for securing the e-mail that's exchanged with business partners. **Page 32**

HAVE JINI, WILL TRAVEL

Orbitz put Sun's underappreciated technology at the core of the distributed computing framework that powers its online reservation systems. **BY CAROL SLIWA**

JINI was still being marketed as a networking technology for consumer appliances such as DVD players and televisions when startup Orbitz Inc. made the rather bold decision to build its business on the fledgling Java-based specification.

Forged in 2000 by five airlines, Chicago-based Orbitz had a blank technology slate when it elected to look beyond Sun Microsystems Inc.'s consumer hardware pitch and explore Jini's potential as a distributed computing framework for its online travel services. Orbitz architects knew that few companies were using Jini, but they were comforted to learn that one, Raytheon Co., was exploring the technology for systems on U.S. Navy destroyers.

"If it's good enough to protect lives and countries, maybe it's good enough to sell tickets on," says Leon Chism, Orbitz's eighth employee and now chief Internet architect.

A CORBA Alternative

Skilled in building large-scale systems based on the Common Object Request Broker Architecture, the Orbitz development team saw Jini as a CORBA alternative that would provide a mechanism for acknowledging the effect the network has on how a system is designed and runs in production, says Chism.

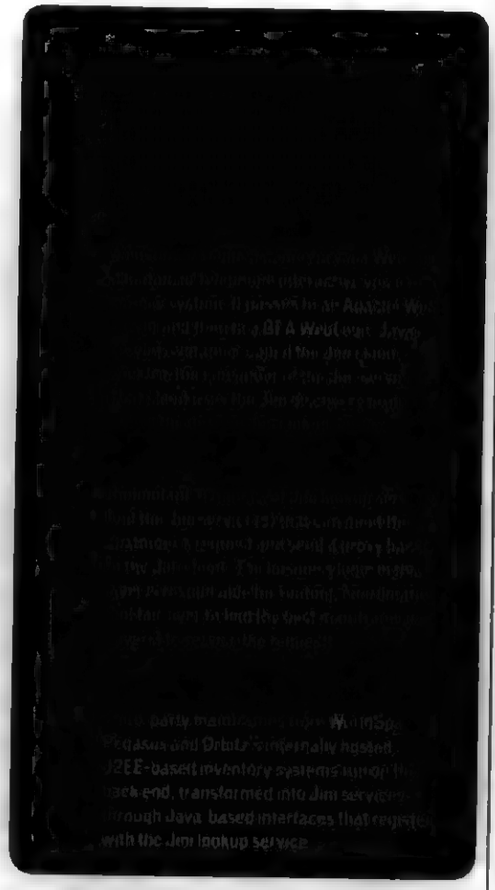
"You had a group of people that felt technically capable and qualified to make it work," adds Chief Technology Officer Chris Hjelm, who joined Orbitz from eBay Inc. in July 2003. "They've always been independent thinkers, and they wanted to control their own destiny."

Orbitz also considered using the emerging Enterprise JavaBeans (EJB) technology but soon scrapped that idea because of concerns about performance, management and cost. Company architects figured they wouldn't require the transactional capability of EJB and decided that dynamically networked Jini services would be a better fit.

"If you compare



ANDY GOODWIN



how to define and access an EJB remotely versus how to do that in Jini, it's orders of magnitude different in terms of lines of code and complexity of the code," says Chism.

"I think I can actually publish a Jini service in about three lines of code. And accessing it is probably two lines of code," says Steven Hoffman, principal software engineer at Orbitz. "Most of the people that actually know and need to know about the Jini infrastructure, you can count them on your hand. Everybody can focus on the real work at hand. The plumbing doesn't get in the way."

Building a service-oriented architecture to get disparate systems to interoperate isn't such a newfangled idea today, but at the time Orbitz decided to break up applications into services, its architects weren't familiar with the terminology. They just knew that customers would need to book flights, hotels and cars. To enable that, they needed to connect to a major mainframe-based global distribution system (GDS) for booking and ticketing flights and cars. For hotels, they had to link to a system from Pegasus Solutions Inc. And they knew they had to build a system that wouldn't go down.

Under the Orbitz architecture, a customer request to book an airline ticket passes to a Java servlet container — the Jini client — running on BEA Systems Inc.'s WebLogic application server (see box above). The Jini client uses the Jini discovery protocol to find a Jini lookup service, which sends a proxy back to the Jini client. Through the proxy, the Jini client uses the lookup service to find a Jini service that can do what it needs. The lookup service then delivers the Jini service proxy back to the Jini client, and the client uses the proxy to communicate directly with the Jini service.

Orbitz registers its 1,332 Jini services on multiple instances of lookup services for redundancy, so there's never a single point of failure in the event of a power supply or hard drive failure. It also builds redundancy into the servlet containers and the services themselves, scaling horizontally through Intel-based dual-processor PCs running Linux. The PCs act as servers in the Orbitz environment. "It's not just redundancy; it's also capacity," says Hoffman. "If you need today 10 boxes to service a particular request and your traffic doubles, we can just add 10 more, and it's not only handling twice the capacity but it's now twice as redundant as it was before."

It's also a less costly way to scale. "It's literally plugging a commodity PC with a minimal amount of purchased software and some open-source software into the network," says Hjelm. "It's less than $5,000 and continuing to come down."

Orbitz runs two types of services — those that talk to other services and those that talk to third-party mainframe hosts. On the back end, Orbitz builds Java interfaces to the third-party mainframes, such as those of WorldSpan Technologies Inc. or Pegasus, transforming their content into Jini services that register with the lookup services. The Java virtual machine and the Jini service interfaces run on Orbitz servers. "All the carriers had to do was give us their custom protocols to communicate with their mainframes," says Chism. "We did the rest."

The company gains access to its non-Java low-fare search engine from ITA Software Inc. in Cambridge, Mass., in a similar fashion. Orbitz also books some hotel rooms and entertainment tickets through its own systems via allotments from the vendors.

To reduce GDS fees, Orbitz developed technology called Supplier Link to provide direct links to the internal reservations systems of participating airlines, including American Airlines, Alaska Airlines, America West Airlines, Continental Airlines, Northwest Airlines and US Airways. Customers booking tickets with those airlines are directed to the Orbitz Next-Generation Booking Engine, which uses Jini lookup services to find the optimal way to book the ticket.

Only if Supplier Link connections are down or the itinerary fails to meet specific criteria are they connected to GDS vendor WorldSpan, which gets a bigger cut of the transaction.

"Rule No. 1 is book the ticket. Rule No. 2 is book it on Supplier Link if you can," says Chism.

One benefit of the multilayered approach is that Orbitz can add more air services for a specific carrier, such as Alaska Airlines, without having to deploy a new instance of the overall application. The staff simply gets a new PC, installs Linux and Java on it and configures it as an instance of the Alaska Airlines service. The service is immediately registered with the Jini lookup service without Orbitz having to take down any part of the application.

"We literally turn on Alaska Air without the application layer even knowing," says Hjelm. "That's an enormous amount of flexibility. It really allows you to focus skills and the effort of your staff." Hjelm says less than 10% of the nearly 100 developers at Orbitz are responsible for working on the back-end Jini service interfaces and systems. The rest concentrate on the customer-facing Web applications.

"What you're trying to do is manage down the complexity of building applications and have those scale over time," says Hjelm. "One of the great questions is: Why do many development shops start to slow down as they get larger code bases and more and more people? The reason generally is that they don't follow good architectural practices."

Orbitz continues to create new customer offerings that essentially assemble or repackage existing products. For instance, it can aggregate air and hotel offerings into a dynamic service with no recoding required, according to Chism.

"All the discoveries are dynamic at runtime," he says. "You do your logic and you make the calls out when you need to, and it dynamically finds the services that it needs in the production environment."

Hidden Value

Jennifer Kotzen, who heads Jini marketing efforts at Sun, says the technology's main appeal for corporations has been its dynamic networking capability, wherein a distributed system can better accommodate change in the runtime environment.

"There's been a shift in our understanding of the value proposition with Jini," she says. "It's not just how to let devices talk to each other."

Kotzen says there have been a "good number" of deployments, particularly in the financial services industry. But many users decline to speak publicly about Jini, and Sun has no accurate way to track the number of installations, she says.

Jini also continues to be plagued by a number of lingering misconceptions, according to Kotzen. One is that all the code, services and clients need to be written in Java and that there needs to be a Java virtual machine everywhere. Kotzen says that's not true; Java-based interfaces to a legacy system and the Java virtual machine can run on a "surrogate" machine.

Another hurdle is that the independent software vendor community around Jini remains limited. Only eight vendors make commercial products targeted at Jini developers, according to Kotzen.

But Orbitz no longer frets over the lack of vendor backing. "I was worried when we started, but the community has been more than helpful," says Chism. "The guys who wrote the product are very accessible. You have questions, you have problems, they'll get back to you."

So why hasn't Jini caught on? Hjelm thinks it might have been too complex for the average software shop that's used to more simple tools. Chism says Sun mismarketed Jini to the hardware market when it should have been going after the software market. But where Orbitz is concerned, he has no regrets.

"I was very confident in the decision then, and I'm very confident in the decision now," says Chism. "I wouldn't change it. I don't think we'd be where we are today if it weren't for Jini." ⓒ 46963

HOW JINI WORKS

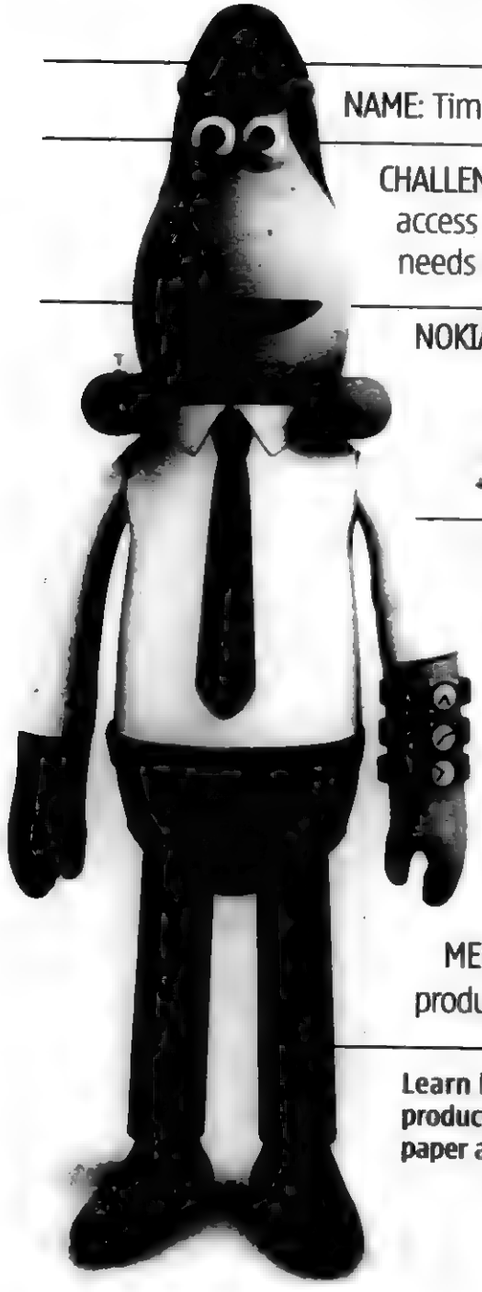
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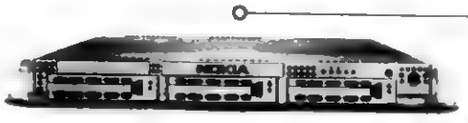
Time Zone Tim might be sleep deprived, but he's never network deprived.



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AGENTS CHANGE

Autonomous agents are still in the labs but could eventually play a critical role in areas ranging from setting market prices to creating more resilient networks.

OVER THE PAST YEAR, NASA has been uploading software into the Earth Observing-1 satellite, turning it into a testbed for autonomous agents. The agents — software programs that are able to learn and can function independently — are used to manage experiments and operate the spacecraft.

The effort is part of a technology initiative that researchers say will reshape IT over the course of many years. Autonomous agents have the potential to become an extraordinarily powerful technology, with the capacity to learn, experiment and act independent of human control. Agents could ultimately improve productivity, increase software reliability and change the operation of markets, particularly supply chains.

Managing Complexity

[illegible] uses autonomous agents to [illegible] tasks that appear simple but [illegible] complex. For example, [illegible] handled by automo[illegible]

Like many programs, agent software and related algorithms are often coded in Java. What makes them different is that the designs also incorporate disciplines such as game theory. Agent designers tend to draw from a variety of areas, such as economics and psychology, in an effort to create programs capable of handling complex interactions.

Programmers are adept at building systems that respond to a certain set of "if-then" circumstances. But NASA's agents are model-based, designed to achieve the goals and intentions of the designers, not merely to respond to a given event. That means they can react to unimagined events and still ensure that the spacecraft does not waste fuel while keeping to its mission.

At NASA, software agents are performing work previously handled by ground controllers. But the cost-saving potential of agents is something "we don't emphasize, because nobody likes their budget reduced," says Chien. Instead, the focus is on the additional scientific research created by the use of agent-based software.

Making markets, supply chains, telecommunications and other systems more efficient through the use of agents is a subject of intense interest. Some 800 researchers recently gathered at Columbia University for the Third International Joint Conference on Autonomous Agents & Multi-Agent Systems, the leading conference on the technology. In addition to people from universities and government agencies, the event attracted researchers from defense, telecommunications and software development.



NASA's Earth Observing-1 satellite, which began operation in 2000, was recently turned into an autonomous agent testbed.

The conference stressed both abstract concepts and practical application of the technology. Most presentations detailed the latest research in a wide variety of areas, such as machine learning, which involves creating agents that have the ability to discover interactions and respond to them. Others addressed the behavior of multiple agents: how they work together, exchange information, set priorities and negotiate with one another.

Putting It to the Test

Negotiation was one of the key agent capabilities tested at the conference's Trading Agent Competition. In one contest, computers ran simulations of agents assembling PCs. The agents were operating factories, managing inventories, negotiating with suppliers and buyers, and making decisions based on a range of variables, such as the risk of taking on a big order even if all the parts weren't available. If an agent made an error in judgment, the company could face financial penalties and order cancellations.

Researchers say there is no optimal agent design, and the contest serves as a performance testbed. "If you have a better strategy than your competitor, you're in a more advantageous position in the marketplace," says Nick Jennings, who heads the autonomous agent program at the University of Southampton in England.

Decision-making software is already used in financial markets for functions such as automated trading, but those processes are simpler than the business-to-business transactions that agent researchers are testing. Instead of dealing with fixed prices, researchers are looking at scenarios where agents must constantly negotiate the best prices with a variety of suppliers. In so doing, they must take into account changing market conditions while also considering inventory, production, factory capacity and other issues.

"Our scenario presumes automation beyond the degree that currently exists, but I think things are going in that direction," says Michael Wellman, professor of commercial science and director of the artificial intelligence laboratory at the University of Michigan.

IBM is building agent technology to support its autonomic computing systems, which have the intelligence to reconfigure themselves in response to changing conditions, according to Jeffrey Kephart, manager of agents and emergent phenomena in the computer sciences department at IBM's T.J. Watson Research Center.

Agent researchers "are working toward a world some years hence where these automated decisions are going to be used. Those people in industry who are really thinking about this know that they are going to need technology of this nature, in supply chains," Kephart says. The research work so far bodes well for that future, he adds.

Agents may change the nature of distributed computing environments. Instead of centralized control systems, agents could independently operate parts of a network but also have the ability to take over other functions if problems arise. Interest in building survivable systems, where agents regenerate lost capabilities in communications networks, is of interest to the U.S. defense researchers and scientists at Cambridge, Mass.-based BBN Technologies, part of Verizon Communications Inc.

Agent researchers say the technology won't arrive in big-bang fashion. But slowly, over time, agent functions will begin turning up in systems. This technology is "going to be revolutionary," says Richard Lazarus, manager of the enterprise architectures group at BBN, "but it will occur incrementally."

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AT A GLANCE

Autonomous Agents

Autonomous agents are programs capable of independent action. Most are designed to respond to "if-then" scenarios, but more complex, model-based agents try to achieve goals such as maintaining specific performance levels in a system.

Some are capable of **machine learning**: They can experiment, test various interactions and take corrective actions to address situations never imagined by their designers.

As for **applications**, much of the focus is on designing agents capable of negotiating with other agents for e-commerce and supply chain applications. Systems administration is another area of interest.

AGENTS OF CHANGE

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Managing Complexity

NASA uses autonomous agents to handle tasks that appear simple but are actually quite complex. For example, one mission goal handled by autonomous agents is simply to not waste fuel. But accomplishing that means balancing multiple demands, such as staying on course and keeping experiments running, as well as dealing with the unexpected.

"What happens if you run out of power and you're on the dark side of the planet and the communications systems is having a problem? It's all those combinations that make life exciting," says Steve Chien, principal scientist for automated planning and scheduling at the NASA Jet Propulsion Laboratory in Pasadena, Calif.

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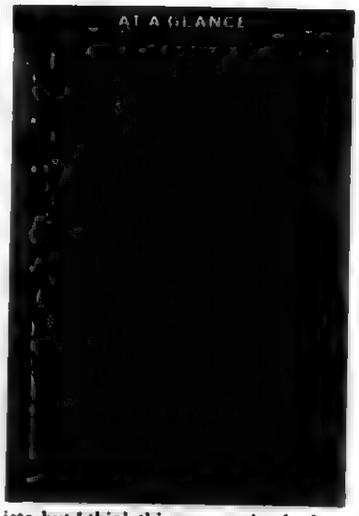
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SURVIVAL OF THE Fittest

Survival analysis has been used for years to predict cell death. Now it can forecast customer attrition. **BY GARY H. ANTHES**

Survival analysis is about to jump-start your competition. Or it could help you decide whether that costly promotion is really going to be worth it. Or it could help you tailor that next catalog mailing and double your return.

The aptly named analytic technique, also called survival data mining, has been used by doctors for decades to predict the life expectancy of heart-transplant patients and by biologists to assess the probability that a cell invaded by a virus will die within 24 hours. Engineers have long used it to estimate the mean time to failure of a disk drive or a robotic welder. More recently, sociologists and psychologist have started using it to predict when certain types of people will divorce or seek help for depression.

But until recently, attempts to apply survival analysis to business problems have been mostly university projects, says Edward Malthouse, a marketing communications professor at Northwestern University. "Now it's really taking off in the database marketing world — for credit cards, hotels, airlines, catalogs and so on," he says.

Survival analysis refers to a family of "time to event" prediction techniques mathematically geared to problems with the following characteristics:

- **They deal with discrete events that will occur to some but not all members of a given population.** Certain patients will die, some disk drives will fail, a certain number of prescriptions for Valium will be written, and some of your best customers will desert you.
- **They involve time-dependent outcomes.** Is that key customer going to cut up his charge card tomorrow (better call him today), next quarter (send him mail) or not in the next five years (leave him be)?
- **The outcomes of interest, or "dependent variables," aren't continuous – like income, height or IQ – but are dichotomous.** Either the patient will die within six months or he won't. Your customer will leave this year or he won't.
- **Outcomes often can be anticipated by trigger events, such as customer complaints.**

Randy Collica, a senior analyst at Hewlett-Packard Co., says use of survival mining to understand and predict customer behavior has sprung up in the past couple of years. He says it's really just an extension of older practices in which a company would take its most recent customer data, or data from a time slice such as a quarter or year, and try to predict attrition based on that.

But survival mining puts time itself into the analysis as a variable. "It is a superset technique," Collica says. "Including time as an element is adding that much more information."

Choosing a Technique

Software for survival analysis most often uses some kind of regression technique, notably logistic regression or a kind of regression called Cox proportional hazards modeling. In addition, some vendors sell products that do time-to-event predicting using neural networks or genetic algorithms.

For example, SAS Institute Inc. has survival prediction capabilities in several of its products. According to Anne Lilley, manager of analytic strategy at SAS, deciding which product or technique is appropriate depends on how the problem is formulated, the type of output desired and users' ability to code and prepare data.

New York-based investment firm The Dreyfus Corp. used SAS's logistic regression routines to beat down customer fund redemption rates from more than 20% a year to less than 7%. "Assets were going out of the complex, and we didn't know why," says Prasanna Dhore, an executive vice president.

First Dreyfus used survival analysis to help it understand the factors that were leading customers to cash out. The company organized terabytes of customer history along three dimensions: customer life stage (e.g., young married, peak earnings age, retired), past investor behavior and basic demographics, such as education.

"Then we asked if we could predict behavior," Dhore says. "What's the probability that Customer A is going to take the money out in the next two years, for example? Then, what does it take to extend his life with us?"

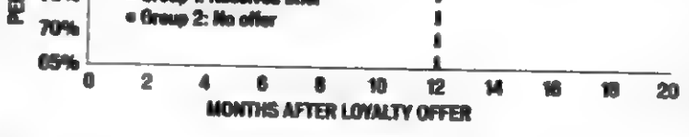
The answers to those questions varied by customer type. For example, the analysis showed that customers identified as "street savants" would redeem within three months of a fund's performance slump. "So if you can call him up and give him other opportunities, he can be kept in the Dreyfus family and we can extend his life another six months, a year or two years," Dhore says.

Catholic Relief Services uses software from Genalytics Inc. in Newburyport, Mass., to "find needles in a haystack," says Kevin Whorton, director of direct-response fundraising. Those are donors who will not simply make one-time gifts in response to an emergency such as a hurricane, but who will keep on giving thereafter. The software uses genetic algorithms that learn over time in order to produce "self-adjusting models," Whorton says.

For example, one model showed that Hispanic donors have a far higher attrition rate than non-Hispanic donors, a special concern, Whorton says, because by 2025, Hispanics will account for half of all Catholics in the U.S. "So now we can do more with these people at the four-to-six-month point in the relationship," he says. **48775**

LOYALTY PROGRAM: IS IT WORTH IT?

The graph below compares customer survival (retention) after acceptance of a loyalty incentive (top curve) with survival of customers not offered the incentive. The area between the two curves for the first year can be computed to find the value of the offer.



THE PERILS OF Prediction

Because survival analysis is by definition time-dependent, The Dreyfus Corp. has had to ensure that data from many different sources across long time horizons matches up correctly. "Timing is of utmost importance," says executive vice president Prasanna Dhore.

"Take a holistic view of your customer," advises Genalytics CEO Doug Newell. "Everything you know about them must be brought to bear."

Improperly accounting for "time-dependent covariance" is a frequent mistake, says Will Potts, a statistical consultant at Data Miners Inc. in Boston. Customer attributes change over time, and a certain event may be likely now not because of current values of predictors but because of earlier values, he says.

Edward Malthouse, a marketing communications professor at Northwestern University, warns that as with most predictive techniques, survival analysis can base its predictions only on prior experience. "You are really looking in a rearview mirror with survival analysis. It's dependent on what you did to the customer in the past. So if you have a bold new idea – say, a new loyalty program – you are not going to see the effects of that."

– Gary H. Anthes

SURVIVAL OF THE Fittest

Survival analysis has been used for years to predict cell death. Now it can forecast customer attrition. BY GARY H. ANTHES

SURVIVAL ANALYSIS could help you predict that one of your best customers is about to jump ship for a competitor. Or it could help you decide whether that costly promotion is really going to be worth it. Or it could help you tailor that next catalog mailing and double your return.

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But survival mining puts time itself into the analysis as a variable. "It is a superset technique," Collica says. "Including time as an element is adding that much more information."

Choosing a Technique

Software for survival analysis most often uses some kind of regression technique, notably logistic regression or a kind of regression called Cox proportional hazards modeling. In addition, some vendors sell products that do time-to-event predicting using neural networks or genetic algorithms.

For example, SAS Institute Inc. has survival prediction capabilities in several of its products. According to Anne Lilley, manager of analytic strategy at SAS, deciding which product or technique is appropriate depends on how the problem is formulated, the type of output desired and users' ability to code and prepare data.

New York-based investment firm The Dreyfus Corp. used SAS's logistic regression routines to beat down customer fund redemption rates from more than 20% a year to less than 7%. "Assets were going out of the complex, and we didn't know why," says Prasanna Dhore, an executive vice president.

First Dreyfus used survival analysis to help it understand the factors that were leading customers to cash out. The company organized terabytes of customer history along three dimensions: customer life stage (e.g., young married, peak earnings age, retired), past investor behavior and basic demographics, such as education.

"Then we asked if we could predict behavior," Dhore says. "What's the probability that Customer A is going to take the money out in the next two years, for example? Then, what does it take to extend his life with us?"

The answers to those questions varied by customer type. For example, the analysis showed that customers identified as "street savants" would redeem within three months of a fund's performance slump. "So if you can call him up and give him other opportunities, he can be kept in the Dreyfus family and we can extend his life another six months, a year or two years," Dhore says.

Catholic Relief Services uses software from Genalytics Inc. in Newburyport, Mass., to "find needles in a haystack," says Kevin Whorton, director of direct-response fundraising. Those are donors who will not simply make one-time gifts in response to an emergency such as a hurricane, but who will keep on giving thereafter. The software uses genetic algorithms that learn over time in order to produce "self-adjusting models," Whorton says.

For example, one model showed that Hispanic donors have a far higher attrition rate than non-Hispanic donors, a special concern, Whorton says, because by 2025, Hispanics will account for half of all Catholics in the U.S. "So now we can do more with these people at the four-to-six-month point in the relationship," he says. 48775





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Avoiding Armageddon



A [illegible] hitting Earth, [illegible] by an artist, is the scenario data [illegible] STARRS [illegible] processing

Predictive Processes

The Large Synoptic Survey Telescope Project

Objective: Map the entire sky to track near-Earth objects using time-lapse digital imaging

Camera size: 3 billion pixels

Data acquisition rate: 6GB every 10 seconds, or 3 petabytes per year

Total database size over project life: 30 petabytes

SOURCE: LSST CORP., TUCSON, ARIZ

FUTURE WATCH

THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICROFORM EDITION.

Avoiding Armageddon

Predicting asteroid impacts will require supercomputers and petabytes of data.

By Patrick Thibodeau



An asteroid hitting Earth, as depicted by an artist, is the scenario data-intensive programs like LSST and Pan-STARRS are aimed at preventing.

THE COMPUTERS at the Minor Planet Center recently sorted through some 10,000 observations of astronomic phenomena and deemed a handful as deserving follow-up because they were either newly discovered or on a path in Earth's general vicinity.

The preliminary trajectories plotted by the MPC were based on too few observations to be accurate, but unbeknownst to center officials, the computer had found one object on a collision path with Earth. The discovery was posted on the Web late in the day on Jan. 13, 2004.

Alert amateur astronomers in Europe first noticed the problematic path of the near-Earth object (NEO), and a Yahoo message board used by astronomers began to fill with activity about the bogy.

Mapping the Cosmos

In some ways, scientists were lucky to have found this potential threat, because finding NEOs today is literally a hit-or-miss activity.

The first warning of an asteroid or comet impact may come from calculations performed by some old workstations clustered together at the MPC at the Smithsonian Astrophysical Observatory at Harvard University.

These systems aren't large enough to map the sky and provide scientists with a comprehensive view of everything that could do serious damage. But that's changing. Some big projects are under way to attempt to find as many threatening objects as possible. These sky-mapping efforts will create extraordinarily large data sets and require new searching and processing approaches.

FUTURE WATCH

One ambitious project is the Large Synoptic Survey Telescope (LSST), a public/private partnership based in Tucson, Ariz., intended to provide 3-D maps of the universe, covering a very wide area.

When it's in operation in 2011 at a site still to be determined, the telescope being built for the LSST project will collect data at a rate of about 6GB (equivalent to one DVD) per 10 seconds, generating many petabytes of data over time. One petabyte equals roughly 100 times the printed contents of the Library of Congress.

The LSST project "pushes forward database technology dramatically," says Philip Pinto, a physics professor at Steward Observatory at the University of Arizona and a member of the LSST project's board of directors. "The LSST database will probably be the largest known nonproprietary database in the world."

Because operation of the telescope lies some seven to eight years out, the scientists working on it are hopeful that processing capabilities and storage densities will increase enough to handle this data, but they can still imagine a supercomputer system of 1,000 or so systems networked together.

Work on the software has already started, however. "It's not entirely clear how you do it," says Jeff Kantor, a computer scientist in charge of data management on the project. He's developing algorithms for handling the data, such as determining from multiple observations whether a particular dot in the sky is the same object moving from frame to frame.



A second effort, called Pan-STARRS (Panoramic Survey Telescope and Rapid Response System), is being developed by the University of Hawaii's Institute for Astronomy.

Instead of a large telescope, the Pan-STARRS project will use four smaller ones that combine image data and generate data on a scale similar to that of the LSST. These multiple systems, further delineated by 64 detectors in each of the four cameras, will be well suited to parallel processing.

But instead of the CPU parallelization common in high-performance technical computing, researchers in Hawaii are working on data parallelization in which every processor works on different data but executes the same instruction at the same time. "A lot of techniques have been explored in that particular realm," says Eugene Magnier, image-processing pipeline technical lead. Pan-STARRS is expected to be operational by 2008.

Scientists hope that LSST and Pan-STARRS will help them identify most of the NEOs that may threaten Earth and locate those on a dangerous path long before they strike. They hope that information will give them time to develop ways to deflect the NEO.

These system developments will happen, of course, only if the Earth isn't first destroyed by a comet or asteroid.

Predictive Processes

Among those following the activity on the Yahoo message board back in January was Alan Harris, a senior research scientist at the Space Science Institute in Boulder, Colo. Harris ran some calculations and found that the object was "heading straight for us at around 18km/sec." and would hit in 26 hours.

The NEO was estimated to be about 30 meters in diameter. Depending on its composition, it could have disintegrated in the atmosphere or hit the Earth. (The mile-wide, 570-foot Barringer Meteorite Crater in Arizona was created by a 45-meter iron object.)

Harris was nonetheless skeptical about the object's preliminary path. The MPC trajectory was based on only a few observations — enough to help astronomers find it, but not accurate enough to determine its actual course.

At 8:30 p.m., Bruce Marsden, director of the MPC, got a call from NASA's Jet Propulsion Laboratory. The NASA official "sort of was wondering" about the path of the object, Marsden recalls.

Marsden ordered further observations, and the bogy was determined not to be on a threatening path after all.

In the aftermath of this incident, the MPC changed the computer program that provides the preliminary path of an NEO. Next time the computer forecasts an "impacting solution," as astronomers call it, the program will alert staffers before the data is posted on the Web. 48928

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Secure E-mail Stops At Corporate Borders

Providing end-to-end e-mail security with business partners is difficult at best. By Roger Foix

SECURITY MANAGER'S JOURNAL

LIKE ANY OTHER company, my current client does not work in a vacuum. The company — a small insurance firm — has many partners, clients, suppliers and regulators with whom it exchanges information on a regular basis. Much of that information is highly confidential.

So far, I've tackled internal e-mail security. Now I'm working on a tougher issue: How do you know that the information remains confidential when it reaches its destination? E-mail is not only easy to forward to the wrong person; it's also vulnerable to any security breaches in your partners' systems. If you send confidential business e-mail to a client and the client suffers a security breach, that company could expose your confidential data as well as its own. So you are very dependent on your trading partners' IT security to safeguard your information.

I looked into the possibility of using digital rights management (DRM) software, which can offer control over your documents once they're out of your system by restricting to whom a document can be sent, automatically deleting it and so on.

However, my client's security team doesn't believe DRM will work. So the obvious next step is to find some way to get assurance about the security of its trading partners' systems. If we know a partner's security is relatively good, we have some assurance that data will be protected appropriately. There are several ways to gain that assurance, but they all have drawbacks.

One is to rely on the International Standards Organization's ISO 17799 certification. This security management standard isn't bulletproof — just because you're compliant doesn't mean you won't get hacked — but if a partner was compliant with the standard, we would at least have a warm, fuzzy feeling that it was doing the right thing. The only drawback is that, as far as we can tell, none of our partners is compliant with ISO 17799.

Not one.

It's not that we're dealing with a particularly unsecure set of companies; it's more the case that ISO 17799 compliance takes time, effort and money. And once companies earn that compliance certification, they have little to show for their effort, so few companies bother.

A second option is to send in the auditors. For major trading partners, my client often sends a team of auditors to crawl all over their systems and make sure they're doing things right. The auditors normally cover a whole range of things in addition to security, and it gives my client more assurance than it can get any other way. The drawback is that auditing is a slow and expensive process. And as with any audit, what you get is only a snapshot: Two years from now, its partners' systems and security will have changed dramatically, so my client will have to reaudit regularly.

> **As far as we can tell, none of our partners is compliant with ISO 17799. Not one.**

A third option is to rely on security and confidentiality clauses in contracts. My client includes such clauses in every contract it sends out, but I don't have much faith in such things. First of all, contractual clauses about security are a reactive measure: They're only effective after a problem occurs. This company really needs a measure that stops problems from happening in the first place.

Second, while contractual clauses enable my client to sue a trading partner for damages after a security breach, IT security litigation is expensive and unreliable, since it's rarely easy to prove how a particular piece of confidential data leaked out.

As I walked through these options with members of my client's staff, I could see their faces dropping steadily. Unfortunately, I didn't have a better solution to offer them.

Paper-based Process

We're now implementing a paper-based process. Basically, we ask my client's partners a few pertinent questions, review their security policies and see if we get a nice feeling about them. We have no way of checking that the answers are accurate — when a company has over 600 trading partners and a small security budget, there's no cost-effective way to verify anything.

Still, it does help us identify the companies that need closer attention and target them for audits. When you get an e-mail back from a supplier saying, "We'll send you our security policy in a couple of weeks, since the guy who's got it is on holiday at the moment," you get a very strong feeling indeed. After all, if only one person in the company has a copy of the policy, it's unlikely that anyone else is following it.

Another supplier boasted of its extensive wireless networking and then, in answer to the question "Make and model of main firewalls," put down the name of an antivirus checker. That worried us.

What we ended up with is a paper-based system that can't be relied upon to be accurate, can only scratch the surface of our partners' security and goes out of date very quickly. But as far as I can see, that's the best option available for checking security.

What I'd like to see is the creation of an independent agency that measures and reports on companies' information security, in much the same way that analysts give financial risk ratings to companies. If Moody's Investor Service gives a AAA rating to a company, you can be confident that the company isn't going to go into Chapter 11 bankruptcy before it gets around to paying you.

All we need is an agency to step up to the plate and start providing security risk ratings for companies. That would act as a great facilitator to e-commerce, and it would provide customers with a valuable way of assessing how well suppliers are looking after their confidential data.

In the interim, if you have any ideas, I'd like to hear them. Send me an e-mail or post your message in the Security Manager's Journal forum.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Roger Foix," whose name and employer have been disguised for obvious reasons. Contact him at roger.foix@hushmail.com, or join the discussion in our forum: QuickLink a1590

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Web Resources

■ Looking for more information on ISO 17799? The ISO 17799 Services & Software Directory Web site has general information on the ISO security standard: www.iso17799-software.com/presentation/index.htm

■ The ISO 17799 World site reviews compliance and policy issues: www.iso-17799-security-world.co.uk/

■ This site has FAQs about ISO 17799 compiled by the National Institute of Standards and Technology: www.iso-17799.com

■ The ISO 17799 Community Portal page includes both papers and a discussion forum: www.17799.com

—Roger Foix

VirusScan Gets IPS Features

McAfee Inc. has announced a new version of VirusScan Enterprise that includes some intrusion-prevention system (IPS) functions in addition to antivirus and firewall features.

Version 8.0i I offers a small set of IPS capabilities designed to protect users while creating a minimum of "noise," such as blocking valid traffic, but it isn't a full-featured IPS, the company said. It also has features to manage and limit the damage caused by malicious code outbreaks, McAfee said.

The product is available for free to customers with valid support agreements.

Database Security Tool Upgraded

IPLocks Inc. has announced a new release of its database security management software suite. IPLocks 4.1 adds session policy and usage pattern monitoring, penetration testing features and an auditing function that can monitor record changes without the need to turn on the audit trail feature in Oracle databases, according to the San Jose company. It's available now.


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Xcel Deploys Peace Software System

■ Xcel Energy Inc., a power company in Minneapolis, recently deployed a customer information system (CIS) to support 1.5 million electricity and 1.2 million gas customers in six states. The system, from Peace Software Inc. in Miami, replaces two systems that the company was left with after a 2000 merger between New Century Energies Inc. and Northern States Power Co. IBM Global Services was the project manager and systems integrator for the implementation. As a result of the Peace CIS installation, Xcel will have all of its customers in 11 states on one system.

Fujitsu Announces Four-Way Server

■ Fujitsu Computer Systems Corp. in Sunnyvale, Calif., has announced a compact four-way SCSI blade server, the Primergy BX600. Each blade accommodates up to four Intel Xeon MP processors and two hot-plug Ultra 320 SCSI hard drives as well as four Gigabit Ethernet LAN ports that can be upgraded to Fibre Channel interfaces. It fully supports Linux and Microsoft Windows Server 2003. Pricing starts at less than $10,000.

Microsoft Updates Virtual PC for Mac

■ Microsoft Corp. last week released to manufacturing its Virtual PC for Mac Version 7 and Office 2004 for Mac Professional Edition. Virtual PC enables Windows-based applications to run on hardware from Apple Computer Inc. Version 7 adds support for Apple's latest 64-bit G5 processor. Virtual PC 7 with Windows XP Professional will be available in October for $249. Stand-alone and upgrade editions as well as versions for Windows 2000 and Home editions are expected next year. Office 2004 for Mac Pro, which sells for $499, will ship next month with a copy of Virtual PC 7 and Windows XP Pro.

PAUL A. STRASSMANN

Why IT Will Continue to Matter

THE COST SQUEEZE IS ON. Automobile companies are racing to get slimmer. According to *The New York Times*, automakers are now ranked according to how few hours they spend building a car. For instance, General Motors claims to be the leader, with only 35.2 hours per vehicle. Chrysler puts in 37.42 hours. Ford takes 38.6 hours. They're all keeping an eye on the efficiencies of Toyota, which assembles cars in Fremont, Calif., in only 21.92 hours while gaining market share.



Every company in the world is now engaged in a race to reduce costs. The hours-per-car statistics are revealing because they reflect the extent to which outsourcing takes place. GM looks good because it outsources more than Ford: 76.2% of revenue vs. 70.2%. You can always show an improvement in productivity by getting others to do your work. For instance, the current claim by GM that it reduced IT costs as a percentage of revenue doesn't necessarily attest to the company's improved efficiency. It only proves that GM has shrunk its value-added and therefore doesn't need to spend more on IT.

Calculating the cost of GM's 35.2 hours per vehicle raises a more interesting question. GM's average labor cost, which includes managerial and executive compensation, is $33.30 per hour. That means GM puts $1,172 of labor into a car that it sells, on average, for $30,500. Even after paying for depreciation and taxes and making an allowance for relatively slim profits (another $6,087), this leaves $23,241 of purchases to be managed for greater efficiency.

Taking a purely intracompany view of the scope of IT would, however, be a mistake. The emphasis in global competition is now shifting from the costs of a company's products to the consumer's life-cycle total costs of ownership. In the case of a $30,500 automobile, that requires adding the costs of distribution and the customer's five-year expenses for taxes, insurance, financing, registration fees, maintenance, repairs, oil and fuel. That raises the consumer's cash costs of an average GM car to at least $73,600.

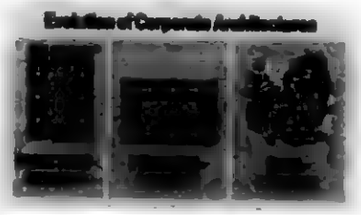
As I calculate the consumer's life-cycle costs of $73,600, I find that IT can't account for more than 6% of the total expenses. The costs of information management would be about 30% if added up for suppliers, manufacturing, management, dealers and the consumer's ownership. As manufacturers shift costs to suppliers, as management shifts costs to manufacturing and as customers shop around for the best deal, every reshuffling of how money is spent ultimately affects all others. The cost of parts will influence maintenance and insurance costs. The cost of the car will influence taxes and depreciation.

In the global marketplace, all costs become interdependencies, often involving hundreds of businesses to deliver a single product. Therefore, the management of IT over the next few decades will be shaped by the need to extend the boundaries of corporate information systems from the traditional corporate-centric orientation to delivering consumer-centric services. For instance, in the case of an automobile, this will require setting up lifetime configuration management databases for preventive maintenance, repairs, parts, upgrades, warranties, financing, registration, insurance and fuel management.

The concept of global life-cycle support of products and services, as seen from the consumer standpoint, will become the dominant theme of IT management.This will require an architecture that assures data interoperability over the entire value chain. For instance, the reliability of parts must be traceable over a complex chain of ever-changing suppliers. Preventive maintenance records will have to travel as a vehicle passes from owner to owner. Accident records will have to be integrated with insurance and repair records.

Identical reasoning also applies to pharmaceuticals, medical services, food, banking, refrigeration and airplanes. The CIOs who succeed will extend the positioning of IT from the corporate back office (an overhead cost) to a customer life-cycle support view (a company's core competency).

The current introspective, function-centric and process-centric systems architectures will have to be replaced by data-centric designs that assure interoperability of data that's independent of technology, location or organization.

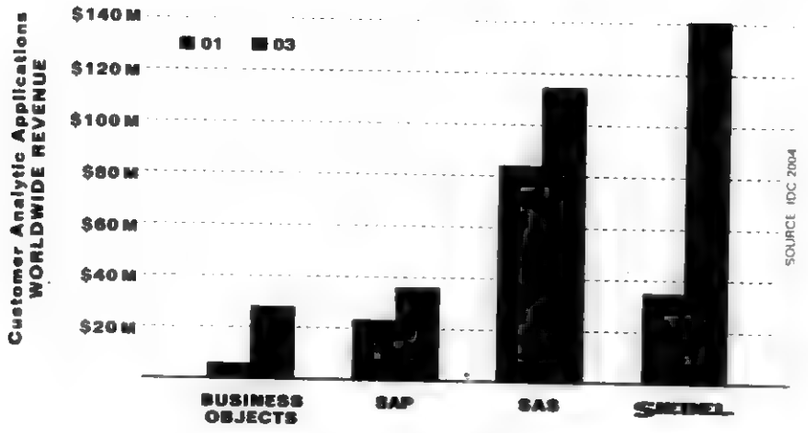


Implementing such a transition will be the challenge for all IT executives in the future. Meanwhile, the IT industry, the CIOs and all of the naysayer gurus should be put on notice that the best of IT is yet to come. ● 40188

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8:15am to 8:45am	**From Cutting Edge to Corporate Stage: Grid Computing and the Enterprise** Julia King, Executive Editor, Events, Computerworld
8:45am to 9:15am	**Industry Analyst Perspective** John Humphreys, Research Manager, Enterprise Computing, IDC
9:15am to 9:45am	**IT Executive View: One User's Experience Implementing Grid** Chris Bennett, Technical Team Leader, Workflow Technology Group, Acxiom
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Update from the Enterprise Grid Alliance (EGA)**
10:45am to 11:15am	**The View of Grid Computing from Iron Mountain** Bill Olsen, VP of Engineering, Iron Mountain Digital Archives
11:15am to Noon	**Key Considerations in Grid Computing Projects: An IT Executive Roundtable** Panel Moderator: Patrick Thibodeau, Senior Editor, Computerworld Panelists: Ben Flock, VP of Virtualization and Application Frameworks, CIGNA; Mark Forman, Executive Vice President, Worldwide Services, Cassatt; Bill Olsen, VP of Engineering, Iron Mountain Digital Archives
Noon	Program Concludes

Selected speakers include:



Julia King
Executive Editor, Events, Computerworld



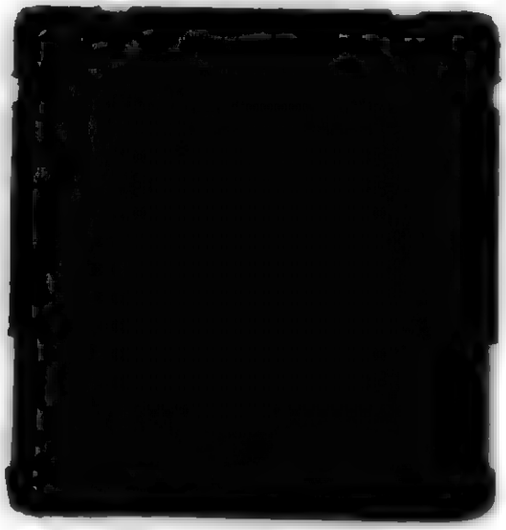
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Think Tank
Instant messaging isn't just for idle chatter. Chip Ganassi Racing's Mark Paxton (left) is using IM on the racetrack to provide a competitive edge. Plus, worldwide hot spots for IT spending; and the most overhyped technologies. **Page 39**

Q&A
Stop Wasting Time
Consultant Michael C. Mankins explains how to save time and make faster, better team decisions. **Page 40**

OPINION
Accountability vs. Blame
When managers say "accountability," they often mean "blame," says Paul Glen. Knowing the difference between the two can improve your performance and that of your team. **Page 44**

Staying Power

Smart companies are enticing their older, wiser IT workers to remain on the job a little bit longer. **By Julia King**



At age 74, Norma Veta still works three days a week at The Aerospace Corp.

LEAH JO PEREN

NORMA VETA, 74, AN IT RETIREE from The Aerospace Corp. in El Segundo, Calif., spends two days a week helping her son's family and managing several rental properties. The other three days, she returns to Aerospace to work on special IT projects. After 40 years with the R&D and engineering services company, she knows the payroll and benefits systems almost as well as the faces of her three grandchildren.

Nine months after retiring from a 28-year career as an IT infrastructure specialist at Hartford Technology Services Co. in Hartford, Conn., Ken Klein, 62, is taking sailing lessons, spending months at a time traveling with his wife, exploring volunteer opportunities with Habitat for Humanity, collecting a pension and still working 20 hours a week on IT projects at the subsidiary of The Hartford Financial Services Group.

Welcome to the 21st century's version of retirement, an increasingly longer stretch of life that for many IT professionals is just as likely to include new technology training and mentoring assignments as tango lessons or road trips.

"People used to think of retirement as a five- or 10-year period, but now people see they'll have as much as 30 years and are looking at how to spend those years incorporating some element of what we'd call work," says Tamara Erikson, a consultant at The Concours Group in Kingwood, Texas, and co-author of a forthcoming book on the effect of demographic shifts on the workplace.

According to recent research by the American Association of Retired Persons in Washington, 80% of baby boomers plan to work at least part time during their retirement. Most have no desire to work full time, however. They want flexible working arrangements, project-based assignments and part-time status that enables them to travel, volunteer and pursue their leisure interests while remaining engaged in challenging work with colleagues.



SOURCE: U.S. BUREAU OF LABOR STATISTICS

Human resources professionals say companies offering such arrangements benefit by retain-

ing skilled and knowledgeable workers longer. This is especially critical now, as the population between the ages of 35 and 44 — the prime executive development years — is actually declining, according to the U.S. Bureau of Labor Statistics. Moreover, the fastest-growing segment of the workforce is the over-55 set.

For IT, there's a double whammy. The *Los Angeles Times* recently reported that 23% fewer students are enrolling in computer science programs that would prepare them to take over key IT positions. Meanwhile, the U.S. Department of Labor is forecasting a 46% increase in the number of jobs for computer software engineers between 2002 and 2012.

Both trends coincide with the demographic fact that over the next 15 years, one out of four U.S. workers will hit his 60s and likely begin contemplating retirement.

"Retirement is going to have a big impact in terms of how much of the workforce is available over the years ahead," says Bob Morison, research director at The Concours Group.

What's more, "what walks out the door can't be replaced by a 23-year-old coming in the door," he adds. "If more people decide to work longer, it would have a very significant [and positive] impact on the workforce shortage."

Keeping Key Talent

That's happening at The Mitre Corp., which operates three federal IT development centers. Mitre credits its retirement and postretirement programs with helping to keep its employee turnover rate at a rock-bottom level of 4%. The average age of the company's 5,300 employees is 46.

Mitre has no mandatory retirement age, but workers over 55 are eligible for phased retirement, which allows them to continue working part time while drawing on a portion of their retirement benefits. "It's an option for people who want to stick their big toe in the retirement waters without taking a big leap," says Bill Allbright, director, quality of worklife and benefits.

Under a Mitre program called Reserves at the Ready, workers who have retired can return on a part-time, contractual basis, choosing their own hours and projects.

Chuck Sanders, 73, officially retired from his role as director of international integration programs in 2001, but he continues to work 1,000 hours per year in the same role. "Challenging work is why I'm here," says Sanders, who has worked at Mitre since 1958. "It's a combination of interesting work and flexible hours, which provides opportunities for other things."



Both programs also help keep critical knowledge in house and better orchestrate the transfer of that knowledge to younger workers.

Monsanto Co., a $3.4 billion St. Louis-based agricultural products and pharmaceuticals company, offers a similar program called the Resource Re-entry Center. Developed in 1991, it lets employees who leave the company in good standing return and work part time and on temporary assignments in IT and other key areas.

"These individuals know our culture and our language and can begin work with a minimum of on-boarding from us," says Deb Rogers, director of external relations, who is in charge of the program. About 300 former Monsanto employees are signed up for the program, with 175 on active assignments in 12 company locations.

The Aerospace Corp. offers a "try-on" retirement option, allowing older workers to take a leave of absence to help them decide whether they really want to retire. The company also has a Retiree Casual program that enables retirees to return to work part time. The program has about 500 participants, including one 90-year-old, with between 200 and 250 actively working, says Charlotte Lazar-Morrison, principal director of human resources.

Few and Far Between

Despite these pioneering examples, neither the indisputable demographic evidence of a shrinking workforce nor the obvious advantages of retaining mature workers has convinced more than a small minority of companies to actively work to retain their older, wiser talent.

"A large proportion of baby boomers envision themselves working well into their 70s, but on the whole, companies are not prepared [to accommodate them]," says Deborah Russell, manager of economic security and work at AARP.

"The top three things on companies' to-do lists should be to assess their own worker demographics and map out their retirement trends, then figure out what incentives they'll offer people to get them to stay and how they plan to transfer knowledge from these experienced workers to new workers," Russell says.

And they should do those things immediately, says Beverly Kaye, co-author of *Love 'Em or Lose 'Em: Getting Good People To Stay* (Bennet-Koehler, 1999). "When a company has a bad quarter or decides to reorganize — when the sands shift — anyone thinking about leaving will leave," Kaye says. "That's why this kind of intervention has to be on the radar screen now."

Specifically, Kaye recommends that companies shift their focus from traditional exit interviews to "stay interviews." Ask the workers you want to keep what they would require to stay a little longer, she recommends.

Companies also may need to refocus their benefits programs to entice more older workers to remain, says Valerie Paganelli, senior retirement consultant at Watson Wyatt Worldwide, a human resources and risk management consulting firm in Washington.

And employees should speak up. Don't wait to announce your plans to retire until a month or two before a chosen date. If you would like to have a more flexible working arrangement, make it known to your manager, Kaye suggests.

At The Hartford, where 25% of the company's 30,000-person workforce will be retired or eligible for retirement within the next six years, all workers are encouraged to present flexible working arrangements to management. The company's Web site advises workers about how to develop and submit proposals and advises managers about how to evaluate and approve workers' plans. Currently, 12% to 16% of the company's entire workforce is on some kind of flexible working arrangement.

"We've found that situations are very individual," says John Madigan, vice president of corporate staffing and education. "Someone might want to phase in retirement; another wants to telecommute or work part time."

The bottom line: "When we lose talent in the aging IT person, we lose wisdom," says Kaye. "We lose tacit knowledge, not just explicit knowledge, and we're letting that go all too easily. We need to be asking workers what it would take to have them stay and then offering them intriguing ways to do that." **46720**

The Demographic Imperative

AFTER STUDYING THE ISSUE for a full year, researchers at The Concours Group came to the alarming but irrefutable conclusion that U.S. companies are on a collision course with their demographic destiny.

As more baby boomers approach retirement age, companies are facing a shortfall of at least 10 million workers by 2010. Still, few employers are working to recruit and/or retain older talent.

The reason? "It's the old boiling frog dilemma, where there's a dangerous acceptance of slow-moving trends," says Concours research director Bob Morison, alluding to the well-known experiment in which frogs subjected to slowly increasing water temperature failed to notice the change in time to save themselves.

"Demographics move at the speed of life, so the problems accumulate slowly," he says. "There's no crisis yet, and crises are what govern the economics at a lot of companies."

Concours' goal, Morison says, is to "sound the alarm without being alarmist."

Specifically, he says companies need to address the following seven challenges if they are to minimize the negative impact of a graying workforce:

1. Recruiting young workers.
2. Keeping midcareer workers engaged.
3. Transcending age bias to leverage the expertise of older workers.
4. Embracing flexible work arrangements.
5. Identifying and filling skills gaps and mastering training challenges.
6. Aligning compensation and benefits.
7. Anticipating demographically driven labor shortages.

—Julia King

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ThinkTank

Chat Provides Competitive Edge

We tend to think of instant messaging as the not-very-important electronic chatter of teenagers and white-collar workers. But an innovative auto-racing team is proving that chat can be a powerful tool outside the office.

The NASCAR and Indy Racing League teams of Chip Ganassi Racing use IM to achieve faster and more productive pit stops. The teams' pit crews use tablet PCs, an encrypted wireless LAN and Microsoft Corp.'s Live Communications Server 2003 to exchange handwritten notes, says IT manager Michael Carbone.

Pittsburgh-based Chip Ganassi Racing may have three cars in a race. IM allows the crews to coordinate the timing of pit stops, exchange engine-tuning strategies, estimate fuel mileage and share the drivers' radioed comments. For example, a pit crew may adjust the tire pressure and then get driver feedback on whether it's helping. "It's better than radio, because it's difficult to find a radio channel," says Mark Paxton, an R&D engineer for Chip Ganassi. Plus, radio chatter is hard to hear through the background noise of the racetrack, and IM eliminates the need for runners to relay messages to other pit locations.



R&D ENGINEER Mark Paxton uses a tablet PC and instant messaging at the racetrack.

Why aren't other racing teams using IM at the track? Carbone and Paxton say they're aren't sure, but maybe the other teams aren't willing to make the upfront IT investment or lack the culture of innovation. 48980

- Mitch Betts

Best Bits

[illegible] useful parts of recent business and IT management books

Simply Better: Winning and Keeping Customers by Delivering What Matters Most

[illegible]

Mc[illegible]

Bu[illegible]

Pr[illegible]

No Respect

The following companies were at the bottom of the list of 100 U.S. companies ranked by how well they treat their online customers. The index covers factors such as Web site usability, privacy and responsiveness.

Customer Respect Index

Sysco Corp.
Pfizer Inc.
Weyerhaeuser Co.
Johnson Controls Inc.
Supervalu Inc.

SOURCE: The Customer Respect Group Inc., Bellevue, Wash., June 2004

The IT Economy

■ The tech recovery seems to be sputtering, as analysts trim their IT spending forecasts and IT vendors such as Cisco Systems Inc. make cautious statements about the third quarter. "IT spending will likely grow slowly in the third quarter, followed by seasonal strength in the fourth quarter," says a bulletin by The Goldman Sachs Group Inc. in New York. One bright spot continues to be spending on IT security. But customers want IT products in which security is embedded – not an endless stream of add-on products, Goldman Sachs analysts said.

Hot Spots:

The percentage of IT executives worldwide who expect their companies' IT spending to increase in the next six months, by region:

India	[illegible]
China	[illegible]
Asia-Pacific	[illegible]
North America	[illegible]
Europe	[illegible]

BASE: Global survey of 187 CIOs and chief technology officers.
SOURCE: McKinsey & Co., New York, July 2004

Overhyped

Which of the following technologies has promised the most and delivered the least for your company?

Wireless LANs	[illegible]
Remote access	[illegible]
PDAs	[illegible]
IP telephony	13%
IP VPNs	[illegible]
Storage	[illegible]
CRM	8%
ERP	8%

BASE: 104 executives from U.S. businesses with more than 100 employees, [illegible]
SOURCE: [illegible]

ThinkTank

BRAIN FOOD FOR IT EXECUTIVES

Chat Provides Competitive Edge

We tend to think of instant messaging as the not-very-important electronic chatter of teenagers and white-collar workers. But an innovative auto-racing team is proving that chat can be a powerful tool outside the office.

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—Mitch Betts

Best Bits

The most useful parts of recent business and IT management books.

THE BOOK: ***Simply Better: Winning and Keeping Customers by Delivering What Matters Most***, by Patrick Barwise and Sean Meehan (Harvard Business School Press, 2004).



For the past decade, gurus have said the way to win and keep customers is to think "outside the box" and offer unique products that set you apart from the competition. But the authors of this back-to-basics book say that's hogwash; the key is to ask customers what really matters and then deliver it reliably. For example, customers at a gas station want to refuel at a reasonable cost, get in and out fast and have a clean bathroom — not necessarily a great cappuccino.

Technology can play a role in delivering the simply better service. U.K. grocery chain Tesco PLC has succeeded in the online grocery business (where Webvan failed) by focusing on how to make it easier for Lynne Pullam — a busy mother of three who was Tesco's no-nonsense Internet consultant — to shop for groceries. Now Tesco.com accounts for about 10% of all online retail commerce in the U.K.

Cemex SA, a huge cement company in Mexico, also listened to its customers. The foreman at a construction site needs to know when the cement truck will arrive. Normally, cement ordered one day will be delivered the next day within three hours of the scheduled time. But Cemex guarantees same-day delivery within 20 minutes of the scheduled time in designated areas, regardless of weather conditions and traffic jams. How? Cemex uses a satellite- and Web-based truck-dispatch system to speed and monitor deliveries.

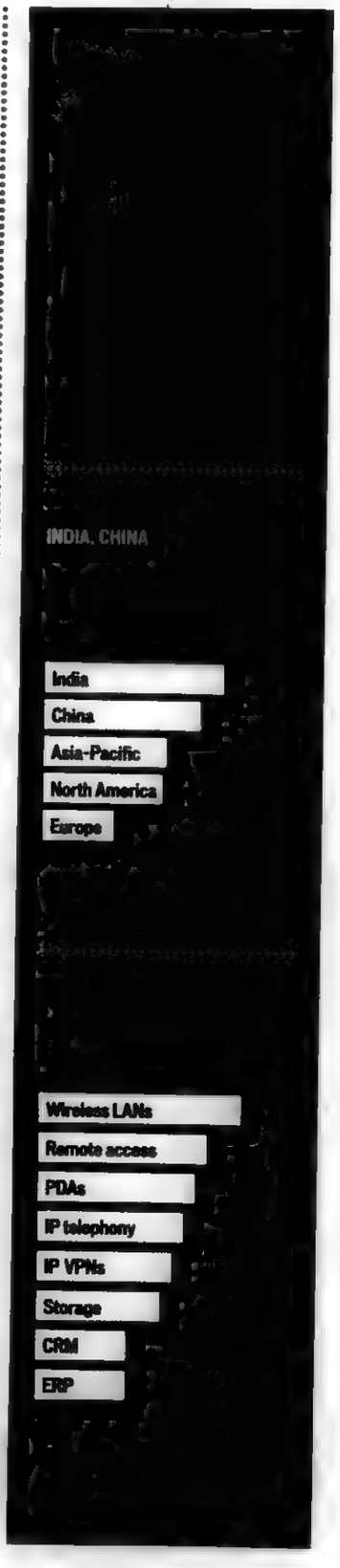
"The lesson from Cemex is to think through the whole purchase and usage process experienced by the customer," the authors conclude. Amen to that.

— Mitch Betts

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7:30am to 8:00am	Registration and Networking Breakfast
8:00am to 8:15am	**Rebuilding the IT Foundation** Don Tennant, Editor in Chief, Computerworld
8:15am to 8:45am	**Consolidation and the Data Center: Boosting Business Performance and Application Availability** Richard Villars, Vice President, Storage Systems Research, IDC
8:45am to 9:15am	**User Case Study — Hilton Hotels: Considering the Next Generation Network** Damien Bean, Vice President, Corporate Systems, Hilton Hotels
9:15am to 9:45am	**User Case Study — MasterCard International** Jerry McElhatton, Senior Executive Vice President, Global Technology and Operations, MasterCard International
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Perspectives from an End User**
10:45am to 11:15am	**Customer Challenges and Solutions: Real-Life Scenarios Connecting Data Centers Over Distance** Steve Adolph, CTO, Enterprise Solutions Group, CIENA
11:15am to Noon	**Panel: Overcoming Management Barriers — Making the Case for Consolidation** Panel Moderator: Don Tennant, Editor in Chief, Computerworld Panelists: Damien Bean, Vice President, Corporate Systems, Hilton Hotels; Frank Enfanto, Vice President, Operations Delivery & Information Security, Blue Cross Blue Shield of Massachusetts; Steve Goldman, Director, Network Architecture, Chicago Mercantile Exchange; Ron Kifer, Vice President, Program Management, DHL Express; Jerry McElhatton, Senior Executive Vice President, Global Technology and Operations, MasterCard International
Noon	Program Concludes

Selected speakers include:



Don Tennant
Editor in Chief, Computerworld



Jerry McElhatton
Senior Executive Vice President, Global Technology and Operations, MasterCard International



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STOP Wasting Time

How IT management teams can make better, faster decisions.



The typical company's senior executives spend less than three hours a month working together on strategic issues, and those hours are seldom well spent, says **Michael C. Mankins** *in September's* Harvard Business Review. *Mankins, a San Francisco-based managing partner at consulting firm Marakon Associates, told* Computerworld's *Kathleen Melymuka what's wrong with team decision-making and how to fix it.*

Do the techniques you advocate for executive committees apply equally to a CIO and his management team? Yes. The best practice is for a company to have agendas at all levels, not just for executive teams. But the idea is to be aligned around making decisions that are somehow linked to the long-term value of the company. The CIO has a lot of decisions that impact the long-term value of the company directly, like "Do we outsource IT?" [and] "Which ERP system do we implement?" Those are decisions that have enormous impact on company value directly.

Just as important, effective agenda management depends on having high-quality information in executive hands, and the CIO has to get engaged in that process, so it's a dual role.

Why do management teams spend so little time on strategic issues? The good reasons are that executives are obsessed with operating performance and spend a huge amount of time — roughly half — reviewing operating performance. Add leadership succession and employee issues, and it leaves little time for strategy. It's not an excuse, but it's a reason. The not-so-good reason is poor agenda-setting. You get a review of operational performance scheduled for the first half [of the meeting], and it takes up three quarters, and there are four more items to get done. The result is that strategy tends to be one of those that gets squeezed out.

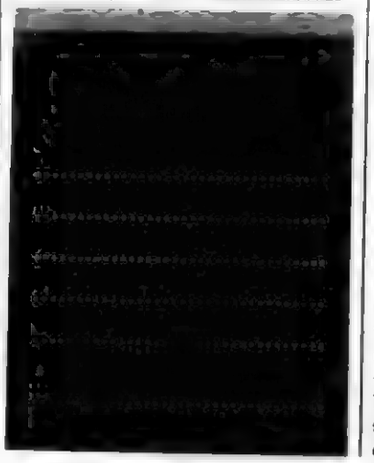
How do management teams tend to set agendas? Often, there is no individual responsible for setting agendas, so a secretary or administrative assistant does it. As a result, meetings tend to be poorly focused and misprioritized. There are three main ways agendas get set. [The first one is] "first in, first on," where the crises of the moment are phoned in just before the meeting and they go on the agenda. Second is historical precedent. Agendas at some very large companies are preset based on what was covered last year at that time: May is HR, June is the advertising campaign. Third, and probably a growing trend, is egalitarianism. Everyone gets time to speak.

What's wrong with that? The result of all this is that it would be a coincidence if the most important issues got the most time, and so the effectiveness and efficiency of decision-making tends to go down. Invariably, the urgent crowds out the important. Trivial issues on top of mind tend to dominate. We found a bank where the executives spent more time on the holiday card than their entire strategy for Africa, where they had made large investments. Loud voices tend to dominate decision-making. There's no process for getting the top issues on the agenda and for making decisions when they do get on.

Why do management meetings fail to produce real decisions? To make a decision, you have to have all the facts, you need real alternatives, you need to be asked to make a choice, and the choice needs to be embedded in some form of contract. Absent that, you fail to produce important decisions.

You recommend separating operational discussions from strategy meetings. Why? They require different mind-sets. Operating reviews are all about "Did you deliver what you promised?" They're looking in a rearview mirror. Strategy is about creativity, a search for alternatives, a dialogue around what's possible. It's about raising eyes to the horizon, not holding noses to the grindstone. It's hard to have both mind-sets at the same time.

You talk about the need to focus on decision-making, not on discussion, but how does a management team actually do that? First, you set the stage for what the meeting is all about. You make it clear which items on the agenda are actually for a decision. When you do that, people find creative ways to share information outside the meeting, so more time is focused on decision-making and action. Then you set common standards for decision-making: If you want to make a decision, you have to have facts around why an issue is on the agenda, alternatives that are weighted as to which will deliver the most value and why, and how to execute. If you don't have that, you can't make a decision.



How do you come up with good alternatives? The issue needs to be stated in a way that doesn't prescribe a course of action but instead lends itself to alternatives. For IT execs, "How do we produce the highest-quality information at the lowest cost for Unit X?" That lends itself to alternatives. But, "Should we outsource IT?" does not. That's a bimodal decision: yes/no. In business, those questions get answered with, "It depends." But questions that lend themselves to alternatives lend themselves to choices. Frame issues so that they have to be resolved by looking at alternatives. You also need good information. Good facts lend themselves to the development of good alternatives. And you need the right state of mind — that there's always a better alternative. Never say, "We've found the right strategy." There's always a better one; you just haven't thought of it yet.

What is a common decision language, and how important is it? A lot of processes get bogged down because they don't know what the choice is based on: It might hurt our image; we won't be perceived as a technology leader. Those are interesting, but none is a choice criterion. Unless everyone has the same choice criteria in mind, it's really hard to get focused to produce the right information to help decisions get made. If you say all choices will be made based on their impact on the long-term value of the company, that's the ultimate choice criterion.

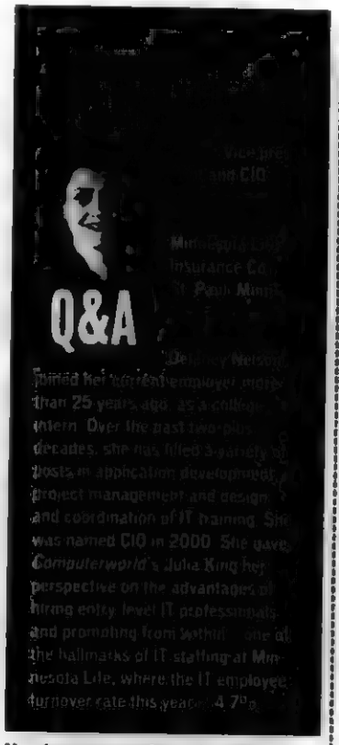
Why is it often hard to make a decision stick? Many companies don't actually approve strategies, so the organization doesn't know that a decision has been made. Or it's made, but at so abstract a level that you can't do anything about it. Or you don't know who's accountable for doing what, so execution gets delayed. Or there's no consequence to not executing. You can attack all four causes: Improve your strategies, make them concrete, assign accountabilities clearly, embed them in performance contracts with individuals, and ensure consequences for failure to execute. 48865

This is the latest in a series of monthly discussions with Harvard Business Review authors on topics of interest to IT managers.

Career Watch

IBM has boosted its outlook for hiring this year to 10,800 jobs worldwide, up from 15,000. IBM told *The Wall Street Journal* that the plan reflects its view that the computer and services market is continuing to expand. The hiring plan will leave IBM with more than 330,000 employees by year's end, up from 319,000 at the end of 2003. That will be the highest level of employment at the company since 1991, when it had 344,000 workers at year's end, according to the newspaper. After that, IBM slashed its workforce in a desperate fight for survival, reducing its employment to a low of 219,000 in 1994. About one-third of the new hires reportedly will be in the U.S. IBM said most of the hiring will be in its global services and business consulting areas, and some will be offset by reductions in the workforce through attrition or what IBM calls "skills rebalancing" – getting rid of workers whose talents are no longer in demand.

–Julia King



How has your own longevity at the company influenced IT recruitment and retention policies? I'm a big proponent of internships. It was as a result of my own internship that I decided to pursue a career in IS. I was a math major, and I remember being asked what I was going to do. I always said "No way" when computers came up. Then I came here and was an intern for a summer. It was such a positive experience for me, and then they offered me a position. That motivated me to get an internship program going. Now we have 12 to 24 internships each summer. It gives interns a chance to try out the workplace and build their résumés. For us, it's a chance to look at these people – to see if there's a fit. When we do hire someone off an internship, it tends to be a strong match because we [both] know what we're getting.

What are the advantages of hiring entry-level IT workers and growing talent from within? One of the pluses of entry-level hiring is that it's a strong motivator to people. They know that if they work hard, they'll be rewarded based on their performance and they'll get the first shot at new opportunities. You also grow more of a culture within the organization. Since you grow internally, you create a certain culture and philosophy.

Any downsides? One of the risks of entry-level hiring is lack of exposure to other environments. Without this exposure, there may not be enough questioning and challenging of the status quo. We mitigate this risk by providing exposure to user groups and professional organizations and through conference participation. We feel this balances the downside of experienced hiring, where associates feel they have to leave the organization to get ahead.

In your opinion, how important is job stability to overall IT employee morale these days? In the past, job stability was not that important because people knew they could get 10 other IT jobs if they wanted to. But since Sept. 11, stability has moved up in terms of what's important to morale, followed by the opportunity to be challenged and to grow, which includes training. People still want the opportunity to grow in their jobs, the opportunity to be challenged and to advance. **48690**

Executive Outlook

What is your outlook in general for the executive search business over the next six months?



In which sectors do you expect to see the most growth in the next six months?

Banking/financial services	49%
[illegible]	[illegible]
Pharmaceuticals/biotech	38%
[illegible]	[illegible]
Health care	28%
IT	[illegible]
Professional services (law, HR, consulting, etc.)	25%
[illegible]	[illegible]
Retail	19%
[illegible]	[illegible]
Government	7%
[illegible]	[illegible]
Transportation	6%
[illegible]	[illegible]
Hotels/tourism	3%
[illegible]	[illegible]
Nonprofits	2%

Base (for both charts): 152 global executive search consultants

SOURCE: ASSOCIATION OF EXECUTIVE SEARCH CONSULTANTS, NEW YORK, AUGUST 2004



Career Watch

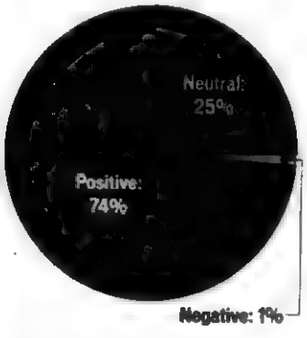
NEWS CLIPS

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Base (for both charts) 162 global executive search consultants

SOURCE: ASSOCIATION OF EXECUTIVE SEARCH CONSULTANTS, NEW YORK, AUGUST 2004

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IT	26%
Professional services (law, HR, consulting, etc.)	25%
Telecommunications	18%
Retail	16%
Marketing/advertising/communications	9%
Government	7%
Education	6%
Transportation	6%
Media/entertainment	5%
Hotels/tourism	3%
Publishing	3%
Nonprofits	2%



Delaney Nelson joined her current employer more than 25 years ago, as a college intern. Over the past two-plus decades, she has filled a variety of posts in application development, project management and design, and coordination of IT training. She was named CIO in 2000. She gave *Computerworld*'s Julia King her perspective on the advantages of hiring entry-level IT professionals and promoting from within – one of the hallmarks of IT staffing at Minnesota Life, where the IT employee turnover rate this year is 4.7%.

How has your own longevity at the company influenced IT recruitment and retention policies? I'm a big proponent of internships. It was as a result of my own internship that I decided to pursue a career in IS. I was a math major, and I remember being asked what I was going to do. I always said "No way" when computers came up. Then I came here and was an intern for a summer. It was such a positive experience for me, and then they offered me a position. That motivated me to get an internship program going. Now we have 12 to 24 internships each summer. It gives interns a chance to try out the workplace and build their resumes. For us, it's a chance to look at these people – to see if there's a fit. When we do hire someone off an internship, it tends to be a strong match because we [both] know what we're getting.

What are the advantages of hiring entry-level IT workers and growing talent from within? One of the pluses of entry-level hiring is that it's a strong motivator to people. They know that if they work hard, they'll be rewarded based on their performance and they'll get the first shot at new opportunities. You also grow more of a culture within the organization. Since you grow internally, you create a certain culture and philosophy.

Any downsides? One of the risks of entry-level hiring is lack of exposure to other environments. Without this exposure, there may not be enough questioning and challenging of the status quo. We mitigate this risk by providing exposure to user groups and professional organizations and through conference participation. We feel this balances the downside of experienced hiring, where associates feel they have to leave the organization to get ahead.

In your opinion, how important is job stability to overall IT employee morale these days? In the past, job stability was not that important because people knew they could get 10 other IT jobs if they wanted to. But since Sept. 11, stability has moved up in terms of what's important to morale, followed by the opportunity to be challenged and to grow, which includes training. People still want the opportunity to grow in their jobs, the opportunity to be challenged and to advance. **48890**

FROM BOOT CAMP TO CORPORATE HQ

Corporate recruiters are courting college graduates who are fresh from an expanding number of business finishing schools, according to the August issue of the online newsletter "Workforce Management."

The summer programs, run by prestigious schools, including Dartmouth College's Tuck School, the University of California, Berkeley's Haas School, New York University's Stern School and Stanford University's Graduate School of Business, offer students the chance to learn from respected MBA professors and rub shoulders with like-minded overachievers who would rather spend the summer becoming more marketable than surfing.

Graduates of the programs have gotten jobs at Fortune 1,000 companies, according to school officials. Students at the Haas School's 6-year-old Business for Arts, Sciences and Engineering program have joined DHL International Ltd., General Electric Co., Ogilvy & Mather Worldwide and United Parcel Service Inc., to name a few. Alumni of the 4-year-old Stern Advantage Program have gone on to jobs with Pfizer Inc., Boston Capital Corp. and CIBC World Markets Holdings Inc.

BRIEFS

Chicago Public Schools Pick Ciber

■ Ciber Inc. has won a contract with the Chicago Public Schools to streamline the administration of special education services. As part of the project, the Greenwood Village, Colo.-based systems integrator will implement Learning Tools International Inc.'s GoalView, a multilingual, Web-based information system that will be used by students, faculty members, case managers, clinicians and support staffers.

Booz Allen Expands Getronics Deal

■ Getronics North America in Billerica, Mass., and Booz Allen Hamilton Inc. announced a three-year, $25 million contract under which Getronics will provide remote and on-site management and support of desktop technologies used by Booz Allen employees. The contract expands a previous agreement and is expected to save Booz Allen more than 25% in IT support costs over three years.

Qwest Signs With Krispy Kreme

■ Qwest Communications International Inc. in Denver announced a three-year agreement with Krispy Kreme Doughnuts Inc. to deliver data and voice services, including private routed network and network management services and long-distance voice services.

Field Museum Goes Wireless

■ Concourse Communications Group LLC, a wireless network operator in Chicago, has agreed to install and manage an in-building commercial wireless network and the rooftop rights for external coverage at The Field Museum in Chicago. The system, which is expected to be operational late this year, will support cellular voice and data services and high-speed wireless Internet access.

PAUL GLEN

Accountability Vs. Blame

I'VE DISCOVERED THAT most of the time, when executives tell me that "what we need around here is more accountability," what they really mean is, "I need to know who I should blame when things go wrong."

The sentence that usually follows implies that without accountability, no one will do what it takes to meet deadlines, deliver quality products or succeed in general. Just below the surface, the assumption behind this thinking is that fear of blame — or at least fear of the consequences associated with blame — is an effective motivator.



If your goal as a manager is to enforce compliance with well-articulated policy and adherence to established procedures, this may be a reasonable way to think. But for most of us in IT, our goal is to help our staffs apply their knowledge and creativity to the broad array of problems presented to them.

Fear isn't a particularly potent motivator when it comes to inducing creativity. If it were, editors would simply threaten to lock novelists in gulags until they produced Pulitzer Prize-winning prose.

As a manager, you must understand the difference between accountability and blame.

One morning back when I was managing a group of consultants, I received a call from Jim, a very conscientious senior programmer. Just from the way he said hello, I could tell he was in a state of near panic. "I've got a serious problem," he told me. "I accidentally deleted the entire source-code library for the project I'm working on, and it turns out that the client wasn't backing up the disk. I never thought to ask. What do I do?"

I asked Jim how much work he had lost, and he explained that he had been working on this particular project for about a month. I asked, "Given that you've already been working on this, how long do you think it will take to re-create the lost code?" He said he thought it would take a week, and then he asked again, "What should I do?"

I told him to do two things. "Go tell the client exactly what happened and that we will figure out a fair way to take care of the consequences of the problem. Get to work on re-creating the code."

Less than 24 hours later, Jim called, sounding tired but relieved, to tell me that he had completely re-created the lost code. "Great," I told him, "now go do two more things. Update the client and tell them that we won't charge them for the lost day, and make sure that they start backing up the code library."

There was a long pause, and finally Jim asked me, "That's it? You're not going to fire me?" I told him, "I don't fire people for making mistakes. I fire them for making the same mistakes repeatedly. Do you know what mistakes you made?"

"Yeah," he said, somewhat tentatively. "I assumed that they were backing up, but I didn't check, and I deleted files without thinking."

"Good," I said. "Now don't make those mistakes again. Next time, make better ones."

Nothing more was ever said about the incident, and Jim remained a loyal and productive employee for many years.

For me, this event helped to draw the distinctions between accountability and blame. In my mind, accountability is the ability to discern and attribute individual and collective results. Blame is about who is going to pay the price for problems. If there's no clear accountability (and even if there is), you can blame anyone for problems. But fear of being the whipping boy isn't going to help you build a productive, learning organization.

That day, I learned that I didn't need to blame Jim. With clear accountability, he learned what he needed to learn from his mistake. Beating him up over the error would only have made him more defensive and less likely to learn from the situation.

Both accountability and blame have roles to play in good management. If you think carefully about the distinctions between the two, your responses to problems can be much more nuanced and tailored to both the situation at hand and the needs of individual employees. 48710

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Advertising Supplement

IT Careers in E-Business

Remember when the question was whether e-business would ever result in real dollars being earned by anyone? The question has been answered as industries have turned the Internet into a tool that is increasing revenue numbers.

Amazon.com and eBay have reported significant revenue and profit growth. Second quarter sales for Amazon.com were up 26% compared to a year ago, while eBay reported a quarterly revenue increase of 52%. The third and fourth quarters of 2004, traditionally best quarters for both entities, promise to continue the trend.

In addition, both have purchased international market share. EBay has completed the acquisition of Baazee.com, adding 17 million users in India to its presence. Amazon.com has announced the acquisition of Joyo LLT, and its access to 80 million customers in China.

A cadre of other businesses using e-business technologies joins the traditional e-tailers. Airlines are driving down overhead costs by turning to online sales of tickets, while some traditional brick and mortar retailers are combining in-store, catalog and online technologies to bring in customers.

In addition, all retailers are turning to the use of radio frequency identification (RFID) to improve operations supporting those sales. IDC, the research arm of IDG, estimates that RFID expenditures will top $1.3 billion by 2008, when the one-time surge will return to earth.

Given all the good news, the priority question is what this means to IT professionals. The growth shows in a slow, but steady increase in jobs as well.

Both Amazon and eBay list a variety of jobs currently open with the vast majority in software development, and analysis. Amazon is shifting approximately 40 software development jobs to its new Software Development Centre in Scotland during the second half the year, but will maintain staffing in San Jose as well. EBay similarly has job postings in IT, to include software engineering and systems. The requirement for knowing customers and individualizing market to specific niche groups has created additional information technology requirements and staffing needs. This category includes data storage/management/mining, customer relationship management and self-service capabilities. What you don't see are core jobs in web development, but rather jobs that span the operation to provide solutions to the primary question – how to sell to an increasingly picky customer.



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Chief Information Officer

Requires effective interaction with customers and developers to ensure the successful delivery and implementation of projects, updates and modifications to the production environment. Must be able to work effectively with senior departmental managers as well as executives with other state agencies to achieve smooth and timely project development and conversion for clients. Desire strong background and demonstrated success in deploying productivity tools for workforce and agency processes. Responsible for charting agency strategic direction in client/server and distributed/decentralized processing. Qualifications: Excellent organizational, analytical, writing and public speaking skills are desired. A bachelor's degree from an accredited college or university and progressively responsible leadership experience in analytical and/or technical data processing fields. Prefer experience in a managerial capacity for a medium to large data center. Experience as described above can substitute on a year-for-year basis for the required college education.

Submit resume and/or State of Florida employment application to: Jo Moore, Department of Children & Families Technology Centre, 1940 North Monroe Street, Suite 80, Tallahassee, Florida 32399-6716; FAX (850) 487-8173; Jo_Moore@DCF.State.FL.US DEADLINE: 5 P.M., September 8, 2004. EEO/AA Employer/Veterans Preference. Those persons who require special accommodations during the selection process, should call Jo Moore at (850) 487-8169.

IT PROFESSIONALS

Manager

(Glen Mills, PA and other locations throughout the United States). Responsible for the design, architecture and implementation of payment systems with primary focus on card processing and authorization systems, as well as back-end clearing and settlement systems. Implement architecture design involving intra/inter-enterprise integration, back-end integration, batch processes, data conversion for high performance scalable systems and adaptors implementations using tools included in payment system applications. Utilize Ab Initio data processing platform for batch data processing and complete meta data management across the enterprise. Utilize Enterprise Integration middleware tools (MQ Series or WebMethods) with build-in adaptors to submit data to various c-tree databases. Utilize IBM Tivoli for system resource monitoring and Thales Hardware security module for cryptographic services. Responsible for planning engagements and leading teams in implementation of payment systems based on established industry standards (ISO 8583). Responsible for Managing integration and testing of payment systems using automated load and system testing tools (Mercury LoadRunner, WinRunner).

$100,895/year. Mon-Fri 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Computer Science, Engineering (any), Management (any), or Business Administration plus 5 years of experience in the job offered or 5 years of experience as an Analyst, Associate, Consultant, Senior Consultant or Programmer. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials evaluation service. Related experience must include at least two years experience utilizing Card Processing & authorization systems, Back-end clearing and settlement systems, Programming Languages (C++, Java), c-Tree database, Mercury Load Runner, and Thales Hardware security module for cryptographic services.

Please send your resume, referencing Job Order Number **WEB4490022** to the: PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE



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Senior Business Analyst. Harleysville Insurance Group, Harleysville, PA seeks individual to lead, manage & implement projects focused on re-engineering processes with focus on continued improvement. Qual. apps must have MS in CS, Engineering or quantitative discipline and prior exp. gathering requirements, defining process improvements & working with end users. Submit res. to HR Dept resumes@hrnb.com.

Principal Software Engineer. Primary responsibility for the development of networking software. Responsible for functional spec dev, arch design, implementation and verification. MS or foreign equiv. in EE or CS plus 5 yr. exp. that must include 3 yr. with one or more network protocols including IP, TCP, ARP, DHCP, DNS, SNMP,and firewall. Must be familiar with IP QOS protocols and RFCs. Must have development exp. with Linux, and in C/C++. Please send resume to Ubiquitic Systems, 2 Clock Tower Place, Suite 560, Maynard, MA 01754, Attn to Pat Riley.

Programmer Analysts to design, develop, test, implement apps using Siebel tools, C, C++, Java, ASP, Oracle, JavaScript, VB-Script, HTML, JDK, JDBC, Visual Basic, etc using UNIX and Windows OS; develop, enhance components of new/existing apps and databases, perform reqs gathering, analysis, planning, testing, implementation & troubleshooting. Require BS or foreign equiv in CS or Engg(any branch) with 2 yr exp in IT. High salary F/T position. Travel involved. Resume to HR, Smartsoft International, Inc., 3985 Johns Creek Court, Suwanee, GA 30024.

Computers-Software Engineers needed. Seeking qual. candidates possessing MS or equiv. and/or rel. work exp. Part of the req. rel. exp. must include 2 yrs. working with C/C++, TCP/IP and Linux Kernel. Duties include: Develop, design and test Mobile VPN, IPSEC, IP Layers modules and TCP/IP protocol device drivers; integrate FIPS compliant security software and hardware components and hardware crypto cards; Work with C/C++, Intel Assembly and Linux Kernel. Fwd. resume & ref. to: Ecutel Systems, Inc., Attn: HR, 2300 Corporate Park Dr., #410, Herndon, VA 20171.

Senior Programmer Analyst. Support and development of fixed income trading system in Java, J2EE and Oracle. Must have Bachelor's in Computer Sci. or related, 2 yrs. exp. in job offered or Sr. Programmer or related, and knowledge of core Java, Swing, J2EE technologies, XML, Linux, Webaphere Application Server, and Oracle. Send resume to SANS Consulting Services, Inc., Attn: Alex Shteyman, 90 John St., Suite 313, New York, NY 10038.



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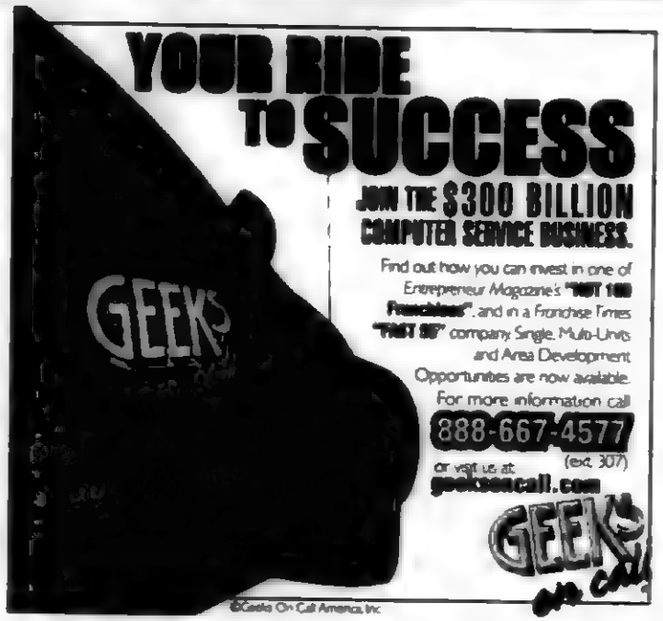
IT PROFESSIONALS

Manager

(Glen Mills, PA and other locations throughout the United States). Lead strategy and operations consulting engagements for global financial services clients, including finance transformation, re-engineering, operations enhancement, logistics transformation, merger & acquisition strategy, strategic sourcing, product strategy, and eProcurement implementation. Support sales and proposal development efforts. Meet with clients to assess business requirements and strategic goals. Lead planning efforts: scope definition, staffing, work-plan and budget management. Oversee execution of project teams and initiatives, including supervision of subordinate consultants. Responsible for project management of assigned components: issue resolution, status and budget tracking/reporting, report/presentation development, management of research efforts, quality assurance, team management, and performance reviews. Interact with senior client management to provide status updates and address critical project issues. Lead formulation and presentation of key findings and recommendations to clients on operational, financial, and strategic issues. Supervise and lead enterprise-wide implementation of identified opportunities. Establish post-implementation profitability/savings tracking and performance benchmarking mechanism.

$135,000/year. Mon-Fri 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree in Economics, Business, Finance, or Mathematics plus 5 years of experience in the job offered or 5 years of experience as a Senior Consultant, Consultant, Analyst, or related occupation. Related experience must include international work in financial services industry, management of cross-functional teams, and enterprise-wide implementations, and demonstration of client relationship development and growth within leading financial institutions.

Please send your resume, referencing Job Order Number WEB447909 to the PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.



SAP BI Project Manager

Ensure highest quality SAP Business Intelligence implementation by providing expertise & guidance to client through extensive on-site support; understand needs & req'ts of business process; As SAP BI PM, provide direction to both consultants & clients; provide knowledge of SAP product implementation via BI strategy engagements & BI implementation projects, enable clients to get the most out of SAP BI investment, develop task schedule & coordinate activities based on meeting specific req'ts. Travel req. BS in Comp Science, MIS or related field and 4 years SAP exp. w/ multiple years SAP BI implementations & project mgmt exp. Competitive salary. Send resume to Compendit, Attn: HR, 150 N Michigan, Ste 3400, Chicago, IL 60601.

Luceo, Inc. seeks Programmer based out of our Naperville, IL loc. Design, code, test, implement, & maintain new/revised programs, web pages, scripts, database applications, reports, new networks, network based applications & other software. Use SQL server, .Net framework, HTML, XML, WMI, ASP, VB Script and Dreamweaver MX. Windows NT/2000/2003 servers, networks, TCP/IP & other LAN/WAN protocols, Active Directory & Exchange, Perl script, TCL/TK & Shell scripting in UNIX. Some travel required. Must have Bachelor Information Systems, Business Administration or related + 2 yrs relevant exp. Resume to Luceo, Inc., 1431 Kallien Avenue, Naperville, IL 60540.

SENIOR WEB DEVELOPMENT ANALYST

ADT Security Services, Inc. has an opening in Boca Raton, Florida for a Senior Web Development Analyst.

Analyze business procedures and problems to develop specifications and convert them to programmable form for electronic data processing. Confer with organizational units involved to determine specific web output requirements. Study existing data systems to evaluate effectiveness and develop new, or modify current, web systems to improve production workflow.

Must possess at least a bachelor's or its equivalent in Computer Science or a related field, and relevant work experience. Experience must include Oracle, SQL and WebSphere Administration.

Resume and/or cover letter must reflect each requirement above and specify reference code SWDA/ZHS or it will be rejected.

Forward resume to Theresa Mate, ADT Security Services, Inc., One Town Center Road, Boca Raton, FL 33486

Database Administrator. Design, install, administrate and maintain SQL server database running warehouse application system on SQL 2000. Develop and support company web based and SQL based application using .NET, ASP, Java, VB and Access. Perform day-to-day SQL Server DBA activities. Prepare project plan and schedules, and ensure implementation of projects. Test new application programs/modification to ensure technical applicability and specification compliance. Require Bachelor Degree in Computer Science or a related field with minimum of 4 years related experience. Apply to Pleaser USA Inc., 679 S. Placentia Ave., Fullerton, CA 92831. Attn: Ms. Fong

IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations throughout the U.S.) Implement Supply Chain Processes in areas such as demand planning, inventory planning & management, production planning & operations, material replenishment, and logistics. Conduct the "as-is" analyses of client's current processes and systems, utilize industry best-practices, and design the "to-be" processes. Salary is $78,666/per year. Mon-Fri. 9:00 am to 5:00 pm. The position requires Bachelor's degree in Business Administration, Engineering (any), Information Systems, Math, or Computer Science + 2 years of experience in the job offered or 2 years of experience as a Consultant, Systems Analyst, or Assistant Manager. Related experience must include at least 6 months of Supply Chain Processes and Systems including "as-is" analyses, "to-be" design, demand planning, inventory planning & management, production planning & operations, material replenishment, and logistics.

Please send your resume, referencing Job Order Number WEB4487[illegible] to the PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

Sr Software Engineer. Design & implement s/ware apps. Masters or equiv in CS or similar major. Will accept bachelors plus 5 yrs progressive exp in s/ware eng'g or analyst position in lieu of a masters. Prior exp or edu must include Java, J2EE, and WebObjects. Contact JR Scholl, HR Generalist, Job #1915.36, Academic Mgmt Svcs, 463 Swansea Mall Dr, Swansea, MA 02760

Sr. Systems Analyst/Project Mgr needed to lead analysis of client bus. process/acctg requirements for implement. of custom ERP business/acctg software. Requires degree + exper & Microsoft Navision Axapta certification. Exper must incl. Axapta, X++ programming; Functional Requirements & Gap-fit anal; reporting; demonstrated understand. of gen acctg procedures. Based in Menlo Park, CA - Travel up to 80% in N. CA. Send resume to S. Mauser, Specialists in Custom Software, 2120 Colorado Ave., Suite 150, Santa Monica, CA 90404. Must be able to work without employer sponsorship.

IT Analyst I

Roxane Laboratories, Inc. has an immediate opening in its Columbus, Ohio office for the position of IT Analyst I.

Assists with maintaining codes for new systems, builds install packages, ensures that all solutions are implemented in a timely manner and properly tested, edits application component functional specifications and technical design documents and assists with web development.

Must possess a Bachelor's degree in Management Information Systems, Business, Computer Science or a related field and relevant experience, including college courses/project work and/or work experience with PowerBuilder, Enterprise Java Bean, C# and Delphi.

Resume and/or cover letter must reflect each requirement above and specify reference code AD-GCD/GC0804 or it will be rejected.

Forward resume to BI Staffing Center, PO Box 534, Waltham, MA 02454. Fax number: (781) 663-2431. Email: [illegible]@bi-careers.com. EOE.

SOFTWARE ENGINEERS (12 positions): require Bachelor's or equivalent in Engineering/Computer Science/Mathematics/Science or closely related field with two years experience providing skills in described duties, at $79,000 per year. Provide onsite consulting in design, analysis and development of software for legacy systems in IBM mainframe environment, development and administration in Oracle, DB2, SQL Server and Sybase; e-commerce and web systems development in Microsoft, Java and related technologies; network management systems development with Netscape Server and related tools; SAP R/3 application systems on Windows with DOS and ABAP/4 and related modules. 40% travel to client sites in the United States. Mail resumes to: YASH Technologies, Inc., 605 17th Avenue, Suite 1, East Moline, IL 61244

Sr Systems Analyst. Develop & implement s/ware solutions for clients' business needs. Analyze, design, develop, test, implement & maintain complex software applications. Develop & implement software

IT PROFESSIONALS:

POSITION: Consultant (Glen Mills, Pennsylvania and other locations through the U.S.). Develop new modules for the systems and trained developers. Provide assistance to the design, architecture and configuration management teams to resolve conflicts within the system, enhance the application infrastructure, maintain high quality standards and sustain stability of the system. Support the system during disaster recovery testing and expansion weekends. Monitor application stability and perform environment maintenance using IBM Web Sphere Application Server and Sun ONE Web Server. Assist senior designers in the design of reporting screens and work with a team of junior developers and analyst in the development of these reports and integration into the system using Bro-Reports. Work with Java and Extensible Markup Language (XML) in developing the applications front-end using Java Server Pages (JSP's), Java servlets, Apache Struts framework, and control structures within the Java 2 Platform, Enterprise Edition (J2EE) framework. Use IBM's WebSphere Studio Application Developer 4.0 as the primary development tool. Work on the UNIX platform to develop CORBA components as the middleware solution to connect to C++ servers. Assist in the enhancement of time related performance by modifying Structured Query Language's (SQL's) in DB2.

WAGE: $74,751.70/year
Hours: Monday-Friday 9:00am-5:00pm

MINIMUM REQUIREMENTS:
Bachelor's degree in Computer Science, Business, MIS, or Information Technology + 1 year exp. in the job offered or 1 year exp. as a Consultant, Senior Developer, Senior Systems Analyst, Systems Analyst, or Junior Systems Analyst. Related experience must include at least one year of J2EE, JSP, and Java Servlets, Apache Struts Framework; IBM's WebSphere Studio Application Developer 4.0 and WebSphere Application Server; SQL and DB2; XML; and UNIX and CORBA.

Please send your resume, referencing Job Order Number WEB447883 to the PA Careerlink, FLC Unit, 235 W Chelten Ave., Philadelphia, PA 19144. EOE.

Silicon Laboratories Inc. is hiring for the following position: Optical Networking IC Design Engr - Analog & digital circuit design for high-speed commun. appls. Min req: MSEE + 3 yrs exp in mixed-signal IC design. Openings in Nashua, NH and Austin, TX. Complete job description at www.silabs.com/careers. Send resume to jobs_er@silabs.com or HR Dept. 4635 Boston Lane, Austin, TX 78735. NO IN PERSON APPLICATION.

Systems Analyst/Administrator, McLean, VA. Designs, develops, programs, installs, implements, conducts research for, & maintains Unix systems, servers & hardware. Duties include working with Solaris, Linux & other Unix Os, disaster recovery & backup, documentation, troubleshooting, security, web & application servers, SMTP, DNS, shell & Perl scripting. Bachelors in Comp. Sc./Elec. Engr or in a related discipline & minimum 2 yrs related experience required. Send resume to Boyer Consulting Group, 7916 Jones Branch Dr. Suite 600, McLean, VA 22102.

Sr. Programmer Analysts: Analyze, design, develop, test, implement, software appls. for mortgage loan processing in Loanquest suite, Centura, Oracle, SQL Server, Crystal Reports and Microsoft Legacy/.NET. BS Comp. Sc/Information Tech/related field & 5 years exp., including at least 6 months exp. in job offered. Excellent communication skills-verbal & written. Excellent technical peer group to work with. Travel may be required. Send Resume to: J. Norris, Mortgagefles, 10151 Deerwood Park Blvd., Bldg 400, Ste. 350, Jacksonville, FL 32256. No phone calls please.

Database Administrators to install, configure, maintain Oracle Appls and Oracle Dev. software; evaluate, design Oracle database structures/systems; analyze database reqs of existing/new appls; monitor, tune for optimal performance, backup/recovery strategy planning, troubleshoot problems, maintain security of database, test, apply patches for new releases. Require BS or foreign equiv. in CS or Engg (any branch) with 2 yrs exp in database admin. Comp. salary. Travel involved. F/T openings in Elgin, IL & Lower Gwynedd, PA. Resume to: HR, Fourth Technologies, Inc., 585 Tollgate Road, Suite 1, Elgin, IL 60123. Specify location desired. JobID DB064 on resume.

Sr. Systems Analysts to lead teams to analyze, design, develop, test, implement appls using Java, C++, VC++, VB, LabView, Matlab, MathCAD, Rational Rose, OOAD/P, UNIX etc; analyze, finalize architecture using RUP process, J2EE, UML, administer, deploy components into appl server-Websphere; develop appls as per ISO-9001, CMM level 3 methodologies; provide customer support & trouble-shoot. Require: Masters or foreign equiv in CS/Engg (any branch)/Business with 1 yrs exp. Travel involved. Comp. Salary. F/T. Resumes: HR, Synergy America, Inc., 6340 Sugarloaf Parkway, Ste 140, Duluth, GA 30097.

Sr. Programmer Analysts to lead teams to analyze, design, develop appls using OOP, Java, JSP, Servlets, EJB, XML, HTML, JavaScript, Weblogic, JDBC Oracle, etc in UNIX, Solaris, Windows OSs; develop Oracle stored procedures and data modeling, implement appls and perform strategic planning/operations support; provide end user training. Require BS or foreign equiv. in CS/Engg. (any branch) & 3 yrs exp. in IT. Comp. salary, F/T, travel involved. Resume to HR, Ordusion Technologies, Inc., 3883 Rogers Bridge Road, Suite 504, Duluth, GA 30097.

Database Administrator. Bachelor's Degree in Computer Science or Engineering and 2 years experience required. Submit resume to Delia Agustin, 11718 Bedford Street, Houston, TX 77031.

Radian Information Systems is seeking system analysts, software engineers & IT consultants to work on ERP, data warehouse, mainframe using SAP, PeopleSoft, VB, ASP, Java Script, VBS, VBScript, Web Methods, Cognos, Unix, Oracle etc. BS/MS with exp. Contact Info@RadianInfoSys.com. EOE.

Acro Service is hiring: Business/MIS/Programmer/System Analysts, Software, Electronics, Electrical, Industrial, Product Design, Mech, Test Engineers & Professional Technical Recruiters. BS/MS and/or exp. required depending on positions. Send resumes to jobs@acroserv.com. EOE.

Computers - Sr Programmer Analysts needed. Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. Part of the req. rel exp. must include 2 years working with JDA-MMS. Duties include: Develop & enhance current existing HOST & POS systems; Work with JDA-MM5, RPG/400, CL/400, RPG/ILE & Visio Technical. Exp. in retail industry preferred. Fwd resume & references to: Cabelas, Inc., Attn: HR, One Cabela Drive, Sidney, NE 69160.

Software Engineer, Applications - 8a-5p, 40hrs/wk. Dsgn, dvlp & implmt s/ware systems & solutions w/hardware interface using ASP, Java, Javascript, VB, Visual Script, Visual Interdev, COM, DCOM, SQL & HTML. Req. 1 yr exp in job offd or as IT Prof'l & Masters or equiv in Comp Applics/Sci/Engg, Info Systms, Electronics Engg or related field. In lieu of Masters, Bach deg in specified majors & 5 yrs progressive work exp in job offd or as IT profl accepted. Resume: Avalon International, Inc., 3550 Engineering Dr., Ste 260, Norcross, GA 30092.

OH Information Management Firm seeks Software Developer to program, develop and implement web based applications, customer incentive systems. Min 3 month in-job/job related experience including: ASP.Net, C#, VB.Net; SQL Server; XML Web Services requested. Bachelor's degree in Computer Science, Computer Engineering. Resumes to: Human Resources, The Mail Room Inc. 711 West Smith Rd., Medina, OH 44256. No calls. EOE.

Database Analyst I & II: Ensure highest quality SAP BW implementation by providing expertise & guidance to clients through extensive on-site support; coordinate & design database; analyze requirements, performance tuning; oversee & implement security measures; create manuals & train end users. Travel req. Analyst I Req: BS in Comp. Science, MIS or related field & 1 year related exp. Analyst II Req: BS in Comp. Science, MIS or related field & 2 years related experience w/ implementation at client site. Competitive Salary. Send resume to Compendit, Attn: HR., 150 N. Michigan, Ste 3400, Chi, IL 60601



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Maintenance all aspects of installation, testing, and managing network systems in the business area:testing of computer hardware and supervising of its installation; testing of computer systems, and related equipment. Resume A-Soft Scientific, P.O. Box 1270, Roswell, GA 30077.

Sr Programmer Analysts: manage teams to analyze, design, maintain software appls using J2EE, Java, JSP, ASP, HTML, XML, Oracle, SQL Server on Windows/UNIX OS; perform requirements analysis and conduct functional testing/debugging, document, maintain & update use cases, GUI design, BPR scenarios. Require: BS or foreign equiv. in CS/Engg (any branch) and 2.5 years exp in IT OR MS in CS/Engg (any branch) and 6 months exp in IT. Travel involved. F/T position. Comp. salary. Resume to: HR, Quest America, Inc., 211 East Ontario Street, Suite 1800, Chicago, IL 60611.

Programmer Analyst needed by Soft. Dev & Consit. Co. Dsgn, dvlp, maintain & implmt various applics using COBOL/400, RPG/400, CL/400, QUERY/400 & SQL/400. Job to be performed in Chicago, IL & various unanticipated client sites in US, as assigned. Req 2 yrs exp in job offd, 40hrs/wk, 8a-5p. M-F. Respond to CEO, Edgesys, Inc., 565 West Madison St, Ste 1-2311, Chicago, IL 60661.

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Oracle Financials Functional Consultant. Individual to deliver full life cycle implementation of Oracle E Business suite for firm's clients based in suburban Phila & other locations. Qual. applicants must possess BS in Accounting, Bus. or related field & 5 yrs. as Oracle Implementation Consultant. Submit res & jobs refs . to HR, ThoughtDigital, Inc., 55 Grant St., Ste. 370, Pittsburgh, PA 15219. No phone calls.

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Ensure highest quality SAP Business Intelligence implementation by providing expertise & guidance to client through extensive on-site support; requirement analysis; technical design & architecture; realization & construction; deployment; iterative & incremental development. Travel req. BS in Comp. Science, MIS or related field & 3 years SAP exp. w/ multiple years SAP BI implementations. Competitive Salary. Send resume to Compendit Attn HR, 150 N. Michigan, Ste 3400, Chicago, IL 60601.

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Computer Scientist. Responsible for performing basic research in intelligent agent systems & applying the results to challenging real-world problems. Responsibilities will include managing maintenance & extension of existing BDI (Belief Desire Intention) agent software & leading research efforts in the area of robustness for agent systems. Requires PhD in computer science with doctoral research & dissertation emphasis in BDI agent systems plus five years experience in the application of BDI agent systems to real-world problems. Requires publication record in BDI systems. Background must include theoretical foundations of BDI agent systems, programming in Prolog, Python, Java, and Lisp, software engineering project leadership experience. This position is located in Menlo Park, CA. Please apply, indicating job# 2263, via our website @ www.sri.com or mailing address at 333 Ravenswood Ave, Menlo Park, CA 94025. Attn: Employment Dept. EOE/AA.

Programmer Analyst, 40hrs per wk., 8:30 A.M. TO 5:00 P.M., $50,527 per yr., job is located in Tallahassee, FL. Bachelor's or equivalent degree in CS, Eng. or MIS. 2 yrs. exp. in the offered or 2 yrs exp. in the related occupation as information systems or related field. Two years exp. to include IBM mainframe, VSAM, JCL, COBOL, EASYTRIEVE. Employer accepts a foreign degree which has been evaluated and found to be equivalent to a U.S. Bachelor's degree from an accredited university. Employer accepts this determination from a qualified degree evaluation agency. Code develop, system test, and implement programs for the State of Florida Medicaid Account generating special, one-time reports. Create detailed CSR test result packages. Prepare detailed technical specifications. Perform problem determination analysis. Use program and utility tools such as: IBM-390, COBOL, SAS, JCL, TSO, VSAM, Expeditor, Easytrieve. Send resume to Agency for Workforce Innovation, PO Box 10869, Tallahassee, FL 32302 REF JOFL# 2532873

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System Administrator (work site varies) Analyze, configure, install: SAP R/3 Core Systems (3.x - 4.6x), 4.7 Enterprise Edition, SAP BW module (3.0b, 3.1c). Define, configure, create SAP R/3 Basis Security Profiles. Manage SAP R/3 applications (SAP R/3, CRM, B2B, B2C, B2P) in terms of user mgmt, security, transport, hot packages, general system admin. Install, upgrade HP-UX (10.x) for K-class, D-class environ. Perform overall UNIX Systems Admin. B.S. (or functionally equiv. combination educ. and work exp in lieu of B.S. will accept 3 yrs of related work exp for every 1 yr educ lacking. Exp. can replace up to 3 yrs educ.) Comp. Sc., Eng., or Systems Mgmt. + 2 yrs exp. in SAP R/3 and SAP R/3 BW Basis Admin., UNIX Admin. Travel req'd. $80,000/yr. 40hrs/wk. Must have perm work auth. to be employed in U.S. Send resume to McKeesport CareerLink, ES Mgr., 345 Fifth Ave., McKeesport, PA 15132-2600. Refer to job order # WEB 450027

Engineer

Pitney Bowes Inc. has an opening in Shelton, Connecticut for an Engineer.

Design, develop, integrate and test real-time, embedded software applications in high level languages as a part of a software development team.

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Resume and/or cover letter must reflect each requirement above and specify reference code E/ST or it will be rejected.

Forward resume to Robbin Drew Elliott, Pitney Bowes Inc., One Elmcroft Road, Stamford, CT 06926-0700.

Programmer Analyst (Unix Networking) - Multiple Openings

Install, customize and fine tune performance of the operating system on heterogeneous platforms. Achieve connectivity of workstations using networking technologies. Perform systems configuration management for both hardware and software. Provide user support and network troubleshooting services. Carry out performance tuning of application packages such as Relational Database Management Systems (RDBMS) under Unix operating system. Manage TCP/IP based services such as NFS, NIS, FTP, TELNET, etc. Perform network management using SNMP and related tools. Ensure fault tolerant printer services and back-up management procedures. Utilizing knowledge of installation of WAN connectivity with heterogeneous hardware platforms using routers and/or gateways over leased and dedicated circuits. Using knowledge of internals on operating systems for patching and coding device drivers and network programming using IP/SPX, TLI, Streams and SOCKETS. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B and 1 of D, or 1 of A and 2 of B and 2 of C, or 1 of A and 2 of C and 2 of D. A: includes IBM AIX, HP-UX, Sun Solaris, DEC Open VMS/Ultrix, SCO Unix/ODT, USL Unix SVR4, UnixWare; B: includes TCP/IP, IPX SPX, NFS, Bridges, Routers, Gateways, X.25, X.400, ISDN, ATM; C: includes Perl, Korn Shell, C Shell, RPC, TLI, Streams, SOCKETS, API; D: includes DDK, AWK, SED, LEX, YACC and D: includes Ethernet, Token Ring, FDDI. High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,533 - $78,000 per year. Qualified applicants should contact or send resume to Fayette County CareerLink, ATTN: CareerLink Program Supervisor, 135 Wayten Smith Drive, Uniontown, PA 15401. Refer to Job Order # WEB 448508

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in ATG, iPlanet, Samba, CVS, NIS, NFS and Tibco. Requirements: Bachelor's Degree, educational or functional (3 years experience=1 year of college) equivalent, in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of ATG, iPlanet, Samba, CVS, NIS, NFS and Tibco. Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: McKeesport CareerLink, Attn: ES Manager, 345 Fifth Ave. McKeesport, PA 15132, Job No. WEB449565.

Multiple openings for software engineers to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in WebLogic, Visual C++ and Visual Cafe. Requirements: Bachelor's Degree, educational or functional (3 years experience=1 year of college) equivalent, in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of WebLogic, Visual C++ and Visual Cafe. Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: BECS/CareerLink Program Supervisor, Indiana County CareerLink, 309 Indian Springs Road, Indiana, PA 15701, Job No. WEB449555.

Computer Scientist. Responsible for R&D of hardware & software formal verification framework. Duties include: design & implementation of formal specification language, new automated verification algorithms; overall system infrastructure, perform research in formal methods area; write research papers & technical reports. This position requires Ph.D. in CS with doctoral dissertation emphasis in software engineering & formal methods for analysis & verification of software & hardware systems. Research background to include: design, implementation, use of model checkers, static analyzers, compilers, software verification, implementation & design skills including object technology; programming skills including C++, Scheme, Emacs-Lisp, & Java; working knowledge of automatic theorem proving & formal semantics of programming languages. This position is located in Menlo Park, CA. Please apply, indicating job# 2251, via our website @ www.sri.com or mailing address at 333 Ravenswood Ave, Menlo Park, CA 94025. Attn: Employment Dept. EOE/AA.

Controller
Duties: St. Pete Beach, Florida. Responsible for directing the financial activities of company by preparing reports which summarize and forecast company business activity and financial position in areas of income, expenses, and earnings based on past, present, and expected operations. Oversees accounting department and is directly involved in the preparation of company budgets. In addition, establishes and recommends major economic objectives and company policies to management. Requirements: Bachelor's Degree in Mathematics. Salary: $48,000/yr. Hours: 40 hr/week - 8:00 a.m. to 5:00 p.m. Contact: Send resume to: Agency for Workforce Innovation, P.O. Box 10869, Tallahassee, FL 32302. Att: EH., JOFL#2545286

PeopleSoft Technical Consultant. Job location: Burlington, MA. Duties: Design & develop custom progs. using PeopleSoft appls. Analyze client reporting needs & develop & maintain client reports using nVision, Crystal & SQR. Create reporting delivering structure & deploy & monitor reports through PeopleTools & VisioPlus. Requires: B.S. in Comp Sci., Eng. or a related field. Coursework must incl. classes in Systems Analysis & Design & Info Systems Mgmt. Mail resumes (no calls) to: Michelle Ramirez, Answerthink, Inc., 1001 Brickell Bay Dr., Ste. 3000, Miami, FL 33131.

IT Professionals

Seeking qualified candidates for Sr & mid-level IT professional positions including Programmer Analysts, Database Administrators, Software Engineers, IT/Software & similar type positions. Candidates must possess MS/BS or equivalent &/or related work experience. Min resume & references to

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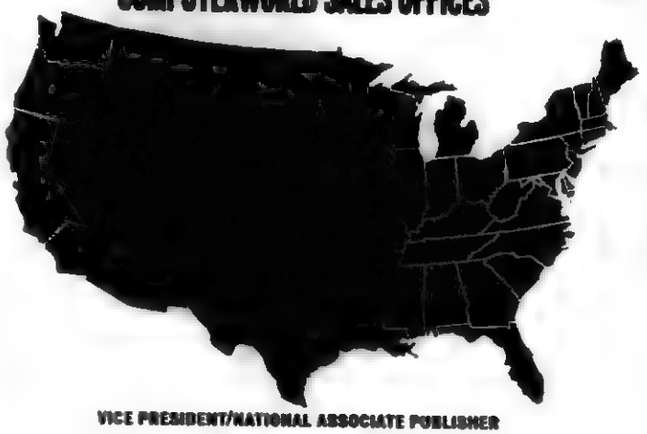
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Longhorn

said Roger Wilding, a Portland, Ore.-based senior technical engineer at shipping and supply chain services company CNF Inc. "It would be nice to have [WinFS] in the next release of Windows for the desktop, but I would prefer a clean, stable product."

Victor Stuart, an Indianapolis-based business solutions analyst at Sallie Mae Inc., said the change in plans for Longhorn won't affect his company at all. "We don't plan on using things that either don't exist or are merely part of a planned future release," Stuart said.

Conflicting Views

Rob Rhodes, a technical consultant at Louisville, Ky.-based Kindred Healthcare Inc., said the decision to remove WinFS from Longhorn sounded reasonable, since he thought Microsoft was "biting off quite a bit." Rhodes said he even likes the idea of WinFS potentially being an add-on to the operating system, since that would give his company the option of not using the technology if it adversely affects hardware requirements or performance.

Greg Sullivan, lead product manager on Microsoft's Windows client team, said WinFS is being developed independently of the client and server operating systems and will be delivered separately. He said that when finished, WinFS could be applied and installed on one of the existing operating systems.

"WinFS is their ticket for next-generation searching, and it also contains new APIs that could potentially compete against the Java platform. So there's more riding on this component than there is on Avalon and Indigo," said a software engineer at a major pharmaceutical company who asked not to be named. "If something's going to drop off the first release on Longhorn to make sure they get it right, it should be this."

But some users would prefer WinFS over other new features. Jason Glazier, senior vice president and chief technology and e-commerce officer at Lincoln Financial Group in Philadelphia, said WinFS was "one of the more significant advantages" of Longhorn. He said its removal "definitely detracts from the value of the Longhorn release and makes it less likely we will move when it is released."

Walt Smith, chief architect at a U.S.-based financial institution, said that he would like a more robust server environment as soon as possible and that 2007 "seems a bit far off for serious planning purposes."

He added that he would gladly forgo Avalon's 3-D graphics in favor of WinFS. "It's unfortunate that Microsoft has chosen to delay the delivery of potentially important improvements in the way that information is managed in the enterprise in favor of delivering more glitz and glamour in the front-end graphics subsystem of Longhorn," Smith said.



"[Removal of WinFS] definitely detracts from the value of the Longhorn release.

JASON GLAZIER, SENIOR VICE PRESIDENT, CTO AND E-COMMERCE OFFICER, LINCOLN FINANCIAL GROUP

Sullivan said there will be more new features in Longhorn beyond those that Microsoft laid out at last October's Professional Developers Conference. He said Microsoft has yet to detail new functionality that will appeal to business users and consumers.

But Thomas Groves, a systems engineer at Oregon State University in Corvallis, said WinFS is the feature that interested him most, with its promise of greater file system speed, less-frequent file system degradation, improved data retrieval and seamless integration between network and local data.

"WinFS has the greatest potential to revolutionize Windows," Groves said.

"I'm not surprised that they removed promised functionality. This is, to me, part of Microsoft's pattern," said Ethan Roberts, an application architect at Winterthur North America Inc., an insurance company in Sun Prairie, Wis. "They continue to promise what is essentially vaporware, and it allows them to maintain their dominant position because the rest of the industry stays in a reactive, rather than proactive, mode of operation. As long as we as consumers continue to put up with it, they have no incentive to change."

If the Longhorn client ships in 2006, that will mark five years since the 2001 release of Windows XP. If the Longhorn server makes its 2007 projection, that will leave a four-year gap since Windows Server 2003. Contracts for Microsoft's Software Assurance maintenance program, which includes product upgrade rights, typically run for three years. So that means some customers won't get upgrades during their contract time frames.

Michael Lebiedzinski, assistant vice president of IT at Philadelphia-based Delaware Investments, said Microsoft should either provide the next release to those companies that didn't receive one or lengthen the contract term and spread the cost over more years. "It's obviously not fair to charge a customer software maintenance when new releases are not made," he said.

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Microsoft Presents Murky Picture of WinFS Server Plan

Microsoft is now claiming that WinFS was not part of the Longhorn server plans presented last October at its Professional Developers Conference (PDC), where it laid out details about the next major Windows release.

But that's not the way several analysts recollect discussions at that time. They said Microsoft gave the impression that WinFS would be part of both the Longhorn client and server.

Greg Sullivan, a lead product manager on Microsoft's Windows client team, said Microsoft talked about WinFS as a "client-only" feature at that time. In October 2003, "there were no plans to do WinFS on the server," he said. "The notion to do WinFS on the server was a subsequent decision. The plans were to ultimately do a WinFS implementation on the server, but not until the next release."

Bill Gates, Microsoft's chairman and chief software architect, said in a published interview late last month that the company "never had, in the Longhorn plan, WinFS server support. We were clear about that going back all the way to the PDC." A Microsoft spokesman confirmed the accuracy of the quote.

In an interview with *Computerworld* in August 2003, about three months before the PDC, Eric Rudder, senior vice president of servers and tools, said, "I have to deliver some of the .Net technologies that are included in Longhorn. You know, I include some of the storage technologies. That's part of WinFS. That's also in Longhorn." He was referring to his role in helping Will Poole, who heads the Windows client business, to be successful.

Last May, Bob Muglia, senior vice president of the Windows server division, told *Computerworld* that "WinFS is absolutely in Longhorn server." Muglia said that at the time Longhorn ships, WinFS might not be at the state of scalability where it could be used for collaborative services by hundreds of users but that scaling to tens of users would be no problem.

"Will you use it as an enterprise file server with hundreds or thousands of users attached? Probably not in the Longhorn time frame. It's probably something that comes a little later," Muglia said at the time.

Microsoft did not clarify the conflicting statements by *Computerworld*'s publication deadline, despite repeated requests for comment.

Sullivan said no date has been set for the release of the WinFS technology. "WinFS will come after the Longhorn client," he said. "Whether or not it's after the Longhorn server is undetermined."

Thomas Murphy, an analyst at Meta Group Inc., said he first heard that WinFS would be part of the Longhorn server before the PDC, during private briefings with Microsoft.

Steve Kleynhans, another Meta analyst, said it appeared that WinFS would be part of both the Longhorn client and server, based on public PDC presentations. But he said he got sketchy answers in private discussions with Microsoft. "They didn't have a lot of detail," he said.

- Carol Sliwa

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Fruits of Labor

IF IT SEEMS THIS LABOR DAY week like there's not much good news for people who work in IT, consider this: According to a new survey, most users think IT is doing a pretty good job — and a sizable number of non-IT managers actually want more IT staff. In the poll of 1,200 U.S. workers by staffing firm Hudson Highland Group, 75% of users who have a tech-support group rated their support as excellent or good. And 21% of managers surveyed said they think adding more IT staff will improve productivity. And nearly half of all workers (49%) believe technology upgrades and more IT training will improve their own efficiency.

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And that says a lot about how IT work — and IT workers — have changed over the past few years. Even though budgets have been slashed and workloads have climbed, we've still made huge progress in transforming IT people, in the minds of users, from a bunch of obnoxious, antisocial propeller-heads to a useful, effective team that users actually like having around.

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Then came Y2k: an impossible project on an immovable schedule. This time, we knew we were depending on users to work around anything we missed or couldn't fix. Some users experienced early Y2k problems for themselves. Others sat through testing, worked up business-side contingency plans, even stayed up late on Dec. 31, 1999, just to get a head start on whatever might go wrong.

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Ever since, that back-and-forth has continued. We've helped users deal with a tidal wave of spam and viruses — things they felt the effects of directly. We also loosened up a little when it came to things like the wireless access points users plugged in themselves. (Not that we had a lot of choice; we didn't have the time or manpower to be full-time Wi-Fi cops. So we negotiated, and they cooperated — mostly.)

And users have seen what happens when help desks get downsized or outsourced. They've watched projects and upgrades get delayed because there weren't enough IT people. They've had to do more IT for themselves and have learned that that truly *is* doing it the hard way.

Yes, they really have gotten smarter about IT and about what IT people do. And we really have figured out that they know more than us about doing the business that pays our wages.

Which is a good thing. We've always known they need us. Now, just as users have come to understand the value of IT people, we're realizing that we need them. Without support from users, we can't do our jobs. And without project sponsorship from business units, we've got no jobs to do.



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

The closer we get to users, the better it is for all of us.

We've all heard that claim for years. Now, finally, it's not just a good idea — it's becoming a reality. And both IT people *and* users are seeing the benefits.

This Labor Day, for the people who labor in IT, that's very good news indeed. 49213

Doing IT the Hard Way

After this custom application is updated, management is horrified to learn that customers are receiving nearly unreadable messages. "Any text manually edited appeared to have all spaces stripped out, making sentences appear as one long word," reports an on-scene pilot fish. "After an intensive bug hunt by the entire IT staff turned up zilch, we confessed on a conference call that we couldn't solve it. You can imagine our relief when we were told, 'Oh, you can ignore that one. One of our workers' space bar is broken.' "

SHARK TANK

Sweet

A user's PC is acting spooky – inserting random characters or suddenly typing characters on its own. Support pilot fish suspects the keyboard and replaces it, but three weeks later, the problem is back. "Inspiration strikes when I get on-site and notice the large bowl of Hershey's Kisses on the desk," fish says. "A blast of compressed air into the keyboard releases a cloud of tiny glittering fragments of conductive foil wrappers."

No Pets, Please

"This user called and said that every time he booted his system, he got a message that the system was doing an emergency shutdown," help desk staffer tells support manager pilot fish. "We discovered the problem – there was a dead lizard blocking the fan from turning. This was forcing the system to shut down because it detected the fan not running. He is now checking to make sure the lizard didn't have any friends."

Priorities

Pilot fish gets a call from a user who admits that she spilled coffee on her desk. "She was proud of the fact that she saved her keyboard," fish says, "but she needed her telephone replaced. That was, um, great. The phone cost $400. Her keyboard was $15."

Still Big and Red

While visiting a remote office of the bank he works for, this pilot fish gets an escort to navigate through a secured area. "But when I was ready to leave, I was told I could find my own way out," fish says. "The door wouldn't open, though. I was told I had to push the big, red, unmarked button that was mounted on the wall, several feet to the left of the doorway. Even though this wasn't a data center – it was just a floor with offices and cubes – after working in IT for over 20 years, do you know how hard it was for me to force myself to push a big red button next to an exit?"

GOODBYES ARE HARD, TOO. But Sharky wants to say so long to departing *Computerworld* boss Maryfran Johnson, who played a big part in making the Shark Tank a reality five years ago. Thanks, kid. Now get outta here – I've still got my hands full looking for true tales of IT life. Send yours to **sharky@computerworld.com**, and if I use it, you get a stylish Shark shirt. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharky**.

FRANK HAYES ■ FRANKLY SPEAKING

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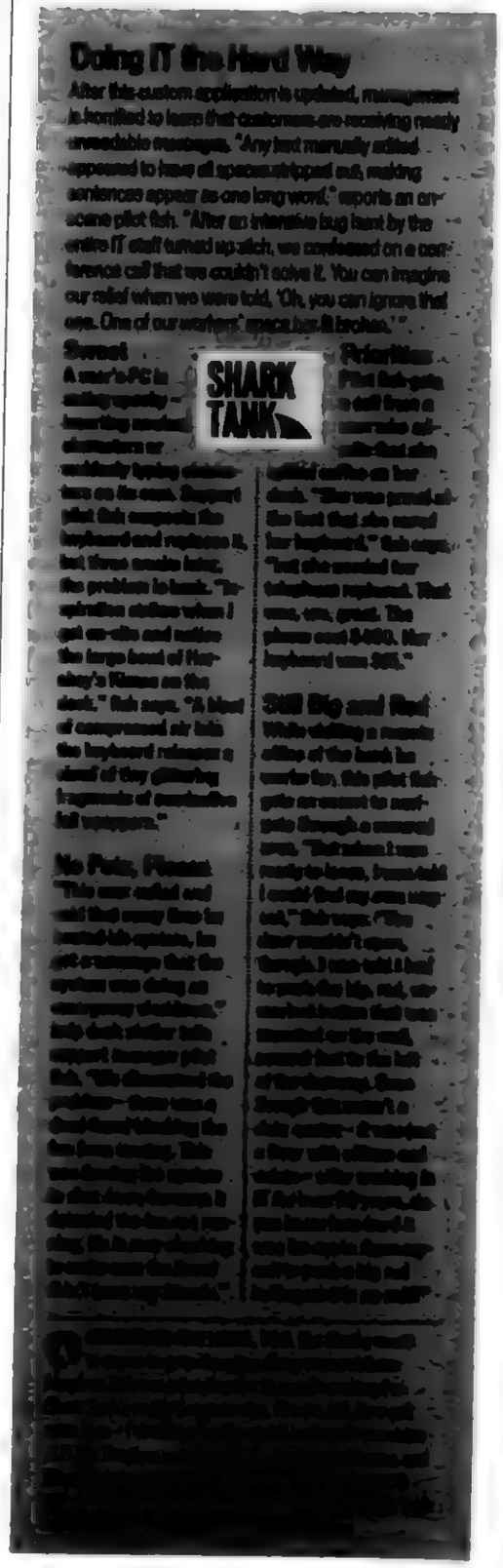
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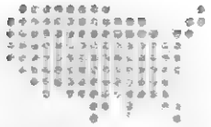
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As hurricanes batter Florida, IT execs try to keep a balance between operational and employee needs. ISP Savvis Communications sees the light and starts booting spammers off of its networks.

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Virtual Server Gets Off to a Late Start

Microsoft chases after VMware's technology

BY CAROL SLIWA

IT managers anxious to consolidate their server hardware will finally get to see the long-promised virtual machine software that Microsoft Corp. has been working on since it acquired the technology from Connectix Corp. more than 18 months ago.

Microsoft today plans to make available an evaluation copy of its Virtual Server 2005 software, which will let users run multiple distinct copies of an operating system on a single processor within a server. The final product is due to ship Oct. 1, Microsoft said.

But Microsoft is late to the game. VMware Inc., its top virtualization competitor, released the initial versions of its GSX Server and ESX Server software in 2001. And those

Virtual Server, page 64

Hitachi Data Looks for Edge Over High-End Storage Rivals

Users see promise in its new disk array line

BY LUCAS MEARIAN
NEW YORK

Hitachi Data Systems Corp. last week announced vastly redesigned versions of its high-end disk arrays and said the new line will scale to hundreds of terabytes of capacity and offer advanced functionality such as long-distance data replication and migration.

Several early adopters and analysts said HDS has set a new standard for high-end storage technology with its TagmaStore Universal Storage Platform. "I'm extremely excited about the impact this could have on the way we manage storage," said Brian Frank, senior director of architecture and infrastructure at United Air Lines Inc.

TagmaStore is a series of three disk arrays based on a switched architecture that can support up to 332TB of internal storage and manage up to 32 petabytes of external storage, including data stored on boxes from HDS rivals IBM and EMC Corp. At a press conference here, HDS said the

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MORE ONLINE

ERP System Doesn't Make Grade in Indiana

Problems mar university's PeopleSoft rollout, leaving 3,000 students without financial aid

BY MARC L. SONGINI

Technical glitches in a $52 million installation of PeopleSoft Inc.'s applications at Indiana University have left thousands of students without access to promised financial aid and forced officials at the school's eight campuses to implement a series of stopgap measures.

INSIDE

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University officials last week said staffers are scrambling to do manual work-arounds as a result of the system problems, which became an issue when classes began late last month. The university estimated that about 3,000 of the 60,000 eligible students arriving at its flagship campus in Bloomington and other locations were denied financial aid by the new system, even though the money had been pledged to them. The majority of the affected students attend Indiana University-Purdue University Indianapolis.

The Indiana schools have been working since 1998 to replace administrative systems that in some cases are more than 20 years old with versions of the PeopleSoft Enterprise product line tailored for universities. The loan-processing problems arose following the installation of the financial aid module in PeopleSoft's Campus Solutions 8 package of applications.

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COMPUTERWORLD IN PRACTICE

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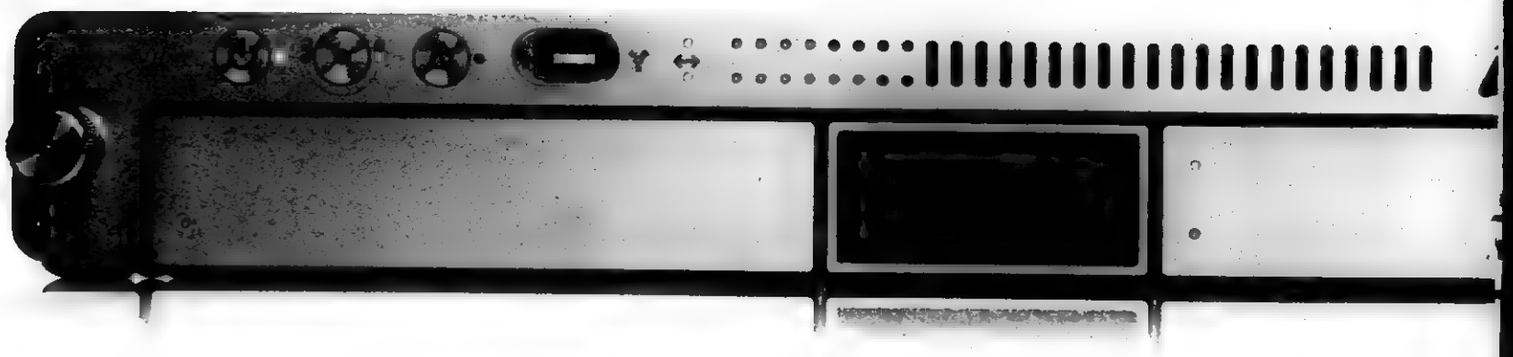
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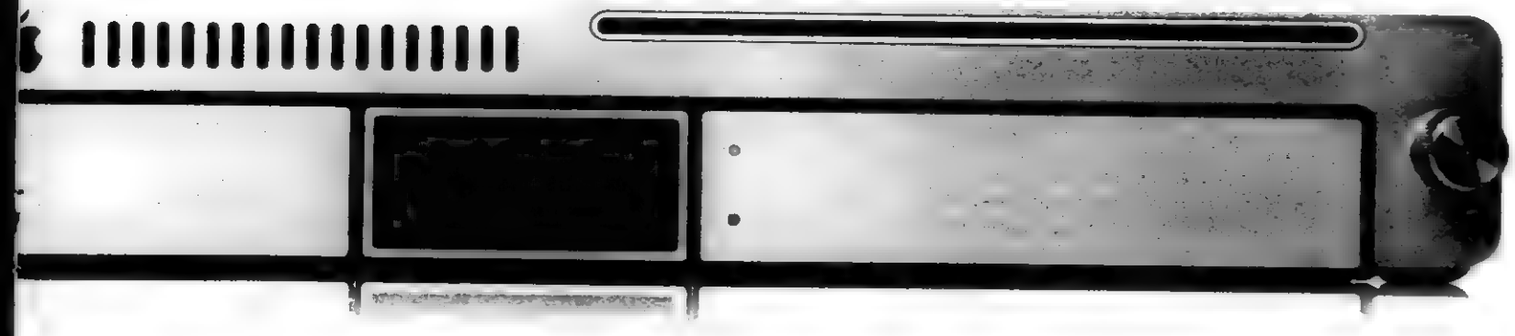


Presenting the new Xserve G5, a wickedly fast, extremely compatible and refreshingly affordable 1U server from Apple.

With dual 2GHz 64-bit G5 processors, it achieves blazing speeds of up to 30 gigaflops. It's so powerful, in fact, that the U.S. government is deploying* 1,566 Xserve G5 servers to create one of the world's fastest supercomputers, capable of up to 25 trillion calculations per second.

And it comes complete with Mac OS X Server, Apple's UNIX-based operating system that provides a complete suite of standards-based network services with no per-client fees. So whether you have Mac, Windows, UNIX or Linux clients, Xserve is ideal for cross-platform file sharing, hosting dynamic websites, streaming audio and video and running powerful J2EE applications – right out of the box.

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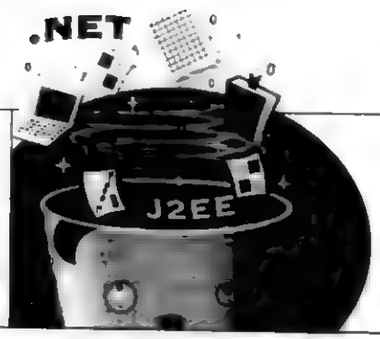
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QuickPoll Results

How would you rate your organization's environment for older IT workers?



SOURCE: COMPUTERWORLD.COM NONSCIENTIFIC SURVEY, 494 VOTES

Protect Your Internal Networks

SECURITY: Peiter Mudge Zatko of Intrusic Inc. offers four steps for keeping your systems safe from outside adversaries. **QuickLink 49043**

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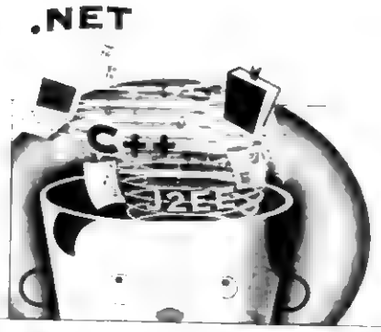
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COMPUTERWORLD INNOVATIVE TECHNOLOGY AWARDS 2004

This year's 30 award-winning technologies realized their potential in the hands of customers. The winners' list begins on page 32. Plus, read how IT users are getting payback from select technologies on the following pages:

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AT DEADLINE

EDS Expects to Cut Up to 20,000 Jobs

Electronic Data Systems Corp. expects to lay off 15,000 to 20,000 employees over the next two years as part of an effort to slash its annual costs by $3 billion, Chairman and CEO Michael Jordan said during a question-and-answer session at a conference in New York. The new reductions would be in addition to the 5,000 jobs that EDS has cut since June 2003, Jordan added.

However, an EDS spokeswoman said afterward that the projected number of job cuts cited by Jordan was an estimate, not a firm target. The actual number of layoffs will depend on the progress of the Plano, Texas-based IT services firm's ongoing business transformation effort, according to the spokeswoman.

Privacy Group Sues Supermarket Chain

The Privacy Rights Clearinghouse, a San Diego-based advocacy group, said it has filed a privacy-related lawsuit against supermarket chain Albertson's Inc. and its Sav-On, Osco and Jewel-Osco pharmacy units. The lawsuit, filed in San Diego County Superior Court, claims that Albertson's illegally used the personal data of pharmacy customers to conduct targeted marketing campaigns on behalf of large drug companies. Boise, Idaho-based Albertson's called the allegations "false and totally without merit."

Short Takes

The EUROPEAN COMMISSION approved Hewlett-Packard Co.'s plan to buy Synstar PLC, a Bracknell, England-based IT services firm. The deal won't significantly increase HP's share of the IT market in Europe, the commission said. . . . HYPERION SOLUTIONS CORP. in Sunnyvale, Calif., this week plans to launch an upgrade of its Essbase online analytical processing software featuring a faster data analysis engine.

Florida IT Managers Balance Tech Needs, Workforce Issues in Storms

Flexibility key in operational, staffing strategies

BY THOMAS HOFFMAN

MIAMI-DADE County's IT operations center serves the largest metropolitan area in the state of Florida and is staffed around the clock. Not surprisingly, its managers have had to come up with innovative ways to balance the county's IT requirements with the needs of the center's workers — especially when natural disasters such as hurricanes occur.

Labor Day weekend, when Hurricane Frances struck the state, was a prime example. In order to continue supporting vital IT services such as the county's VAX-based 911 system and its police and fire radio network during the storm, the operations center's 650-person staff split into two groups working 12-hour shifts.

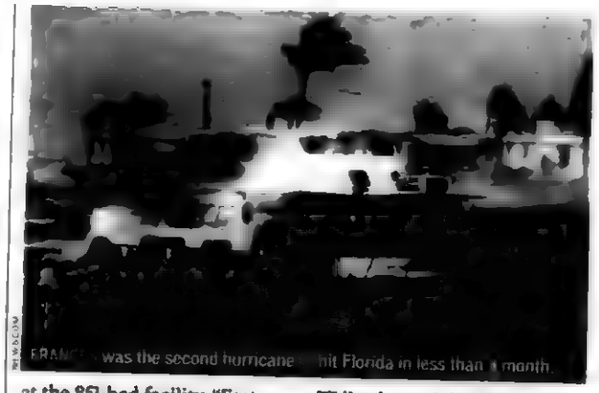
And to keep IT workers close to their loved ones during the hurricane, families were encouraged to camp out in the Miami data center, said Ruben Lopez, the county's chief technology officer.

"We try to be as accommodating as possible so people can be with their families, especially during the lockdown situation," said CIO Judi Zito, referring to the IT department's practice of not allowing anyone to enter or leave the data center during emergencies. "I wouldn't want to be here during a lockdown if my elderly parents were staying at my house," she added. "I'd want to be with them."

'Juggling Act'

Zito's flexible approach to balancing operational and staff needs during a disaster reflects the kind of strategies that many IT executives have developed during their tenures in the Sunshine State, which has been hit by two hurricanes in the past month and last week was bracing for a third — Hurricane Ivan — that could arrive early this week.

Staffing during hurricanes "is certainly a juggling act," said David Gawaluck, CIO at Lakeland Regional Medical Center in Lakeland, Fla. To help support critical medical systems during the height of Frances, the medical center had eight volunteers from its 65-person IT department stay at the 851-bed facility. "Fortunately, we have lots of beds here," Gawaluck said wryly, adding that other IT staffers stayed at home so they would be fresh when needed.



FRANCES was the second hurricane to hit Florida in less than a month.

"We worry about our people, because you need them to come back into work and they need to deal with their families and homes," said Lew Temares, CIO at the University of Miami. The university kept 10 IT staffers at its central campus in Coral Gables over Labor Day weekend to monitor servers and communications systems during the storm, Temares said.

The school, which ranked second on *Computerworld*'s 2004 Best Places to Work in IT list, has a tight-knit staff of about 300 IT workers. One staffer drove to the home of a colleague who didn't have water to deliver ice, according to Temares. Other workers who were in need of help received food and other supplies from a crisis management team that the IT department has set up.

Bacardi U.S.A. Inc., the U.S. importing, marketing and sales arm for wine and spirits producer Bacardi Ltd., took a different tack. It shut down its Miami and Jacksonville data centers on Sept. 2 and transferred data processing activities to an IT facility in Puerto Rico for five days, said Doug Watson, director of IT for the Americas. 49356

IT Shops Prepare for Worst, Suffer Minimal Disruptions

Hurricane Frances dumped nearly 15 inches of rain on some parts of Florida. But IT managers interviewed last week said their data centers were spared major damage and mainly suffered power disruptions that led them to rely on diesel generators to keep systems running.

"We're still paddling faster than the waters are rising," said David Gawaluck, CIO at Lakeland Regional Medical Center. Soaking rains knocked out power to one of the hospital's nursing units on Sept. 5, forcing the IT team to run the unit's PCs and other equipment on generator power for four hours, Gawaluck said.

He added that two days before Frances arrived, the hospital sent a set of backup storage tapes to an Iron Mountain Inc. data center in Philadelphia as a precaution. As it turned out, Lakeland Regional's data center had electricity throughout the storm.

At Lockheed Martin Enterprise Information Systems, help desk calls that are normally split between facilities in Orlando and Denver were all routed to Denver over the Labor Day weekend, said Elaine Hinsdale, director of communications.

Company officials also decided to take three e-mail servers that support 7,000-plus Orlando-area workers off-line before Frances hit, Hinsdale said. In addition, they took down nine application servers across the state, including one in Lakeland that supports a significant amount of payroll and finance processing. Fortunately, Lockheed Martin's Orlando data center didn't suffer any physical damage, she said.

The University of Miami didn't suffer any IT disruptions, but CIO Lew Temares said he and his staff learned a valuable lesson.

The university runs a server-based system from Diebold Inc. that lets students use combined identification and debit cards to pay for meals and gain access to various buildings. "We locked out because our central generator didn't go down," Temares said. "But if it had, we could've lost access to the system for 18 hours." The IT team now plans to use servers located off-campus to back up the system.

– *Thomas Hoffman*

Under Pressure, ISP Savvis Agrees To Boot Spammers Off Its Networks

BY JAIKUMAR VIJAYAN

Antispam campaigners scored a notable victory last week when they helped prod Internet service provider Savvis Communications Inc. to agree to pull the plug on 40 customers that the company acknowledged were using its networks to send out e-mail spam.

St. Louis-based Savvis also announced that it will work with The Spamhaus Project, a London-based antispam group, to identify and disconnect other clients who engage in spamming activities.

Spamhaus CEO Steve Linford said the moves are a step in the right direction for Savvis, which has customers in more than 40 countries and claims 75 of the top 100 banks worldwide among its client base. Over the past few months, Savvis had emerged as one of the world's largest hosts of spam operators, according to Linford.

But the companies being given the boot represent only a portion of the 137 spammers that Spamhaus has identified as being hosted by the service provider, Linford added. "The 40 that Savvis is getting rid of are only the real hard-core elements of the spammer community that no other network will touch," he said.

Savvis CEO Rob McCormick said the timing of the company's announcement wasn't driven by pressure from Spamhaus and other antispam groups alone. Savvis has always had strong spam-related policies, McCormick said, adding that many of the recent problems involved customers the company inherited when it acquired Cable & Wireless PLC's U.S. Web hosting operations in January.

"We bought a new company, and we were focused on cutting costs and getting it back to profitability," McCormick said. It has taken time for Savvis to figure out which of the new customers didn't meet its acceptable-use policy, he noted. But now the company will enforce its standard policies with the former Cable & Wireless customer base, McCormick said.

Outside Influence

Savvis' pledge to rid its networks of spammers is an indication of the pressure that antispam groups can put on companies, said Peter Christy, an analyst at NetsEdge Research Group in Los Altos, Calif.

Several antispam groups, including Spamhaus and the anonymously run Spam Prevention Early Warning System (SPEWS), had begun blacklisting entire blocks of IP addresses owned by Savvis. Adding to the pressure was the fact that groups such as SPEWS were "overblocking" Savvis' IP addresses, which results in even nonspammers finding themselves on antispam blacklists.

Several internal memos posted on a whistle-blower Web site by a former Savvis employee suggested that the company may have succumbed to such pressure. In one internal memo, a Savvis executive likened SPEWS to a "vigilante organization with a diffuse international existence." In another, a Savvis executive cautioned about the business problems that such extensive blacklisting can cause and questioned Savvis' ability to continue selling its services to major users. McCormick didn't dispute the authenticity of the memos.

Real-time blacklists, many of which are freely available, are widely used by companies to block e-mail from known spammers. For instance, Spamhaus claims that its blacklists are used by an estimated 260 million Internet users.

Christy said that although many antispam groups have high standards when it comes to blacklisting, others are run by "overenthusiastic" volunteers who sometimes "make judgments that may or may not be a reasonable view" of a company's e-mail activities. 49353

Groups That Run Real-Time Blacklists

THE SPAMHAUS PROJECT: Maintains a database called the Register of Known Spam Operations, which collates information and evidence about individual spammers and so-called spam gangs.

MAIL ABUSE PREVENTION SYSTEM: Runs the MAPS Relay Spam Stopper database, which lists the IP addresses of insecure open-relay mail servers.

OPEN RELAY DATABASE: Operates a database of IP addresses that are known or considered likely to be used to send unsolicited e-mail.

Dell Seeks to Improve Services Through Support Hubs

New China facility opens; more due in Asia and Europe

BY JUAN CARLOS PEREZ

Dell Inc. is pushing ahead with plans to open a series of IT support hubs worldwide in an effort to improve its ability to serve customers, especially corporate users.

Last week, Dell opened a support facility that it calls an enterprise command center (ECC) in Xiamen, China, to serve users in that country. That facility is the hardware vendor's second ECC, joining one set up last November in Round Rock, Texas, to support customers in the U.S., Canada and Latin America.

Dell said that later this year, it plans to open an ECC in Limerick, Ireland, for its European customers, as well as a facility in Japan. It added that it expects to cut the ribbon on another ECC in the Asia-Pacific region early next year.

"The goal here is to have consistent enterprise support in all regions of the world," said Jan Uhrich, vice president of enterprise services at Dell. Although each ECC will support only the country or area in which it's located, the centers will be linked in order to give Dell broad visibility into all service incidents involving customers that have global operations, Uhrich said.

Regional Focus Works

Locating customer service hubs in specific countries and regions is a good move for Dell and should benefit its user base, said Patrick Sayers, an analyst at Technology Business Research Inc. in Hampton, N.H. "You get the client intimacy, because [ECC staffers] don't have to struggle to overcome the customs and culture," Sayers said.

Dell is known as an innovator in making its business processes more efficient, so it's not surprising to see the company aggressively moving to improve the way it provides services, Sayers added, noting that services is a growing business for Dell. "What they're doing is translating the success they've had on the hardware side managing their supply chain and transferring those techniques to the services side," he said.

The ECCs are staffed around the clock and act as central repositories of customer service information for their geographical areas, Uhrich said. Dell plans to use the ECCs to continuously monitor, track and manage service jobs from beginning to end, she added.

For example, when a service call comes into a technical support center in the Americas, the case is logged into systems at the Round Rock ECC and tracked from there until it's resolved. The facility in Texas has helped Dell significantly improve the speed with which services are delivered to users, Uhrich said.

"In the Round Rock ECC, you can see on maps where all our [service] events are in the Americas, what their status is, which field technicians are on-site, which parts are available to a particular customer and so on," she said. Uhrich noted that prior to the facility's opening, Dell had services delivery processes, "but the people were in different organizations, buildings and groups, and the process wasn't as tightly integrated." 49368



will support customers located in that country

Perez writes for the IDG News Service.

BRIEFS

Lexmark Recalls Laser Printers

Lexmark International Inc. is recalling about 39,400 laser printers, including models that it manufactured for IBM and Dell Inc. The Lexington, Ky.-based company and the U.S. Consumer Product Safety Commission warned that the printers can short-circuit and expose users to a potential electrical shock. The recalled printers were sold from May to August, said Lexmark, which is offering to replace the devices.

Sun Adds Blades To Its Netra Line

Sun Microsystems Inc. next year plans to add blade servers to its Netra line of systems for users in the telecommunications industry. Sun will offer two Netra blades – a Linux-based device built around Advanced Micro Devices Inc.'s Opteron processor and another that uses Solaris and Sun's UltraSparc chips. Sun said the systems will have similar pricing, but it didn't disclose details.

Microsoft Upgrades Keyboards, Mice

Microsoft Corp. has added a curved keyboard with the same layout as traditional devices. It also introduced a wireless optical mouse for notebook PCs and a reader that lets users scan their fingerprints instead of entering log-in names and passwords when they boot up PCs. But the company recommended that corporate users continue to use strong passwords to protect data.

Operations Chief To Leave McAfee

McAfee Inc. said that Stephen Richards plans to retire from his job as chief operating officer and chief financial officer, effective Dec. 31. The Santa Clara, Calif.-based company is searching for a CFO but doesn't plan to name a new head of operations.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FAULKNER

Sarb-Ox Docs Cost a Lot More . . .

. . . than most people think. AMR Research Inc. in Boston estimates that the average company will blow through about $1 million in Sarbanes-Oxley costs per $1 billion in revenue, just to do what analyst John Hagerty calls "a document exercise" that organizes everything for their auditors. Worse, unlike Y2k, which was a one-time crunch, compliance with the Sarbanes-Oxley Act is an annual event like tax preparations — but possibly even less fun. What contributes greatly to the cost, observes Neal Selvin, chief marketing officer at Vienna, Va.-based Approva Corp., is the fact that "auditors have homegrown rule books, and they don't have to tell customers what they're looking for." So companies search hither and yon for every conceivable compliance-related document because they don't want to get into hot water with the Securities and Exchange Commission, which Selvin predicts "will make an example of a few people to prove that SOX has teeth." How? Delisting companies from stock exchanges could be a popular punishment among the SEC's lawyers. And sending executives to jail likely will continue to be a crowd pleaser with them. If you're not already prepping for your audit, well, good luck. But you can still call Selvin. He claims that his software, BizRights 2.1, is based on real rules, written by real auditors whom Approva has lured away from PricewaterhouseCoopers, Ernst & Young and other firms. BizRights currently works with any SAP installation, but in early 2005 Approva will add PeopleSoft's applications to its auditing prowess. Starting at $100,000, BizRights isn't cheap — but it costs less than doing it yourself, it appears.



Raid your compliance budget . . .

. . . to get your software and hardware assets in order. That might be the strategy some CIOs are taking, given the uptick in business that Altiris Inc. is attributing to regulatory compliance requirements. Lindon, Utah-based Altiris makes tools to centrally manage IT assets throughout their life cycles, and Chief Technology Officer Dwain Kinghorn says some IT executives think ensuring that each device has the right software configuration and is secured will help them pass compliance audits. For example, he points out that handheld computers being used in the field need to be properly accounted for, with all end-user rights and privileges assigned by and known to IT. Plus, you have to be able to automatically destroy data on handhelds if they're not synchronized regularly with servers, in case they have been lost or stolen. Kinghorn says these security features will be added to the Altiris Client Management Suite in Q4.

Browser beta builds buyer trust . . .

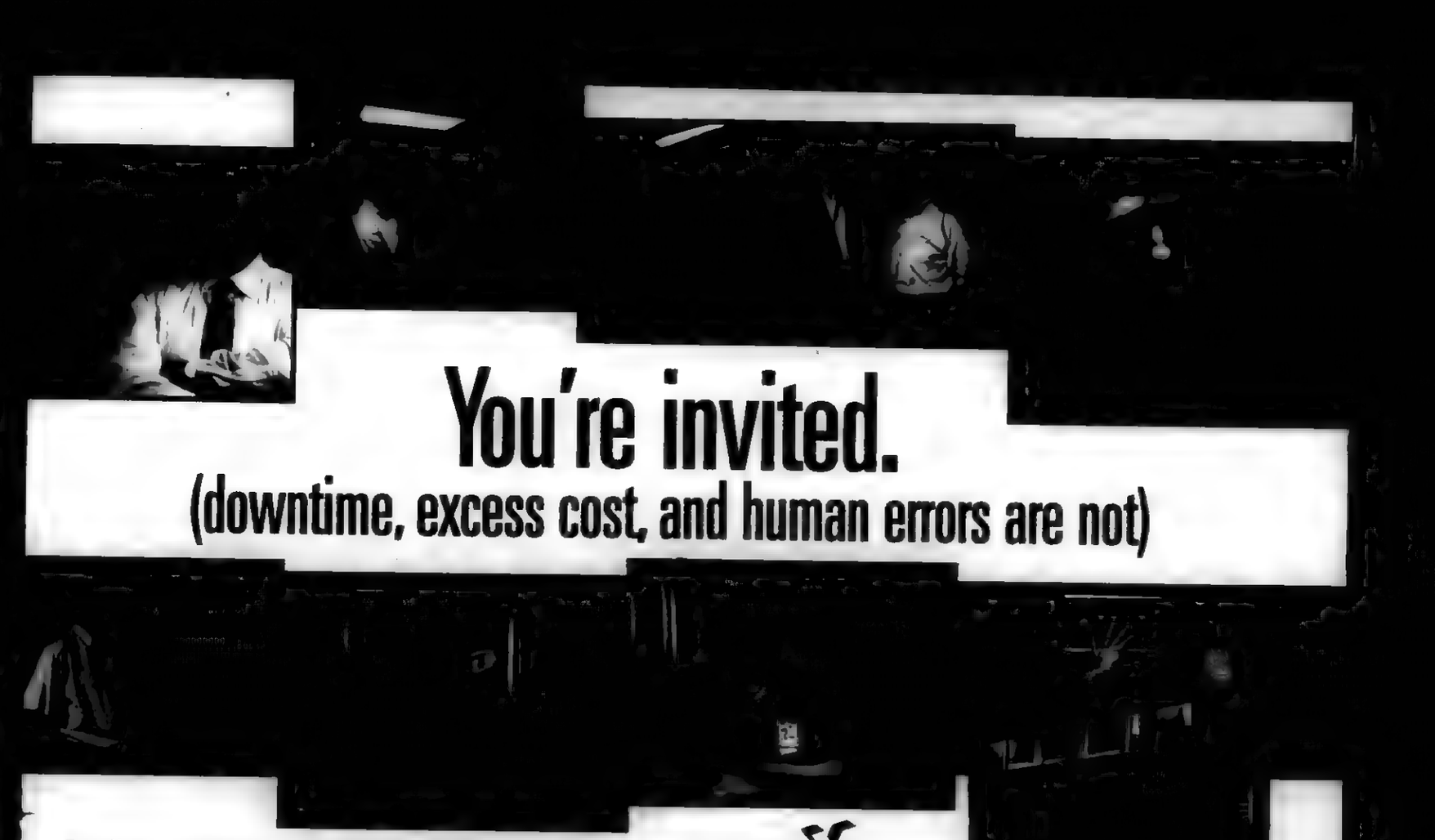
. . . by verifying Web site authenticity. Today, GeoTrust Inc. in Wellesley, Mass., releases the beta of TrustWatch, a validation tool that runs in Internet Explorer and Netscape browsers. TrustWatch indicates whether GeoTrust has verified a URL address as that of a legitimate Web site. GeoTrust and VeriSign Inc. are the two leading companies used by online operations to validate that their transactions are secured. GeoTrust's new program is free to anyone who downloads the ActiveX component from *www.trustwatch.com*. TrustWatch creates a tool bar in a browser that shows whether a Web site is verified as authentic or not, says GeoTrust CEO Neal Creighton. Blacklisted sites such as known phishing operations draw a warning notice, and browsers aren't permitted to point to them. Creighton says GeoTrust and VeriSign have verified "only" 500,000 Web sites, less than 1% of the total number — making the rest of the Web potentially untrustworthy territory.

54.4M Number of Web sites, per Netcraft Ltd.

IBM's billion-dollar question . . .


DB2 could eclipse Oracle among users

. . . is whether it will ship Domino 7 with DB2. At least that's what Steven Birchfield, CEO of Tucson, Ariz.-based Automation Centre LC, is asking. He thinks the debate inside IBM is whether to ship a scaled-down version of DB2 with the Domino upgrade (due early next year) as a standard data store, in addition to the traditional Lotus Notes database. In the current beta of Domino 7, DB2 is offered as an option. Birchfield argues, "The problem with Notes has always been getting data out of it into other applications." That difficulty has forced third-party applications, such as his company's Tracker Suite, to extract the data to an external database. "And that's usually been Microsoft SQL Server because it was the cheapest," he says. If, as he suggests, DB2 is the underlying database, there's no need to port Notes apps to SQL Server. Plus, with the Notes installed base, DB2 will immediately eclipse Oracle as the world's top database. IBM is mum on the topic, but Birchfield speculates that the argument raging inside IBM is whether the market-share gains will outweigh the revenue from selling DB2 as an option to the Domino 7 release. Stay tuned. **40313**



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New Nortel Switches Provide SIP Support

Goal is to support 'virtual enterprises' for remote users

BY MATT HAMBLEN

Nortel Networks Ltd. today will announce a series of software upgrades and new voice switches and phones that incorporate the Session Initiation Protocol standard and are designed to help remote workers function as part of integrated teams within large companies.

With so many workers now assigned to jobs outside of corporate headquarters, the demand for efficient and secure communications and collaboration capabilities is greater than ever, said Clent Richardson, vice president of global marketing at Nortel. The Brampton, Ontario-based company plans to differentiate itself from competitors by using SIP to support virtual enterprises, he added.

Among the new offerings, Nortel is announcing Release 4.0 of its Communications Server 1000 voice switch, which was previously called the Succession 1000. Richardson noted that the vendor is moving to adopt product names that better describe what its technology does. "We have funky names, and we are in the midst of brand simplification," he said.

The CS 1000 upgrade will integrate the product's IP voice-switching capabilities with SIP-based voice, data and video applications supported by Nortel's Multimedia Communications Server 5100, Richardson said. The MCS 5100 is being upgraded to a Release 3.0 that offers combined support for voice processing, call management, desktop video calling and collaboration tools, such as instant messaging software and Web-based applications for sharing documents in real time.

Franklin W. Olin College of Engineering in Needham, Mass., will upgrade to MCS 5100 3.0 next month and plans to add CS 1000 4.0 over the Christmas break or next summer to take advantage of the SIP interoperability, said CIO Joanne Kossuth.

The increased support for SIP should help make it "as easy as possible" for end users to connect to the school's network and lessen development demands as Olin considers adding applications, Kossuth said. She added that the upgraded MCS 5100 will also provide a single point of presence for end-user access to instant messaging tools.

The 225-student college has invested more than $2.5 million in data and voice communications products from Nortel since it was founded in 2002, according to Kossuth. Olin evaluated the major networking vendors and chose Nortel as its primary supplier partly because of the company's commitment to standards such as SIP, she said.

Olin also uses voice-over-IP phones from Nortel, and Kossuth estimated that its annual network costs of $500,000 would be more than doubled without VoIP. The use of VoIP technology supports a range of applications at the college, including unified messaging capabilities that allow voice mail messages to be directed to e-mail accounts.

Nortel also will announce a variety of other hardware and software products, including a new Communications Server 2100 voice switch that supports SIP and is designed for very large companies.

The new offerings show that Nortel is "committed to developing products for the enterprise business," said Zeus Kerravala, an analyst at The Yankee Group in Boston. Nortel now gets just 22% of its revenue from corporate users but should be able to increase that figure with features such as its support for SIP, Kerravala added. **49325**

Nortel's Additions

Communications Server 1000 Release 4.0: Upgraded [illegible] named [illegible] Nortel's Succession 1000 IP voice switch. Due Sept. 30; starts at $650 per [illegible]

Multimedia Communications Server 5100: Release 3.0 adds enhanced video capabilities, including multipoint videoconferencing. Due Sept. 30; starts at $215 [illegible]

Communications Server 2100: IP voice switch with carrier-class reliability for large users. Due Sept. 26; [illegible]

Baystack 5500 series: [illegible] Ethernet switches. Gigabit Ethernet connectivity and power-over-IP telephones. [illegible] WLAN access points. Due in November; starts at $5,995

Correction

A story about autonomous agents that ran in last week's Technology section ("Agents of Change") incorrectly described BBN Technologies as a unit of Verizon Communications Inc. Cambridge, Mass.-based BBN became an independent company last March.

Cisco Melds Add-on Features Into Branch-Office Routers

BY MATT HAMBLEN

Cisco Systems Inc. tomorrow plans to announce an all-new line of branch-office routers that integrate basic routing capabilities with IP voice support, security tools and other functionality.

Features such as data caching and IP telephony have been available as add-ons to Cisco's existing branch routers for some time. But the add-ons severely limited the basic processing abilities of the routers, said Jeff Wilson, an analyst at Infonetics Research Inc. in San Jose. Cisco designed the new routers with increased memory and CPU capacity to overcome that problem, Wilson said.

The Integrated Services Router line includes seven models that range in price from $1,395 to $13,500, said Dave Frampton, a senior marketing director at Cisco. Two of the routers are aimed at corporate branch offices, while four were designed for smaller branches and one is intended for use by small businesses. All are due early next month, Frampton said.

IP Telephony Support

RBC Dain Rauscher Inc., a Minneapolis-based brokerage, plans to deploy Cisco's new 2821 router this fall at five U.S. branches serving a total of 150 workers. If the pilot rollouts are successful, the brokerage will install the routers at up to 180 locations and convert the offices to IP telephony, said Rich Blasing, managing director of infrastructure services.

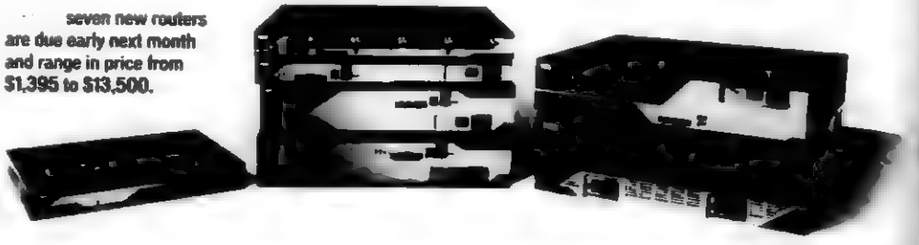
"This router product is architected with IP telephony in mind, while the previous attempts were add-on modules," Blasing said. "Collapsing functions on one box is a big feature because it makes things simpler and, from a support standpoint, a lot cleaner."

Because the 2821 will enable branch-office workers to move, add and change IP phones on their own, network operating costs should go down over time, Blasing noted. And with the routers supporting IP telephony in the branches, RBC Dain Rauscher's annual telecommunications budget is expected to drop 20%, he said, although he wouldn't divulge cost details.

In addition, the new router will help support centralized voice mail in Minneapolis, so the brokerage will be able to expand and shift its sales force with more flexibility, Blasing said. He added that the full deployment and the addition of IP telephony could be completed within 18 to 24 months.

Wilson said Cisco developed the Integrated Services Router line because of competitive threats from vendors such as Juniper Networks Inc., which acquired NetScreen Technologies Inc. in April so it could integrate NetScreen's security capabilities into its routers. But, he said, "the fruits of that acquisition are yet to be seen."

David Willis, an analyst at Meta Group Inc., agreed that competition pushed Cisco to release the new routers. But he added that "the idea of using a single modular platform just makes sense." **49327**



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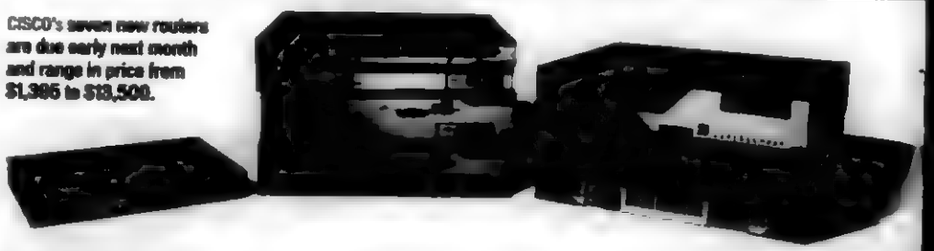
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BRIEFS

Microsoft Extends SP2 Install Blocker

Microsoft Corp. said it will give corporate users more time to prepare for Windows XP Service Pack 2 by doubling the amount of time that a special registry key will prevent PCs from automatically downloading the update. The key was due to expire after 120 days. But in response to pressure from IT managers, Microsoft told select customers via e-mail that it will keep the key operational until April 12. [For more details, go online: QuickLink 40294].

IBM Adds 2-CPU Opteron Server

IBM this week plans to begin limited shipments of an Opteron-based server designed to support dual-core versions of the processor that Advanced Micro Devices Inc. is due to release next year. The eServer 326 is a rack-mounted system that starts at $2,199 and can handle two Opteron chips. Users will be able to upgrade to AMD's dual-core devices when they're available, IBM said.

3Com to Expand Router Offerings

3Com Corp. today will launch two routers for corporate networks and a family of six devices that support Digital Subscriber Line connections in branch offices. The enterprise-oriented Router 8040 and 8060 products support redundant and hot-swappable components and have been tested for interoperability with routers from Cisco Systems Inc. and other vendors, 3Com said.

Cisco Buys Net Monitoring Tools

Cisco has agreed to buy NetSolve Inc., an Austin-based vendor of network monitoring tools, for $128 million. Cisco said its channel partners will provide NetSolve's technology to users as part of their support offerings.

Wall Street Execs Detail Updated Security Plans

NYSE, other firms tell Congress about steps they have taken since 9/11 attacks

BY DAN VERTON
WASHINGTON

AS THE THIRD anniversary of the Sept. 11 attacks approached last week, Wall Street executives outlined for Congress a series of physical and cyber security measures that continue to be revised to help protect financial trading systems in the U.S.

Appearing at a House Financial Services Committee hearing, senior government officials and executives from key financial institutions in New York described the efforts that continue to go into bolstering security for the nation's critical financial trading systems.

Since Sept. 11, 2001, New York Stock Exchange Inc. has spent more than $100 million to boost physical and cyber security and improve redundancy and business continuity, said Robert G. Britz, the NYSE's president and co-chief operating officer.

Among the improvements are a new contingency trading floor, an expansion of the emergency command center operated by Securities Industry Automation Corp. (SIAC), a remote network operations center and an ongoing effort to establish a remote national market system data center.

The NYSE has also deployed a geographically dispersed fiber-optic routing backbone that would allow equity brokers to maintain connections to the markets in the event of another 9/11-type of attack. Called the Secure Financial Transaction Infrastructure (SFTI), it connects more than 600 financial services firms.

All of the SFTI's equipment, connections, power supplies, network links and access centers are redundant, and its architecture features independent, self-healing fiber-optic rings, making it independent of all other telecommunications circuits and conduits, Britz said. The NYSE and SIAC also recently completed work on a remote network operations center that's due to go live in the fourth quarter.

Meanwhile, John R. Mohr, executive vice president of The Clearing House Association LLC (TCH), a global payment systems firm that clears and settles more than $1.5 trillion in trades per day, said TCH hired a contractor to conduct both physical and cyber penetration tests. As a result of the tests, he said, the company reconfigured one of its key facilities, implemented biometric access-control systems and "all but eliminated visitor access to our operating centers."

TCH also developed a tertiary data center in another part of the country that is fully equipped to take over operation of its Clearing House Interbank Payments System (CHIPS) within an hour of a simultaneous failure of the other two CHIPS data centers, said Mohr. Using custom data mirroring software specially developed by TCH, CHIPS was able to overcome the distance limitations of synchronous mirroring technology and still achieve recovery times consistent with synchronous mirroring approaches, he said.

Samuel H. Gaer, CIO of New York Mercantile Exchange Inc., said all essential employees at his organization have been issued cell phones with two-way radio capability and portable two-way e-mail devices, some of which can be used to make emergency phone calls. The workers were also given laptops with remote connection software and cellular modem cards to wirelessly connect to the exchange's system resources anywhere cellular coverage is available, Gaer said. ● 40361

Sybase Offers Free Database for Linux

BY STACY COWLEY

In a bid to expand the customer base for its database, Sybase Inc. last week released a free but limited version of the software for deployment on Linux systems.

Sybase Adaptive Server Enterprise (ASE) Express Edition for Linux uses the same technology as Sybase's flagship ASE database, which has been losing ground to products from Oracle Corp., IBM and Microsoft Corp. ASE Express Edition is free for both development and production use, but it's limited to one CPU, 2GB of RAM and 5GB of total data storage. It can be downloaded from Sybase's Web site.

David Jacobson, Sybase's senior director of database and tools marketing, said the company is releasing ASE Express for free in hopes of attracting customers who will later upgrade to Sybase's ASE Small Business Edition, which has a license fee of $4,995 per CPU, or Enterprise Edition, which has a fee of $24,995 per processor. Support plans are available for ASE Express starting at $2,200 per year, but customers aren't required to purchase one.

JUST THE FACTS

The new ASE Express Edition:

- Is free for both development and production use
- Is limited to one CPU
- Supports 2GB of RAM
- Supports 5GB of total data storage

Meeting Demand

"What we've found is that a lot of customers are turning to open-source databases because of tight budgets," said Jacobson. "But open-source databases are harder to use than conventional databases — you have to download, compile, develop, deploy and manage them."

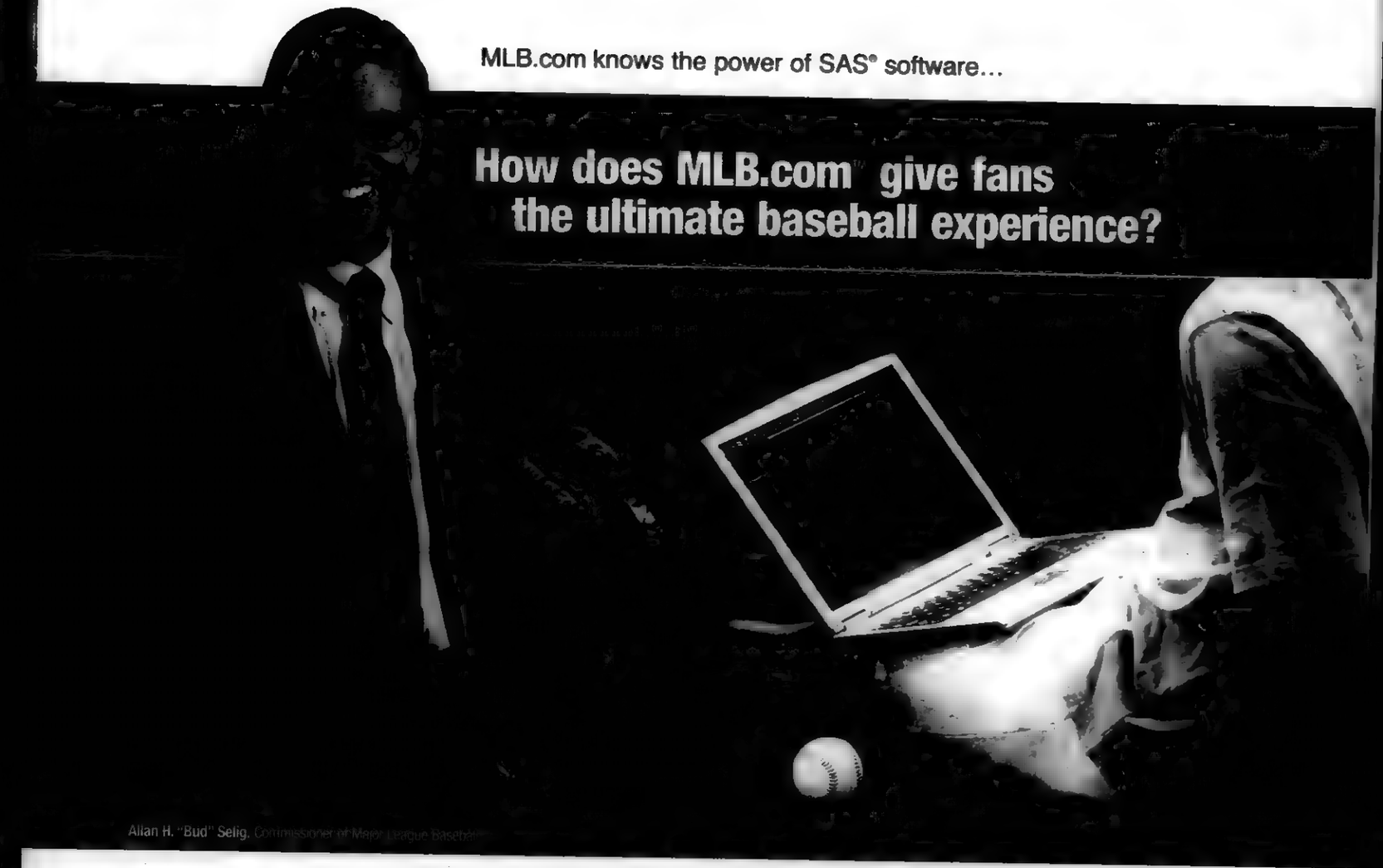
While Sybase ASE is available for Windows, Linux and Unix, the company is releasing ASE Express only for Linux. Jacobson said that's where Dublin, Calif.-based Sybase sees demand. "Microsoft has entry-level products, but for those moving from Unix to Linux, there's a gap," he said.

Forrester Research Inc. analyst Noel Yuhanna said the move is a good way for Sybase to recapture some of the market share it has lost in recent years to the big three database vendors. "It's definitely a good value proposition compared to open-source databases," he said. "Sybase is a very mature database, known for reliability, availability and performance."

Yuhanna's chief complaint about ASE Express is the tight limitation on data storage. For most customers, 5GB isn't enough — projects using free open-source databases tend to average 10GB to 20GB, he said.

Sybase partner Amit Okhandiar, president of consulting firm mLogica Inc. in Irvine, Calif., said he expects to use ASE Express on several upcoming projects for customers. "Open-source is a good way to go, but down the line, as [companies] grow, it becomes an issue," he said. "The problem with MySQL is that they can't sustain themselves with it." ● 40362

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Judge Rejects Antitrust Claims, Lets Oracle Pursue PeopleSoft

Says DOJ didn't show that acquisition would hurt competition in apps market

BY MARC L. SONGINI

A federal judge last week cleared the way for Oracle Corp. to proceed with its 15-month-old hostile takeover bid for applications rival PeopleSoft Inc., rejecting the U.S. Department of Justice's effort to block the $7.7 billion offer on antitrust grounds.

In a 164-page ruling issued late Thursday, Chief Judge Vaughan Walker of the U.S. District Court in San Francisco wrote that the DOJ's attorneys had failed to prove that a merger of Oracle and PeopleSoft "is likely substantially to lessen competition" in the business applications market.

Oracle immediately requested a meeting with PeopleSoft's board of directors and called on PeopleSoft to lift the various poison-pill mechanisms it has put in place to fend off the bid. In a statement, Oracle declared that Judge Walker's decision "removes a significant roadblock to the acquisition."

MORE ONLINE
The OAUG is holding its annual conference this week:
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www.computerworld.com

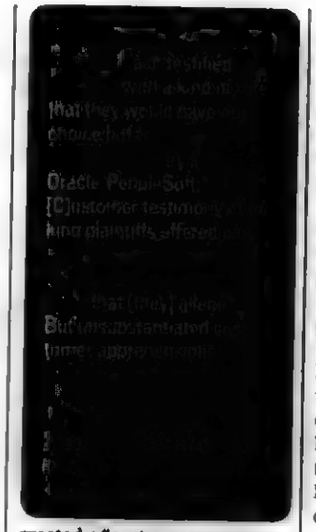
However, the judge stayed his ruling for 10 days to give the DOJ a chance to file an appeal, and the agency said it's considering doing so.

"We are disappointed in the court's decision," R. Hewitt Pate, assistant attorney general in charge of the DOJ's antitrust division, said in a statement. "We believe the facts and evidence in this case support our position that Oracle's proposed acquisition of PeopleSoft would result in a substantial lessening of competition in the markets for high-function human resources management and financial management systems software."

Oracle still faces an ongoing antitrust review by the European Commission. It also needs to overturn PeopleSoft's antitakeover provisions, which it's challenging in a lawsuit filed in Delaware's Court of Chancery. The trial in that case is scheduled to start Sept. 27.

Battles to Come

The two rivals are engaged in a legal battle in California's Alameda County Superior Court, where PeopleSoft has charged Oracle with unfair business practices. Oracle countered with a complaint claiming that PeopleSoft illegally refused to evaluate its bid and improperly



created a "customer assurance program" to make an acquisition more costly for Oracle. That case is scheduled to go to trial in November.

PeopleSoft said that its board would review Judge Walker's ruling and its implications, but the company wouldn't disclose when the board's next meeting is scheduled to take place.

Mitch Myers, vice president of operations at FWMurphy, a PeopleSoft user in Tulsa, Okla., said he's waiting to see more detailed responses from the DOJ and PeopleSoft before making any judgments about the ruling's potential impact on the takeover battle.

PeopleSoft won't necessarily throw in the towel yet, said Paul Hamerman, an analyst at Forrester Research Inc. "I wouldn't underestimate PeopleSoft's resolve to keep this from happening," he said. But he added that PeopleSoft, which blamed its weak second-quarter sales on the public relations fallout from the trial between Oracle and the DOJ, now likely will find it even harder to close deals.

Andrew Albarelle, principal executive officer at Denver-based staffing company Remy Corp., said he would be comfortable buying more software from PeopleSoft. But he added that he's OK with the idea of PeopleSoft being acquired — just not by Oracle. 49350

Stacy Cowley and Joris Evers of the IDG News Service contributed to this story.

Continued from page 1

ERP System

"As is often the case with a systems implementation of this size and scope, the first time some modules have been used [has] not been without complications," Norma Holland, an associate vice president at Indiana University, said via e-mail.

Holland said the glitches weren't caused by "the system proper" but apparently surfaced "at those places where fine-tuning was needed to align the university's business processes to the system specifications and functionality." She added that the start of classes limited the amount of time that was available for comprehensive testing of the financial aid software as well as end-user training.

To compensate for the unexpected shortfall of financial aid funds being disbursed to students, the university has had to dip into its reserve accounts and issue no-interest, short-term loans to help cover tuition and other expenses, said spokeswoman Sue Williams. School officials have also taken other steps, such as asking landlords not to charge students interest on late rent payments and letting students draw money from the bursar's office account to pay for textbooks.

The exact origins of the financial aid processing problems are still being investigated. But Williams said it appears that most of the problems were caused by interface issues between the PeopleSoft application and the loan systems at lending institutions such as the Student Loan Marketing Association, better known as Sallie Mae.


...in the PeopleSoft-based financial aid system have primarily affected students at Indiana University-Purdue University Indianapolis.

The university previously deployed PeopleSoft's human resources software and is using that without any apparent difficulties. But Williams said the financial aid module is as big and complex as all the other modules that the university has installed combined.

It's also more "sensitive" to exceptions than the university's older financial aid system was, she added. For instance, if there was a discrepancy between the amount of aid that a lending institution's system said should be issued to a student and what the university itself had earmarked, the financial aid software simply blocked the transaction.

In addition, although the system is centralized, it has to take into account variables throughout the eight campuses, including the differences between part-time and full-time students and whether a campus does business with more than one lender.

Despite the difficulties, university employees have been able to manually clear up about 300 accounts per day, and they hope to have them all corrected within three weeks, according to Williams.

PeopleSoft remained upbeat about the university's implementation of its software.

"Indiana University is a happy customer, and they're saying it's an internal issue and not a problem with the software," said PeopleSoft spokesman Steve Swasey. "It's a complex rollout, and we're working very closely with them. We have our consulting group in there and will continue to support them in every phase of the implementation." 49340

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NETWORK GOES FASTER, BUDGET GOES FARTHER.

FOUNDRY NETWORKS

IBM Adds Self-Management Capabilities to DB2 Upgrade

Says tools should help administrators streamline complex database tasks

BY MARC L. SONGINI

IBM LAST WEEK said it's ready to ship the next version of its DB2 Universal Database software, which offers self-management capabilities that are designed to reduce administrative overhead even as databases continue to grow bigger.

Code-named Stinger, the DB2 8.2 upgrade has been in beta testing since May and will become generally available this week. As part of IBM's autonomic computing push, the database will come with new self-monitoring and self-tuning features, said Jeff Jones, the company's strategy director for information management. The utilities should help database administrators complete complex tasks up to seven times faster than they can now, according to IBM.

Automation Features

The new functionality includes a tool called Design Advisor that can automatically design and optimize the structure of a database, plus a related utility that automates administrative tasks such as table maintenance and data backup. To help ensure uptime, another tool lets end-user PCs automatically fail over to a backup database if the primary DB2 server goes down. IBM also embedded its Learning Optimizer tool, which lets the database monitor and record query response times and find the fastest route to data.

Dallas-based Credit Union of Texas, which oversees about $1.6 billion in assets, will start testing the new software this month for a potential rollout in December. Bruce Moore, the credit union's director of business intelligence, said Design Advisor could help speed up database configuration tasks for his team.

The credit union's data warehouse, which is built on DB2 8.1, captures 60 months' worth of customer and operational information for analysis.

With so much data but only a small staff to manage it, some things that could help boost database performance can't be done now, Moore said. He added that he thinks Design Advisor could reduce the time it takes to build month-end indexes by enabling him to use summary tables and techniques such as multi-dimensional data clustering.

For an incremental release, DB2 8.2 is a relatively significant rollout because of its new autonomic and integration capabilities, according to Charles Garry, an analyst at Meta Group Inc.

"The bottom line is that we are moving away from day-to-day maintenance of the database as a resource and have to trust that the autonomic functions know more and can react more proactively than a human DBA can," Garry said. 49341



Continued from page 1

TagmaStore

three TagmaStore models also include up to 192 Fibre Channel ports that can be split into 1,024 virtual ports offering connectivity to an equal number of host servers.

Using new software called Universal Replicator and Universal Virtualization Layer, the TagmaStore arrays can replicate data over thousands of miles and pool storage capacity from HDS's existing Lightning and Thunder arrays and from rival products. However, the replication and storage-virtualization features won't be available until December.

Users who have been beta-testing or reviewing the arrays said they have high hopes that the technology will offer greater consolidation and automation, allowing them to reduce manpower needs and their total cost of ownership for storage.

"There's a lot of different storage that we have in place, and we can consolidate it all under one heading," Frank said. He added that United has bought a TagmaStore array and has been using it for the past month.

HDS said it also enhanced its HiCommand management software so users can set policies to automate migration of data from high-end Fibre Channel disks inside the TagmaStore arrays to lower-cost ATA storage outside the devices and, ultimately, to tape libraries.

Tom Fleissner, a storage-area network architect at Pacific Capital Bancorp in Santa Barbara, Calif., said he hopes TagmaStore's information lifecycle management features will let him automatically store critical data on high-performance disk drives and shunt less important data to more cost-efficient technology. Like United, Pacific Capital has already installed one of the new arrays.

Sun Microsystems Inc. and Hewlett-Packard Co. have signed agreements to resell the TagmaStore devices, expanding on existing high-end storage marketing deals that they have with HDS [QuickLink 49251].

Tony Asaro, an analyst at Enterprise Strategy Group Inc. in Milford, Mass., said that TagmaStore's scalability is unique and that its upcoming virtualization capabilities go well beyond what other storage vendors offer.

"It's basically a large virtualization appliance," Asaro said. "It extends all the software functionality to everything that's attached behind it."

He was quick to point out, though, that pooling disk arrays from other vendors behind TagmaStore could void their product warranties.

But Jim Grogan, vice president of alliances at SunGard Data Systems Inc., said that as storage systems from vendors such as IBM or EMC become obsolete, he sees no problem in using them as back-end capacity for TagmaStore arrays. "You're getting a migration path," Grogan said.

SunGard stores 148TB of internal data and information from its disaster recovery clients on older-model HDS devices, and Grogan said he's disappointed that TagmaStore's virtualization features aren't ready now. "The multiplatform management piece is one of the hallmarks of this," he said. "If they slip on that, that will be huge."

Grogan added that Universal Replicator could save him big money on network bandwidth. Instead of caching data and then sending it across IP networks asynchronously, the new tool writes the data to a disk, creates a time-stamped journal and replicates the information as bandwidth becomes available. That could free SunGard from investing in networks that cater to peak traffic levels, according to Grogan. "The difference between an OC96 and a T1 line is dramatic in price," he said.

Users also can divide TagmaStore arrays into as many as 32 logical partitions in order to dedicate storage capacity to specific applications. 49332

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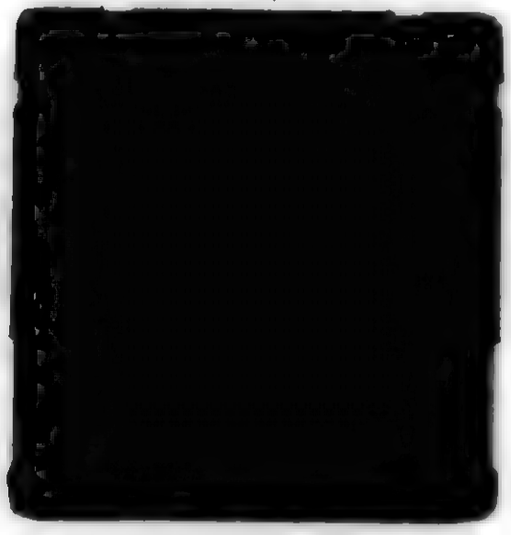
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Boston · September 21, 2004

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7:30am to 8:00am	Registration and Networking Breakfast
8:00am to 8:15am	**From Cutting Edge to Corporate Stage: Grid Computing and the Enterprise** Julia King, Executive Editor, Events, Computerworld
8:15am to 8:45am	**Dynamic IT: Grid Computing and the Virtualization of Data Center Resources** John Humphreys, Research Manager, Enterprise Computing, IDC
8:45am to 9:15am	**Real-World Grid Computing: Acxiom's Adoption of a Grid-Based Infrastructure** Chris Bennett, Technical Team Leader, Workflow Technology Group, Acxiom
9:15am to 9:45am	**Preparing for Successful Deployment and Use ... Lessons Learned** Mark Forman, Former CIO, US Government, and EVP, Worldwide Services, Cassatt
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Update from the Enterprise Grid Alliance (EGA)** Shawn Douglass, EMC Board of Director Representative, Technical Steering Committee, Enterprise Grid Alliance (EGA)
10:45am to 11:15am	**The View of Grid Computing from Iron Mountain** Bill Olsen, VP of Engineering, Iron Mountain Digital Archives
11:15am to Noon	**Key Considerations in Grid Computing Projects: An IT Executive Roundtable** Panel Moderator: Patrick Thibodeau, Senior Editor, Computerworld Panelists: Ben Flock, VP of Virtualization and Application Frameworks, CIGNA; Mark Forman, Former CIO, US Government, and EVP, Worldwide Services, Cassatt; Bill Olsen, VP of Engineering, Iron Mountain Digital Archives
Noon	Program Concludes

Selected speakers include:



Julia King
Executive Editor, Events, Computerworld



Ben Flock
VP of Virtualization and Application Frameworks, CIGNA



John Humphreys
Research Manager, Enterprise Computing, IDC



Chris Bennett
Technical Team Leader, Workflow Technology Group, Acxiom



Patrick Thibodeau
Senior Editor, Computerworld

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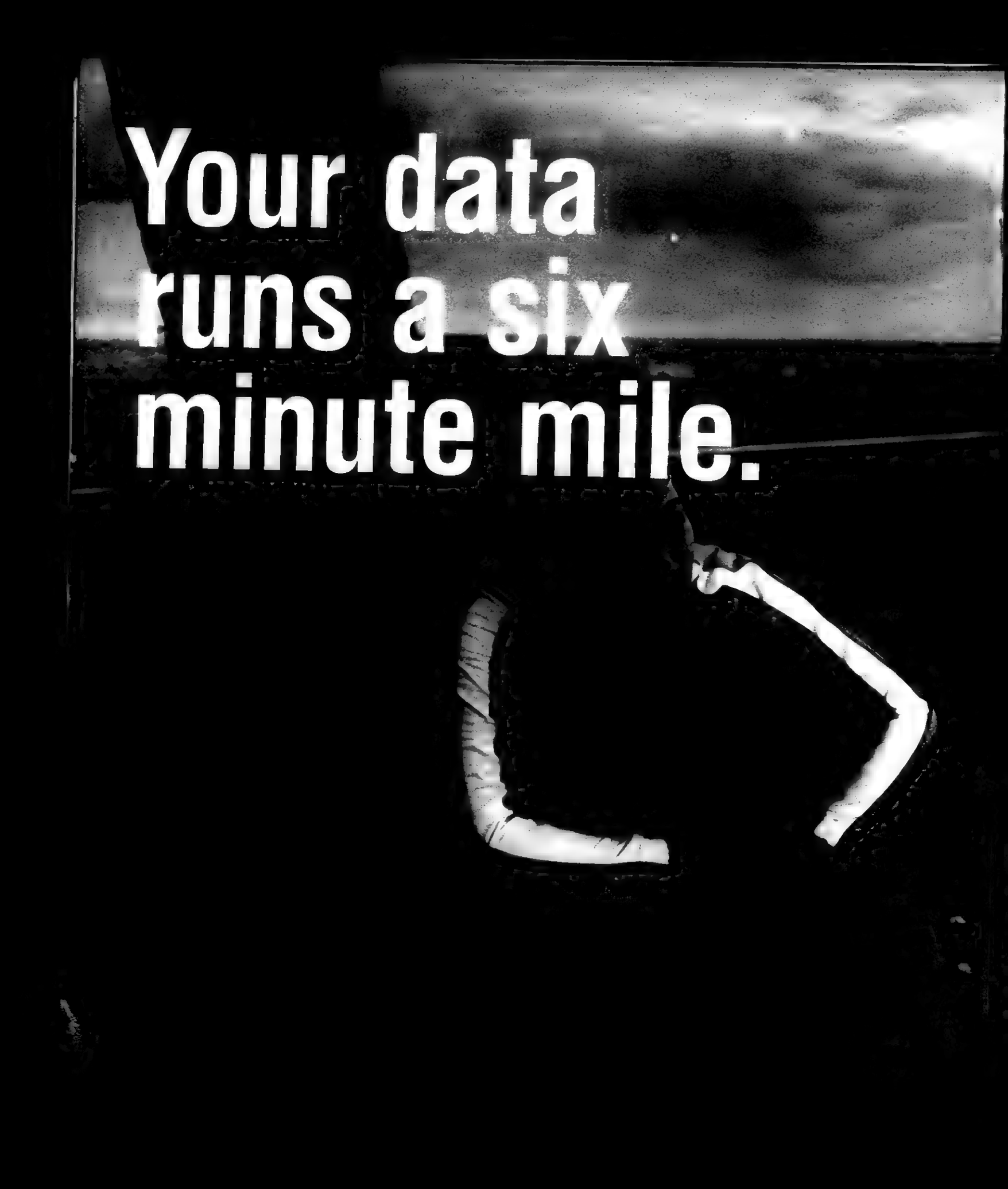
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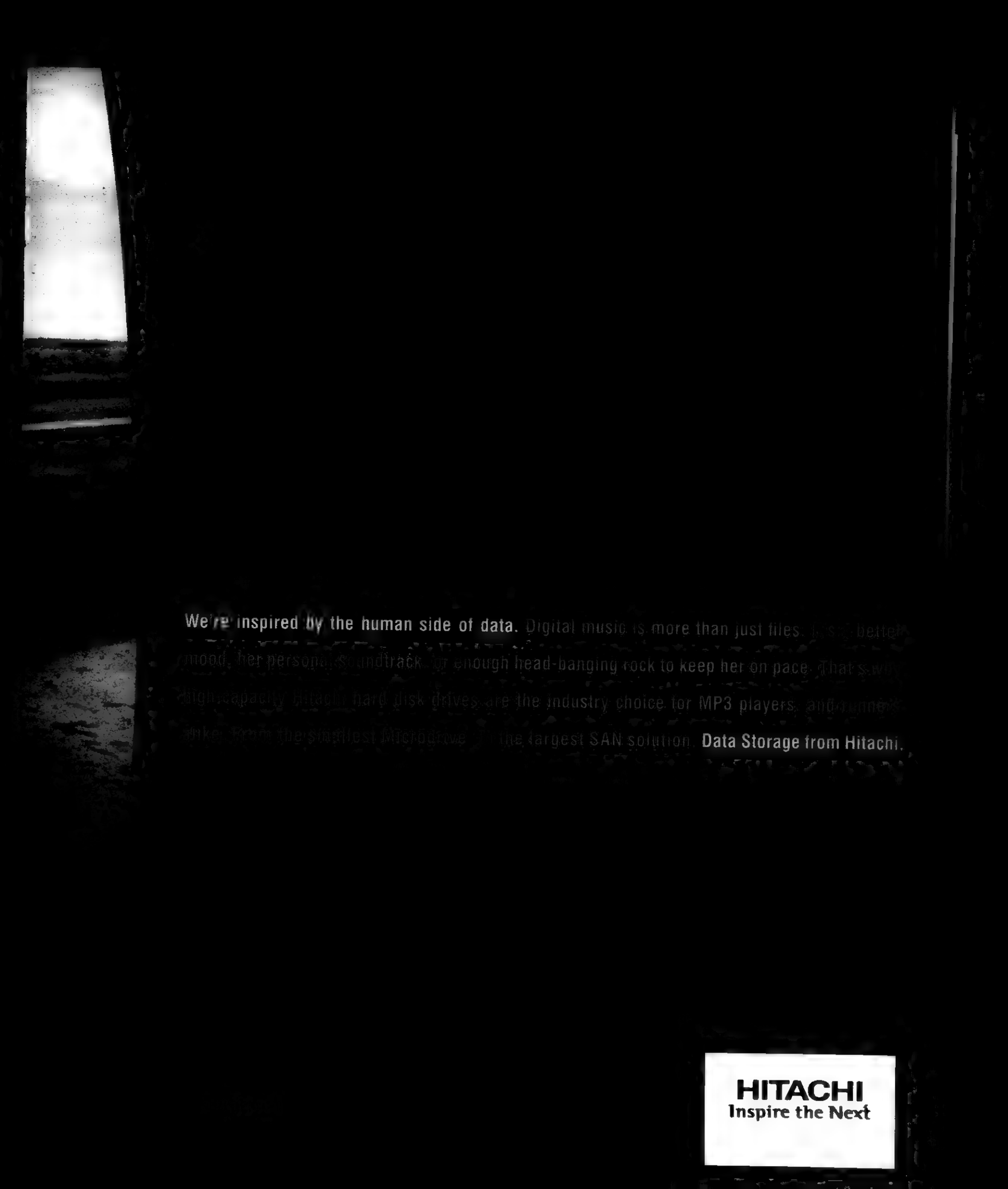
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SHARP

Digital Document Security and IT: Everything you need to know.

Q: What are the most significant digital copier security issues?

A: Various copier print controllers are actually servers that buffer and permanently store multiple document files, providing administrator access to the documents. At a minimum, most digital copiers retain the last document processed; some even retain multiple documents totaling hundreds of pages. Others redirect print jobs when the printer is busy or jammed, making "denial of service" attacks possible.

Q: How does Sharp protect the network interface?

A: The Sharp Ethernet card allows administrators to restrict access and disable unnecessary protocols. With this network card, the Sharp digital copier is essentially protected by its own firewall.

Q: How can you be sure that security products actually perform as claimed?

A: The Common Criteria program—administered by the U.S. National Security Agency and the National Institute of Standards and Technology—evaluates security solutions. Products that are validated under the program meet security levels consistent with ISO 15408 methodology.

Q: How can Sharp improve IT security?

A: Sharp offers print privacy solutions designed to restrict unauthorized personnel from seeing confidential materials. Copier access can be controlled and monitored, while documents retained in printer/copier/scanner/fax memory are immediately cleared to eliminate unauthorized access.

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Sara Lee Wrestles With RFID, Looks for Benefits

IT executive advises peers to start testing the technology now

Q&A

Sara Lee Corp. is testing radio frequency identification tags on some product cases and shipping pallets to meet a mandate that RFID technology be used on goods sent to Wal-Mart Stores Inc.'s Dallas-area distribution centers starting in January. Ray Hagedorn, who works in Cincinnati as vice president of business solutions for the IT department in the Sara Lee Foods division, recently spoke with Computerworld's Carol Sliwa about what Sara Lee has learned about RFID. Excerpts follow:

Which applications will make use of the data that you gather through RFID? We're a major supplier [to Wal-Mart], and we had to focus on January. If we got too caught up in breaking down the processes and everything else like that at this particular juncture, we were going to waste a lot of time prematurely. So we said, "Let's narrow our focus. Let's learn about the technology."

Are you mostly taking a "slap and ship" approach now? Absolutely. And if everybody would be honest with you, that's what they're doing.

Are tags being read at the accuracy rates that Wal-Mart expects? Yes. At a case-by-case basis, as I go down through our process, I validate that case. A tag is on it. I encode the tag and then I immediately validate that, and I capture those statistics. If it doesn't read, I can pull that out and put another tag on until we get it read. That gives us our 100%.

It sounds time-consuming. Oh, absolutely.

Wasn't RFID supposed to automate the process? It's not ready for high volume.

What advice would you give your peers? It's early. Don't make huge investments. Get started, pick your point, learn. Pick a partner in your business [operations], because you can't do it [all] as technologists. We have our logistics group very involved with us every step of the way. In fact, we share co-management of [the RFID project].

What are some problems with RFID technology? The tags, without question. From the middleware side, this is still early in its evolution. There are many vendors out there right now that have middleware that is integrated into their standard offering of product, and they also have some things that can work with someone else's, like a warehouse management system and things like that. You can go through different research or consulting groups that give you a short list of things that you should be looking for in a middleware vendor. But don't worry about it. Your solution provider there probably is not going to be the solution provider 12 months down the road.

Do you have any idea what the biggest benefit is going to be for your company? No. I believe there is value, and this is predicated on good information flowing back to me at key points in time, near real time, that our planners can use to better plan and better forecast — allowing us to shrink safety stock, for example.

When do you think you'll start to see value? I even hate to hazard a guess. But I would say we would be really looking for things to dramatically improve where I can start using information flowing back, regardless of whether it's internal or external, within the next 12 months. . . . You first look at where you have pain points for information accuracy, timing, controls or whatever the case might be. And if you say, "Wow, I've got a big issue here. RFID today can make a vast improvement" — go for it. We just haven't found, in our 100,000-foot fly-by, any of that that immediately jumped out. **49245**

Intel Mum on Dual-Core Desktop and Server Plans

Company says new devices are due in '05 but won't share details

BY ROBERT McMILLAN AND TOM KRAZIT

SAN FRANCISCO

Intel Corp. last week outlined a plan to develop a mobile processor with two CPU cores, but the company remained silent about its strategy for dual-core versions of its Pentium 4 desktop and Xeon server chips.

Intel has promised that a dual-core Xeon will be the next major follow-on to the Nocona chip it launched last month, and company President and Chief Operating Officer Paul Otellini said at last week's Intel Developer Forum (IDF) that the vendor plans to introduce dual-core devices for servers, desktop PCs and notebooks next year.

But Abhi Talwalkar, general manager of Intel's Enterprise Platforms Group, said he wasn't ready to reveal any details about the next Xeon processor.

"We want to make sure that any commitments that we make have all the right levels of scrutiny," he said. "There are multiple considerations that we're weighing now, everything from time-to-market options to considerations around the [Nocona] platform that we just launched into the marketplace."

Bill Siu, general manager of the Desktop Platforms Group at Intel, took a similar tack after offhandedly mentioning that one of the PCs used in a demonstration was equipped with a dual-core processor. Siu called the chip an engineering prototype and wouldn't discuss its features, its release schedule or even its code name.

Intel has been plagued by a series of missed shipment deadlines over the past year, prompting CEO Craig Barrett to issue a memo in July calling on the company to change its ways [QuickLink 48475]. A desire to avoid further slip-ups may account for the lack of information about upcoming products at last week's conference, said Nathan Brookwood, an analyst at Insight 64 in Saratoga, Calif. "Intel has not been as forthcoming at this IDF with details of their road map as they have in the past," he said.

Company executives didn't even disclose full architectural details about the planned dual-core Pentium M mobile chip, which is code-named Yonah. **49315**

McMillan and Krazit write for the IDG News Service.



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SugarCRM Offers Open-Source Sales App

BY TODD R. WEISS

Open-source start-up SugarCRM Inc. last week released the first commercial version of its Linux-based CRM software, promising to support corporate users through a combination of in-house telephone lines and third-party service calls.

Sugar Sales Professional 1.5 starts at $149 per seat for the first year, which includes technical support and administrator training. The software runs natively on Linux and supports the Apache Web server, MySQL database and PHP programming language. But it can also run on Mac OS X and Windows systems, said John Roberts, co-founder and CEO of Cupertino, Calif.-based SugarCRM.

The company will provide telephone support and bulletin boards for users, as well as software updates, patches and fixes. It also plans to sign on business partners to handle field service work, Roberts said. "Yes, it is open-source, but a real company is there to support it," he added.

Chris Le Tocq, an analyst at Guernsey Research in Los Altos, Calif., said users will judge SugarCRM's offering "on the quality of the support" that the company provides. "That's going to be up to Sugar — to keep people happy [and feeling] that their support is blue-ribbon," Le Tocq said.

Roberts helped start SugarCRM after working at CRM vendor E.piphany Inc. In April, when SugarCRM released an early version of its application, there were just 48 downloads by users. Last month, there were 13,051 downloads, Roberts said.

License Limits

Sugar Sales Professional is licensed under the Sugar Public License, which is a copy of the Mozilla Public License. Users have to release any code changes they make to the open-source community only if they plan to distribute the software to another party, said Roberts. But, he added, the license prevents companies from selling modified code.

Version 1.5 of Sugar Sales Professional includes a plug-in that lets Microsoft Outlook users move customer e-mails into the CRM application with a single mouse click. Roberts said it also provides tools for importing data from proprietary CRM tools, including products from Salesforce.com Inc., Best Software Inc., SalesLogix Inc. and Microsoft Corp.

After the $149 introductory price for the first year of use, Sugar Sales Professional subscribers will have to pay an annual fee of $239 for continued support and services, according to SugarCRM. ⓒ 48314



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DON TENNANT

Living for This

IF THERE'S ANYTHING I LOVE more than a baseball metaphor, it's a baseball simile. So, what better way to salute my predecessor?

Following Maryfran Johnson in this job is like following Barry Bonds in the batting order. In fact, it's even tougher — Barry is no Maryfran. For one thing, what does Barry do every time he hits a home run? He stands there and stares at it. I mean, you just want to smack him and scream, "Stop watching and start running, Barry!"



Let me tell you, Maryfran was never a stand-and-watch player. If she hit a homer, she'd be sprinting to first before the sound of the bat hitting the ball had made it past the pitcher's mound. And that can't be easy in a pair of Christian Louboutin sling-back heels.

So the order to fill Maryfran's shoes is taller than the Green Monster. And not just because I'd look preposterous in a pair of designer sling-backs.

I was sitting next to Maryfran in the ballroom at the Waldorf-Astoria in New York last March when she was announced as the recipient of the first Timothy White Award for editorial ethics and courage. I think so highly of Maryfran, I probably wanted to hear her name read even more than she did. And when we did hear her name and she looked over at me a bit stunned, I remember smiling and hoping she could see the admiration and respect I have for her.

Seeing Maryfran on a different team is going to be as tough as it is seeing Nomar in a Cubs uniform. But players move to different teams all the time. You just have to suck it up, regroup and rededicate yourself to being the best. And you need to consider it an opportune time to analyze your game plan to determine whether anything needs to be changed.

Clearly, when you're the current World Series champion — in our case, holder of the title of Magazine of the Year, awarded by the American Society of Business Publication Editors — you'd be foolish to make any sweeping changes. So you'll see us proceed as determinedly as the Big Unit going for that last out in the ninth — delivering the useful, unique information you've come to rely on and expect in print, online and at our growing number of roundly applauded user-focused events.

At the same time, it makes sense for us to assess whether we have any resources that are being underplayed. The fact is, the international reach *Computerworld* has as the hub of the world's largest global IT media network and as the flagship publication of International Data Group has been sitting on the bench far too long. That's going to change. Virtually everyone who reads this publication works for a company that has interests outside of this country. We have the unparalleled ability to provide you with the information you need to formulate global IT strategies, and we're going to start taking advantage of it.

We're going to be covering all the IT management bases you need to have covered, with an award-winning editorial team that's full of gold gloves. And anyone who tries to match our coverage of those bases will find us stealing them more aggressively than Pete Rose doing a headfirst slide.

So keep your expectations high. To borrow that cool MLB catchphrase: I live for this. **ID 49302**

Don Tennant



PIMM FOX

The Color of Microsoft's Money

IMAGINE for a moment that someone gave you $5 for each desktop PC in your organization that was running a Microsoft operating system such as Windows XP. Not bad, I reckon.

The more PCs your company had, the more money you would rake in. Well, that's called a kickback, and it's probably illegal. If it isn't illegal, it could ruin your reputation, and your co-workers might even beat you up. But that's exactly the kind of relationship Dell appears to have with Microsoft.

Michael Robertson wrote about this in his Sept. 2 column at *www.linspire.com/lindows_michaelsminutes.php*.



According to Robertson, it's estimated that Microsoft pays Dell anywhere from $2 to $10 for each computer Dell sells that has Windows XP installed.

And you thought the U.S. Department of Justice had rapped Microsoft over the knuckles so that it would play nice and offer each of the top 20 manufacturers its operating systems at the same price.

Well, it's not too surprising that Microsoft figured out a work-around. Microsoft pays computer makers based on the number of computers they sell, sort of like an incentive program, thereby getting around the agreement it signed with the Justice Department.

OK, I know, this is just business, and Robertson's complaint sounds like whining. But the advance of Linux as an alternative desktop operating system is being hampered not because of technology but because of a sweetheart deal between the giants of the hardware and software markets.

This business relationship is putting the brakes on innovation. It's a severe impediment to millions of people trying Linux. And it's costing you money.

Robertson says that when two top executives from Linspire (yes, he's the

CEO of that Linux vendor) went to visit Dell to talk about what's new in open-source, Dell executives canceled the meetings at the last moment.

Dell sold desktops with Linux installed from 1998 to 2001. And the company still offers workstations and servers with Red Hat Linux. But that's a far cry from actually making it popularly available.

Microsoft also pays Dell if the computer maker recommends Microsoft Windows XP Professional. I found the recommendation on almost all of the Web pages I visited at Dell's site. Why does Dell tie its fortunes so closely to Microsoft? Because the deal makes Dell lots of money.

Is Windows really the best operating system available? Haven't we moved beyond being spoon-fed bundled software? I'd rather be allowed to make that judgment than have a supplier offering products without disclosing that it gets paid to push particular operating systems or software.

Of course, Dell could just pass that Microsoft money on to all the IT and purchasing departments at large corporations.

I bet that money could buy plenty of machines and even tutorials so workers could then install Linux themselves. 49271

TOM WEAKLAND

Outsourcing Best Practices

COMPANIES are starting to consider their outsourcing decisions strategically, and not just as cost-cutting exercises.

Companies that see outsourcing as a short-term cost-cutting opportunity are almost always disappointed with the results. But companies that approach outsourcing as one element of an overall business strategy are applying some specific best practices to reach their goals more quickly and with fewer roadblocks.

Communicating openly from Day 1. Companies that develop candid internal communication plans about sourcing strategies are far less likely to experience employee backlash as roles begin to move offshore. Eighty-four percent of the buyers of outsourcing services in DiamondCluster's "2004 Global IT Outsourcing Report" said they're concerned about backlash as jobs are lost to offshore outsourcers. But those same companies have probably underestimated the ripple effect of their outsourcing decisions.



At a major financial services organization, the CIO and his direct reports conducted a six-week series of "town hall" conference calls with the global IT department before a final decision was made on outsourcing. Those events gave employees the opportunity to vent their concerns, raise issues that management hadn't considered and cut down on potentially damaging rumors. The CIO partly credits keeping the lines of communication open for a decline in voluntary staff attrition following the announcement of the outsourcing decision.

But the people who rely on the services that will be outsourced need to be part of the process as well. The IT department's internal constituencies want to be part of the process, and they want guarantees that outsourcing decisions won't undermine their own goals and objectives.

Actively managing attrition. Companies that don't have a policy of weeding out their less productive performers on a regular basis develop cultures where forced attrition is virtually nonexistent, where everyone knows there is dead weight and where top performers get discouraged.

Outsourcing can actually be a strategic means of jump-starting a managed attrition policy without having to resort to drastic reductions in force. A Fortune 1,000 service provider, for example, is weeding out the bottom 10% performers in its IT workforce and filling some of those roles with third-party resources.

Investing in education and retention. It seems counterintuitive, but the best companies keep investing in IT training even as they outsource. Internal personnel have valuable proprietary knowledge about the company's staff, processes and systems. Growth-oriented companies are beefing up internal training, sending people to executive ed programs and actively supporting employee efforts to earn additional certifications.

Minimizing unintended consequences. Companies considering outsourcing need to carefully examine how short-term, cost-driven decisions might undercut strategic intent. A comprehensive sourcing strategy helps a company identify hidden consequences.

A company that typically hires people into its IT department from undergraduate university programs almost learned a lesson about unintended consequences the hard way. This firm has historically promoted its top performers from programmer to IT manager to IT executive. It was considering outsourcing virtually all of its application development, but then it realized that such a decision could result in a lack of IT managers three to five years down the road. Now it may scale back its offshore plans. 48982

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READERS' LETTERS

Make or Buy? Don't Forget Staff, Process

THE BULLET POINTS in Gary H. Anthes' "Roll Your Own" article [QuickLink 47684] listing the situations where it's best to build were excellent, but I have found there is another important point: process. Here at CenterPoint Properties, we evaluated and defined our business processes first. Then we found software to fit our needs.

By putting process first, we not only produced optimal business practices (because we didn't have to compromise them for an existing software package), but we also had an easier buy/build decision to make. We had a solid set of requirements that allowed us to properly investigate packaged applications, purchase the ones that worked and build the ones we needed.

Scott Zimmerman
CIO, CenterPoint Properties Trust, Oak Brook, Ill.

MODERN DEVELOPMENT tools like Microsoft Visual Studio (.Net technology) in the hands of a properly trained and experienced programmer can produce highly tailored solutions in a very short time that often outperform the generalized commercial off-the-shelf (COTS) solutions. In my opinion, the make-vs.-buy decision often depends on management's commitment to their IT staff. If they have developed a good staff, then they will trust that staff to support and maintain the in-house applications. Otherwise, they will look to COTS as a long-term, more secure solution.

Fred Remboldt
Manager of IS, University of Virginia Facilities Management

Congress Misses VoIP Big Picture

PINN FOX IS CORRECT that Congress should get out of trying to regulate VoIP as it does phone service, but he is missing the big picture – although most of Congress is, too ["Hang Up on Congress," QuickLink 48040]. There's no reason to have one set of rules for phone calls and another for broadcast services. South Korea got it right, and it has 80% penetration in broadband. Compare that with 27% in the U.S. What's different in South Korea? No separate rules. TV broadcasts, Internet access, voice calls and other services are offered without multiple tax-fee regulations or rules about who can offer what. This has provided South Korea with its current economic boom. Until Congress and the FCC get a clue and scrap the current regulations and start thinking about technology in a more rational way, the U.S. will continue to fall behind the rest of the world in communications, which affects everything else we do.

Harry Holt
Systems engineer, Midlothian, Va., harryholt@gmail.com

No More Bull

IN REFERENCE TO Steve Mugin's July 26 letter, "No-Bull Approach Gets Thumbs Up" [QuickLink 47975], in which he wondered what happened to my son and the bull discussed in my column "I'm OK: the Bull is Dead": I was once told that according to Zen philosophy, at the end of a discourse between a teacher and a student, the student should be left with greater curiosity than what he had at the start of the discourse.

Now regarding the bull: My son, Raj (now the EVP of our company), was driving home around midnight when a Texas longhorn walked onto the road. Luckily for Raj, the bull got the worst of the collision. The car's front end was damaged, but Raj did not have any injuries. The farmer who owned the property and the bull reimbursed our auto insurance company for the damage to the car.

Gopal K. Kapur
President, Center for Project Management, San Ramon, Calif., gkapur@center4pm.com

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

For more letters on these and other topics, go to www.computerworld.com/letters


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ROLM
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of communication

WHAT'S IN A NAME? Well, if you've got a lot of them on your voice and data equipment, moving to IP without breaking the bank can seem pretty daunting. Avaya makes it easy for you to jump right in, efficiently, reliably, and securely. As the world leader in enterprise IP telephony, our solutions are specially designed with industry standards-based technology and open architecture. They layer right on top of your existing network and work with almost every other brand. So with Avaya, you can keep up to 85%* of your current investment. Avaya can also turn your call center into a strategic IP contact center, easily and seamlessly. We help you go to IP right away, no matter what names are on your list. To learn how we can work with what you have, see "Best Practices for IP Deployment in a Multi-Vendor Environment" at **avaya.com/seehow**.

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Eric Nadler says ForeSee's CS SiteManager helped Danskin identify the areas of Web site that needed the most improvement.

JENNIE JAMES

Cool ON PAPER, Innovative IN PRACTICE

When put in the hands of customers, this year's 30 award-winning technologies realized their full potential for cutting costs, reducing waste and increasing productivity.

COMPUTERWORLD INNOVATIVE TECHNOLOGY AWARDS

Apparel Maker Gets Instant Feedback With Online Survey Tool

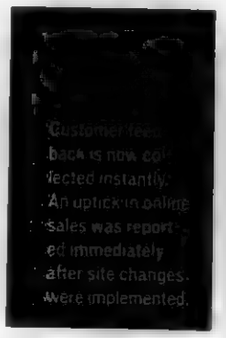
BY TODD R. WEISS

When women's dancewear and activewear maker Danskin Inc. created a Web site in 2001, it didn't exactly set the dance world spinning on its toes.

Beginning with only one product line in order to avoid conflicts with traditional brick-and-mortar retailers, the company set out to gauge the interest of customers in buying Danskin products online. Less than two years later, in January 2003, the New York-based company made the move to expand its site and online product offerings.

But simply adding more merchandise to a hastily assembled trial Web site wasn't exactly a great sales strategy, says Eric Nadler, the company's vice president of sales operations. "We knew the site was not all it could be," he says. "It wasn't done in an aggressive manner. We were just a Yahoo store, just trying to feel the waters out."

Nadler and another executive were given responsibility for improving the site, and they quickly felt overwhelmed. "We knew we had graphics, search and site problems, but we couldn't prioritize them," Nadler says.



At an online retail trade show last year, they found CS SiteManager, a Web-based customer-satisfaction application from ForeSee Results Inc. in Ann Arbor, Mich. With CS SiteManager, Danskin can get instant reactions from customers about what's good or bad about its Web site, and that feedback can be used immediately to make midcourse corrections.

The product runs behind the scenes and gives random customers a pop-up window containing a brief survey to get input about their shopping experiences at Danskin.com.

For Danskin, the information garnered from the ForeSee,

continued on page 32

ForeSee, *continued from page 31*

surveys has been a gold mine. "What it really does is allow us in an analytical and scientific manner to learn what satisfies our customers and what their needs, wants and desires are in utilizing our Web site," Nadler says. "We can see what changes we can make that will have the biggest bang for the buck."

Using the research data and statistical methodologies from the customer input analyzed by ForeSee, Danskin was able to pinpoint the e-business areas that needed work, Nadler says. "Customers for the most part want to share their experiences and help you build a better site," he says.

Within six weeks of incorporating CS SiteManager, Danskin learned that site navigation was one of the biggest sticking points for customers. After spending 15 minutes making site changes, Danskin immediately began seeing increased online sales. Nine months later, incremental sales increases were apparent, much of which were attributable to CS SiteManager, Nadler says.

"It was looking at customer service from an entirely different angle, and that's what we thought was cutting edge," Nadler says. "We were going to be able to do our jobs better. It absolutely has paid for itself." **48999**

WINNER

URL: www.foreseeresults.com
LOCATION: Ann Arbor, Mich.
CATEGORY: Web site management
TECHNOLOGY: CS SiteManager
HOW IT WORKS: The pop-up online survey asks Web shoppers about their general satisfaction with the site's functionality, whether they intend to return to the site and about its look and feel, pricing and value, says Larry Freed, CEO and president of ForeSee. With a typical customer-response rate of 6% to 12%, a company can gain critical information from users to increase sales and ROI, according to Freed. "We help diagnose the problem," he says. CS SiteManager uses statistical methodologies from the American Customer Satisfaction Index to create its data.
CUSTOMER SAMPLING: Tower Records, Home Shopping Network, Cingular Wireless, Hallmark Flowers Inc., Forbes.com, the National Hockey League, DTE Energy Co.
TIP: Set Web site investment priorities around direct input from customers.
WHAT'S IN STORE: "The prospects for an independent company that surveys Web site users and provides actionable advice to Web site builders appear bright," says Michael Dortch, an analyst at Westport, Conn.-based Robert Frances Group Inc.

Millipore Takes Fast Track To Asia With Global Network

Millipore Corp. wanted its Japan-based customers to move to Web ordering, but first it had to convince them that using the Web was quicker than sending a handwritten fax. That wasn't necessarily simple to do.

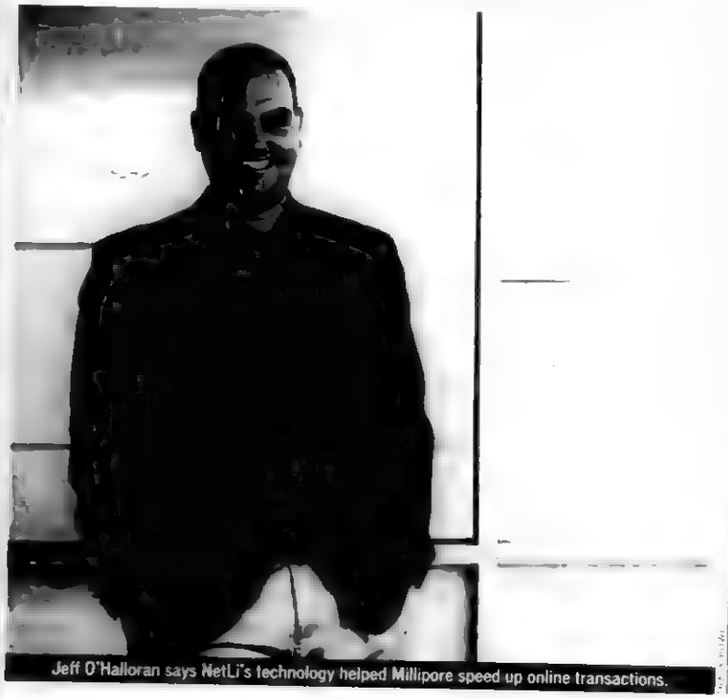
The corporate IT strategy for this Billerica, Mass.-based bioscience company is to keep its data services centralized. That meant customers from Asia would be connecting to Web servers halfway around the globe. And that was the problem.

The round-trip time for a packet traveling from the East Coast to San Francisco, for instance, is about 50 milliseconds. The travel time to Tokyo, however, can be as much as 200 milliseconds. While that's a relatively big difference, it's still not enough to create a headache for the user.

What slows Web performance is the number of round trips between the host and user that are needed to load a Web page. Those round trips can total 40, 50 or more and add significant amounts of time.

In Millipore's case, it took seven to 12 seconds for each page to load in Japan. And customers there felt it took longer to complete the Web order, which involved loading multiple pages, than it did to write out and fax an order, says Jeff O'Halloran, manager of Internet services at Millipore. "We

NetLi, *continued on page 34*



Jeff O'Halloran says NetLi's technology helped Millipore speed up online transactions.

Under the Hood

- The number of round trips between the host and user was reduced.
- Web page loading times in Japan were reduced, from seven to 12 seconds to under two seconds.

E WINNERS

AmberPoint Inc.
www.amberpoint.com
Oakland, Calif.
Application development
Service Level Manager
Provides predictability, visibility and control for Web services in production environments through a Web-based user interface. Offers end-to-end management of operational and business data interactions.
Best Buy Co., BT Group PLC, Cole National Corp., Motorola Inc., TransCanada Corp.

Atomz Corp.
www.atomz.com
San Bruno, Calif.
Application development
Atomz Enterprise
Combines site search and content management to improve online visitors' experience.
H&R Block Inc., J. & W. Seligman & Co., PalmOne Inc.

BladeLogic Inc.
www.bladelogic.com
Waltham, Mass.
Application development
BladeLogic Operations Manager
Data center automation software that helps companies provision, configure and manage large-scale, distributed server environments.
Priceline.com Inc., USAA, Chicago Mercantile Exchange Inc., HSBC Group, Wal-Mart.com USA LLC

BlueArc
www.bluearc.com
San Jose
Storage
Titan SiliconServer
Consolidates and manages up to 256TB of data in a single network storage appliance.
Altera Corp., BizRate.com, C.O.R.E. Feature Animation, Harvard University Life Sciences, Mainframe Entertainment Inc.

ForeSee, *continued from page 31*
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ForeSee Results Inc.

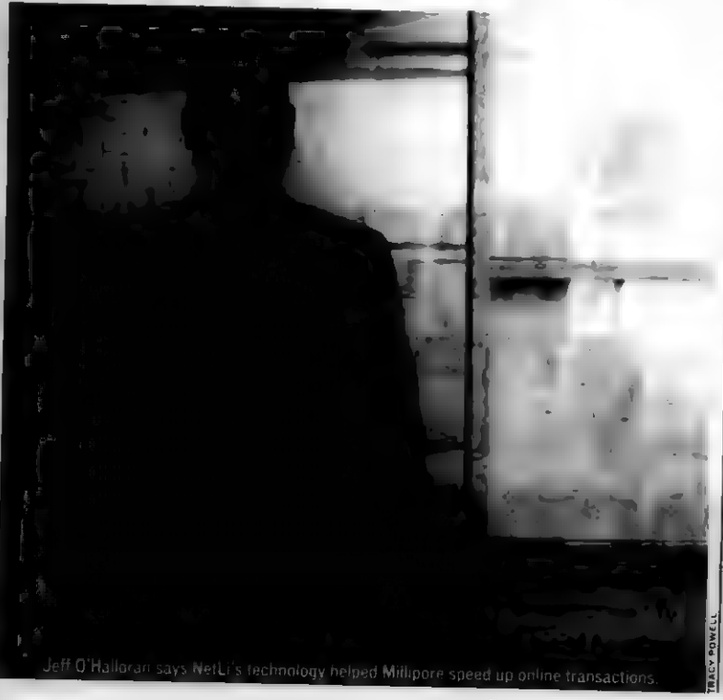
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BY PATRICK THIBODEAU

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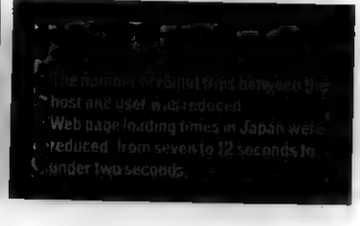
Jeff O'Halloran says NetLi's technology helped Millipore speed up online transactions. TRACY POWELL

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NetLi, *continued on page 34*



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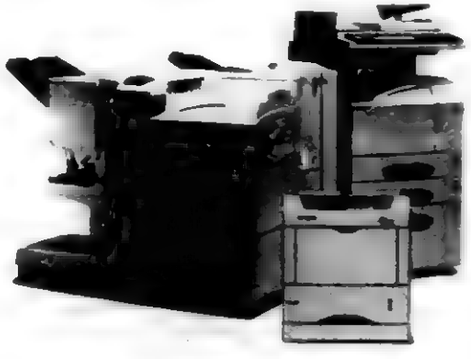
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KYOCERA MITA CORPORATION AND KYOCERA MITA AMERICA, INC., "PEOPLE FRIENDLY", THE KYOCERA "EAGLE" AND THE KYOCERA LOGO ARE TRADEMARKS OF KYOCERA. *Source: 2003 Industry Analysts, Inc.

NetLi, *continued from page 32*

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Palo Alto, Calif.-based NetLi addressed the chief problems of Web performance — the TCP and HTTP Internet protocols — by building a network with points of presence in the Asia-Pacific region and Europe.

When customers in Japan type in Millipore's Web address, they're routed to a NetLi data center, which uses a protocol the company built for optimizing Web page loading and reducing the number of round trips.

WINNER

URL: www.netli.com
LOCATION: Palo Alto, Calif.
CATEGORY: Application development
TECHNOLOGY: NetLightning
HOW IT WORKS: Specialized servers and protocols deployed as a global network eliminate the Internet's performance limitations. It optimizes Web page loading with a protocol that overcomes problems with TCP and HTTP to exchange information without multiple round trips. The company couples that technology with its own points of presence in Asia and Europe.
CUSTOMER SAMPLING: NetRatings Inc., Hewlett-Packard Co., Thomson Financial, Tektronix Inc.
WHAT'S IN STORE: According to Peter Sevcik, an analyst at Charlottesville, Va.-based application performance measurement firm NetForecast Inc., NetLi's technology is unique. He says it helps address growing problems in delivering applications – the increasing complexity of Web pages, coupled with longer distances as a result of globalization.

"A lot of people think it's about bandwidth," says Sevcik. But, in fact, the problem is the number of trips involved between the user and host, he says.

O'Halloran says the service has cut Web page loading times in Japan to well under two seconds. Implementing it required no changes to Millipore's IT infrastructure. If NetLi's service were to fail, the worst that would happen is that customers would be routed directly to Millipore's site. **49002**

Shell Pipeline Cuts Paper Sludge With Mobile Tracking System

After implementing SAP AG's ERP system throughout the company in 2001, Shell Pipeline Co. needed to find a way to improve the efficiency of its U.S. pipeline maintenance operations.

Houston-based Shell wanted to eliminate the extra time and work it took for its pipeline technicians in the field to write up inspection and repair reports by hand — which was sometimes done on the backs of envelopes

- Achieved 80% paperless business function.
- Saves two to three hours per week by eliminating paper preparation time.
- Eliminates six to eight hours of data entry time per person, per week for rekeying of work order information.

— and then return to the office to manually input the data into the SAP Preventive Maintenance application, says Brian Ashe, former manager of measurement and quality services at Shell Pipeline, a wholly owned subsidiary of Shell Oil Products US.

Two years and several pilot programs later, Shell decided to implement Infowave Software Inc.'s Telispark Mobile Enterprise suite to allow its pipeline technicians to better track and service its pipelines as well as improve reporting compliance, according to Ashe.

"Before, they would have to go through 27 to 29 different screens to input each piece of data, and they found they were spending more screen time than wrench time in the field," he says.

Today, Telispark enables the technicians in the field to enter data into handheld devices, which tie in with the SAP application, giving them access to equipment information and work orders and saving time. **49000**

WINNER

URL: www.infowave.com
LOCATION: Burnaby, British Columbia
CATEGORY: Mobile/wireless
TECHNOLOGY: Telispark Mobile Enterprise
HOW IT WORKS: This packaged mobile application suite draws data from multiple back-end systems using either the customer's enterprise application integration architecture or Infowave's own APIs to deliver data to mobile devices, including laptops and handhelds. Data is communicated back to the enterprise via a wireless connection or a "link and sync" cradle. Infowave supports data systems such as Oracle, SAP, Siebel, MRO Software Inc.'s Maximo and Indus Corp.'s Empac.
CUSTOMER SAMPLING: Hydro One Inc., Shell Oil Co., Unilever, the U.S. Navy
TIP: "Do it right the first time," says Jerry Meerkatz, CEO and president of Infowave. "A good portion of our customers tried to build a solution first and then realized that packaged apps are easier, faster and more cost-effective to deploy. They ended up wasting cash and postponing ROI."
WHAT'S IN STORE: "Ongoing research by the The 451 Group strongly indicates that mobile initiatives are rapidly evolving, especially in such field-force areas as asset management, where mobile companies such as Infowave are focusing particular attention," says Tony Rizzo, an analyst at the New York-based firm.

"This year is a bona fide breakthrough mobile year, with many mobile players seeing significant enterprise interest. Rather than chasing pilots, the stronger mobile players are now securing real business," he says. "Infowave is finally seeing positive movement in its pipeline of customers and should see some significant new deployments in the second half of 2004."

WINNER

ClearSight Networks

www.clearsightnet.com
San Mateo, Calif.
Networking
ClearSight Analyzer
Monitors and analyzes networks and network applications in real time or for postevent (forensic) analysis.
Valparaiso Broadband Communication Systems, U.S. Department of Transportation Federal Highway Administration, Electronic Arts Inc., Pine Mountain Group Inc., NTT Labs

www.computas.com
Sammamish, Wash.
Enterprise systems
Metis 3.4 Enterprise
Software for creating visual models of enterprise architectures and other systems to create comprehensive views of an operation for use in decision support and organizational governance.
U.S. Department of Commerce, U.S. Census Bureau, U.S. Food and Drug Administration, The Boeing Co., NCR Corp.

www.easyask.com
Marlboro, Mass.
Application development
EasyAsk Enterprise 9
A search and information-retrieval platform that offers single-point access to different types of data, regardless of format or data location.
Forbes.com Inc., Lands' End Inc., Ceridian Human Resource Solutions, E-Loan Inc.

Hyperion Solutions

www.hyperion.com
Sunnyvale, Calif.
Enterprise systems
Hyperion Performance Suite
Provides query, analysis and reporting capabilities within a Web-based dashboard interface. Lets users access, analyze and distribute business data.
City of San Jose, Direct Energy Essential Home Services, U.S. Army Recruiting, BAX Global Inc.

NetLi, *continued from page 32*
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WHAT'S IN STORE: According to Peter Sevcik, an analyst at Charlottesville, Va.-based application performance measurement firm NetForecast Inc., NetLi's technology is unique. He says it helps address growing problems in delivering applications – the increasing complexity of Web pages, coupled with longer distances as a result of globalization.

"A lot of people think it's about bandwidth," says Sevcik. But, in fact, the problem is the number of trips involved between the user and host, he says.

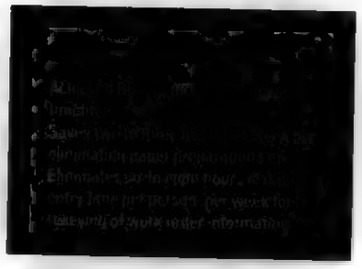
O'Halloran says the service has cut Web page loading times in Japan to well under two seconds. Implementing it required no changes to Millipore's IT infrastructure. If NetLi's service were to fail, the worst that would happen is that customers would be routed directly to Millipore's site. **49002**

Shell Pipeline Cuts Paper Sludge With Mobile Tracking System

BY LINDA ROSENCRANCE

After implementing SAP AG's ERP system throughout the company in 2001, Shell Pipeline Co. needed to find a way to improve the efficiency of its U.S. pipeline maintenance operations.

Houston-based Shell wanted to eliminate the extra time and work it took for its pipeline technicians in the field to write up inspection and repair reports by hand — which was sometimes done on the backs of envelopes



— and then return to the office to manually input the data into the SAP Preventive Maintenance application, says Brian Ashe, former manager of measurement and quality services at Shell Pipeline, a wholly owned subsidiary of Shell Oil Products US.

Two years and several pilot programs later, Shell decided to implement Infowave Software Inc.'s Telispark Mobile Enterprise suite to allow its pipeline technicians to better track and service its pipelines as well as improve reporting compliance, according to Ashe.

"Before, they would have to go through 27 to 29 different screens to input each piece of data, and they found they were spending more screen time than wrench time in the field," he says.

Today, Telispark enables the technicians in the field to enter data into handheld devices, which tie in with the SAP application, giving them access to equipment information and work orders and saving time. **49000**

Infowave Software Inc.

URL: www.infowave.com
LOCATION: Burnaby, British Columbia
CATEGORY: Mobile/wireless
TECHNOLOGY: Telispark Mobile Enterprise
HOW IT WORKS: This packaged mobile application suite draws data from multiple back-end systems using either the customer's enterprise application integration architecture or Infowave's own APIs to deliver data to mobile devices, including laptops and handhelds. Data is communicated back to the enterprise via a wireless connection or a "link and sync" cradle. Infowave supports data systems such as Oracle, SAP, Siebel, MRO Software Inc.'s Maximo and Indus Corp.'s Empac.
CUSTOMER SAMPLING: Hydro One Inc., Shell Oil Co., Unilever, the U.S. Navy
TIP: "Do it right the first time," says Jerry Meerkatz, CEO and president of Infowave. "A good portion of our customers tried to build a solution first and then realized that packaged apps are easier, faster and more cost-effective to deploy. They ended up wasting cash and postponing ROI."
WHAT'S IN STORE: "Ongoing research by the The 451 Group strongly indicates that mobile initiatives are rapidly evolving, especially in such field-force areas as asset management, where mobile companies such as Infowave are focusing particular attention," says Tony Rizzo, an analyst at the New York-based firm.

"This year is a bona fide breakthrough mobile year, with many mobile players seeing significant enterprise interest. Rather than chasing pilots, the stronger mobile players are now securing real business," he says. "Infowave is finally seeing positive movement in its pipeline of customers and should see some significant new deployments in the second half of 2004."

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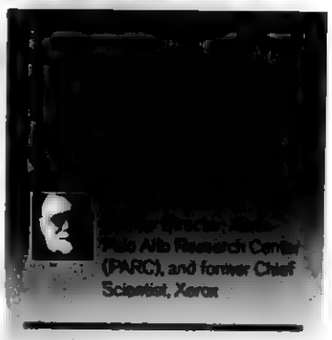
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Conference At-a-Glance *(subject to change)*

For details, updates, and to register visit **www.snwusa.com/cw**

MONDAY, OCTOBER 25

9:30am to 10:25am

INDUSTRY PRIMER TRACK
Addressing High Density Cooling of Storage Networking Equipment at the Facility Level
Donald Beaty, Founder & President, DLB Associates

INDUSTRY PRIMER TRACK
Storage Basics and Trends
Dennis Martin, Senior Analyst, and Greg Schulz, Senior Analyst, Evaluator Group

CAREER DEVELOPMENT TRACK
Power Statements, Questions and Answers Techniques
Howard Goldstein, Founder, Howard Goldstein Associates, Inc.

10:35am to 11:30am

Role of Server Blades and Virtualization in Next Generation Data Center
Arun Taneja, Founder and Consulting Analyst, Taneja Group

Why Tape Continues to Make the Grade
Richard Harada, President, Tape Technology Council

Communication Skills for the IT Techie
Bill Peldzus, Director of Storage Architecture, GlassHouse Technologies

11:30am to 1:00pm Luncheon

Afternoon

SNIA Tutorial Sessions
1:00pm to 6:40pm

- Data Lifecycle
- Virtualization & Securing Your Storage
- Focus on Networking Your Storage
- Focus on Storage
- SAN Management
- Voice of the User

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IDC Briefing Session
1:00pm to 4:00pm

IDC

In this fast-paced session, IDC's top storage analysts will examine companies' growing interest in deploying tiered storage solutions and assess its impact on storage components, systems, networks, management and services.

IT End-User Golf Outing
noon to approximately 6:00pm

The pre-conference golf outing at the Ritz-Carlton Golf Club located adjacent to the JW Marriott Grande Lakes Resort is complimentary (a $125 value) for registered IT end-users. (Other participants, including sponsors and vendor representatives, may play on an "as available" basis and are responsible for all applicable golf outing expenses.)

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To secure your spot, contact Michael Malesky at 1-508-820-8528.

7:00pm to 9:00pm Welcome Reception

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TUESDAY, OCTOBER 26 *General Sessions Begin*

8:30am to 9:15am — **Don Tapscott, Renowned Bestselling Author of *The Naked Corporation, Growing Up Digital* and *Paradigm Shift***

9:15am to 9:45am — **The Future of Knowledge Management**
John Halamka, MD, CIO, CareGroup Health System and Harvard Medical School

9:45am to 10:15am — **Kevin Rollins, President & CEO, Dell**

10:30am to 11:00am — **Keith Glennan, VP & CIO, Northrop Grumman IT**

11:00am to 11:30am — **Elevating the Art of Storage**
Shinjiro Iwata, CEO, Hitachi Data Systems

11:30am to noon — **Industry Presidents' Roundtable: A Market Outlook**
Moderator: Don Tapscott, Author of *The Naked Corporation, Growing Up Digital* and *Paradigm Shift*

12:15pm to 1:30pm — CONCURRENT LUNCHEON SESSIONS

General Networking Luncheon
On the Valencia Lawn

Luncheon Session
Steve Duplessie, Founder & Senior Analyst, Enterprise Storage Group

Measuring the Value of IT Investments
Richard Snedier, Managing Partner, InterUnity Group

Storage and More: Is Convergence Ahead?
Networking, security and storage pros discuss their technology roadmaps, spending plans and vendor relationships.
Ken Male, CEO & Founder, TheInfoPro (TIP)

1:30pm to 2:00pm — **End User Case Study: Best Practices: Data Center Consolidation**
David Cohen, VP, Technology Architecture Group, Merrill Lynch

2:00pm to 2:30pm — **Greg Reyes, Chairman & CEO, Brocade Communications Systems**

2:30pm to 3:00pm — **End User Case Study: Evaluating Options for Business Continuity/Disaster Recovery Plans**
Rod Mueller, Manager of Technology and Infrastructure, International Paper

3:00pm to 3:45pm — **CTO Insights Panel**
Moderator: Jon William Toigo, CEO & Founder, Toigo Partners International

4:00pm to 5:30pm — CONCURRENT SESSIONS

5:30pm to 8:30pm — Expo with Dinner / Interoperability & Solutions Demo Open — 5:30pm to 8:30pm

WEDNESDAY, OCTOBER 27

8:30am to 9:15am — **Nick Carr, former Executive Editor of the Harvard Business Review and author of *Does IT Matter?***

9:15am to 9:45am — **End User Case Study**

9:45am to 10:15am — **Industry Leader Presentation**

10:30am to 11:00am — **End User Case Study: Realizing the Vision of Management Simplicity and Improved Business Processes in a Demanding, Distributed, High-Performance Environment**
Michael Prince, VP & CIO, Burlington Coat Factory

11:00am to 11:30am — **The Half-Life of Storage Trends**
Peter van Oppen, Chairman & CEO, ADIC

11:30am to 12:15pm — **Panel: End Users Speak Out**
Moderator: John Dix, Editor in Chief, Network World

12:15pm to 1:45pm — Expo & Luncheon

1:45pm to 2:15pm — **End User Case Study**

2:15pm to 2:45pm — **Industry Leader Presentation**

2:45pm to 3:30pm — **Analyst Roundtable Panel**
Moderator: Jon William Toigo, CEO & Founder, Toigo Partners International

3:45pm to 5:15pm — CONCURRENT SESSIONS

5:15pm to 7:15pm — Expo and Reception

7:30pm to 9:00pm — Gala Evening, Dinner and Entertainment

INTEROPERABILITY & SOLUTIONS DEMO OPEN

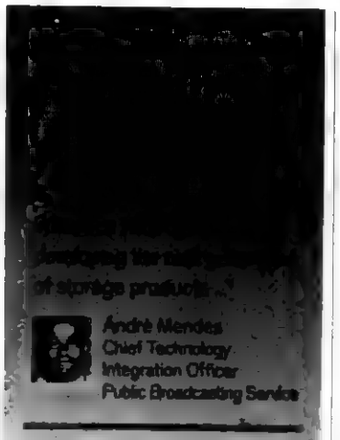
See SNW's Interoperability & Solutions Demo
- 40-plus SNIA member companies collaborating on integrated solutions
- the opportunity to meet leading experts and engineers

THURSDAY, OCTOBER 28

7:30am to 8:30am — Breakfast

8:30am to Noon — CONCURRENT TECHNICAL & BUSINESS TUTORIALS

Noon — Conference Concludes



"... SNW is a great venue for peer discussion ... an opportunity to provide feedback to vendors on what users need from them ... I sat down with my key vendors and shared information ..."

John Greer
Director, IT Infrastructure
Pacific Gas & Electric



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Please check ONE of the following:	Early-bird Registration (through September 14, 2004)	Full/Onsite Registration (after September 14, 2004)
❑ **I am an IT End-User*** (Complete Attendee Profile below)	❑ **$695** General Conference Package (October 26 & 27) (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,295** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)	❑ **$1,295** General Conference Package (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,895** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)
❑ **I am a Channel Partner/ Integrator/Consultant** (Complete Attendee Profile below)	❑ **$3,000** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference, Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)	❑ **$3,300** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference, Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)

* IT End-Users are defined as those who are attending Storage Networking World with an interest and an IT spending budget) to potentially buy/lease hardware/software/services, etc. from our conference sponsors and are not themselves an IT vendor. As such, account representatives (business development personnel, analysts, consultants and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Interpretation and enforcement of this policy are at the sole discretion of Computerworld.

By participating in SNW's Channel Partner/Integrator registration package, registrants may enjoy, the following benefits: One company representative may receive a full conference pass to SNW Fall 2004; additional company representatives pay $695 each for full conference passes. Company may invite up to five IT User customers to attend SNW Fall (IT Users must be strictly compliant with IT User definition on the supplied registration form); companies registering for this package interested in joining the SNIA are eligible to receive a $2,000 discount, provided that membership is applied for, prior to January 1, 2005.

Attendee Profile: This section MUST be completed by IT End-Users and Channel Partners/Integrators/Consultants only (optional for all other registrations) in order to process your application.

Your Business/Industry

- ❑ Transportation/Utilities
- ❑ Mining/Oil/Gas
- ❑ Non-Profit/Trade Association
- ❑ Media/Publishing
- ❑ Banking
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- ❑ Computer Retailer/Reseller/Wholesaler
- ❑ Channel Integrator/Consultants Only
- ❑ Software Development/Storage
- ❑ Channel Integrator/Consultants Only
- ❑ Other Computer Related (Storage)
- ❑ Channel Integrator/Consultants Only
- ❑ Other

Your Job Title/Function

- ❑ CEO/CFO/Chairman/President
- ❑ CIO/CTO
- ❑ VP/GM/Director
- ❑ IS/IT Director/Manager
- ❑ Owner/IS/IT Department Manager/Supervisor
- ❑ Owner/Corporate/Business Manager
- ❑ CEO/COO/Channel Integrator
- ❑ Channel Integrator/Consultants Only
- ❑ CFO/Controller/Treasurer
- ❑ Channel Integrator/Consultants Only
- ❑ VP/GM/Director/Channel Integrator/Consultants Only
- ❑ Sales/Marketing/Product Staff
- ❑ Channel Integrator/Consultants Only
- ❑ IS/IT Director/IS/IT Manager
- ❑ Channel Integrator/Consultants Only
- ❑ Engineering Staff/Channel Integrator/Consultants Only

The one item that best describes your involvement in the IT purchase process

- ❑ Authorize the purchase
- ❑ Approve the budget
- ❑ Initiate the purchase
- ❑ Evaluate/recommend products, brands, vendors
- ❑ Identify/establish the need to purchase
- ❑ All of the above

Number of employees in your entire organization (ALL locations)

- ❑ Over 10,000
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ Less than 500

What is the estimated annual revenue of your entire organization?

- ❑ Over $10 Billion
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ Less than $100 Million

Your organization's annual IT/IS budget for all IT/IS products, or if you are a Channel/Integrator Partner or Consultant, what is the annual dollar value of IT products/services you sell/resell/recommend/influence for purchase by your customers/clients.

- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

Annual company IT budget (storage products and services)

- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

Would you like to receive information about playing in the golf outing on Sunday, October 25th?

- ❑ Yes
- ❑ No

❑ **My company is Sponsoring/ Exhibiting at SNW**	❑ **$695** (through September 14, 2004) General Conference Package (October 26 & 27) (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,295** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)	❑ **$1,295** (after September 14, 2004) General Conference Package (October 26 & 27) (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,895** Total 4-Day Package (October 25, 26, 27, 28) (includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)

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❑ **I am a representative of a Non-Sponsoring IT Vendor Company**

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Vendors are encouraged to participate in Storage Networking World through sponsorship. (Details are available by calling Ann Harris at 508-820-8667.) Alternatively, vendors (as well as other "non-IT end-user" professionals as defined by Computerworld) may apply for registration at the "non-sponsoring vendor" rate of $5,000. Determination of what constitutes a "non-sponsoring vendor" registration is made exclusively by Computerworld. Please call 888-239-4505 with questions.

❑ **I am a Financial/Equity Analyst and/or Venture Capital Professional**

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❑ **$1,895** (after September 14, 2004) General Conference Package (includes General Conference Sessions, Expo, Meals & Receptions)

❑ **I am a qualified member of the press.** I can verify my press credentials. Press should call Enn Keefe at 1-781-915-5009 to register.

Please fax this completed application to 1-508-820-8254

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❑ **Check** (checks must be received by October 5, 2004 payable to: Computerworld) Mail to: Computerworld, Attn: Pam Matingowski, 500 Old Connecticut Path, Framingham, MA 01701

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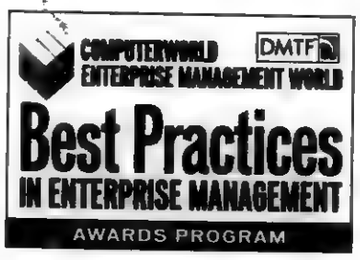
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Cancellation Policy (All of the following require **written notification** by October 5, 2004.)
In the event of cancelation, the registrant has three options:
1) He or she may substitute another attendee for this conference.
2) He or she may transfer this registration to the Storage Networking World Spring 2005 conference.
3) The registration fee will be refunded, less a $250 service charge, if written notice is received by October 5, 2004.
Please send cancellation requests via email to: snwreg@computerworld.com.

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Enterprise Management World, in conjunction with Computerworld and the Distributed Management Task Force (DMTF), proudly announces the results of the first annual "Best Practices in Enterprise Management" Awards Program. This program recognizes case studies highlighting noteworthy solution implementation projects and deployments.

Winners in each of the following categories are:

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- **Northern Trust – Chicago, Illinois**
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- **El Camino Hospital – Mountain View, California**

Honorable Mention: Directpointe, Inc. – Lindon, Utah

Managing to Improve TCO/ROI

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- **Inflow, Inc. – Thornton, Colorado**

Honorable Mention: Prudential Financial – Newark, New Jersey

Innovation and Promise

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Honorable Mention: Philadelphia Stock Exchange – Philadelphia, Pennsylvania

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- Substantive customer impact
- Positive impact on other business/organization units
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- Supports efficient and reliable data, information and application sharing
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- Ron Milton, Computerworld
- Bruce Hoard, SNWOnline.com
- Rick Bauer, The Hill School
- Vernon Turner, IDC
- Cory Ferengu, META Group
- Meri Ferguson, Progress Energy
- Brenda Christenson, Independent Consultant

Documentum Saves Big With Web Conference Software for Training

Prior to 2001, Documentum Inc. had used a smattering of Web conferencing platforms to support internal training, corporate communications and outbound marketing activities. Problem was, the Web conferencing systems were becoming increasingly expensive to run and placed severe restrictions on the number of people who could access them.

At that time, John Grubbs, manager for education information systems and e-learning at the document management software maker, had a mandate from his chief financial officer not to increase Web conferencing costs. "We were going to lose 30% of the service level if we'd stayed" with one Web conferencing vendor at the dollar amount the CFO had allocated, he says.

Enter Cambridge, Mass.-based Interwise Inc. To start, Interwise offered Pleasanton, Calif.-based Documentum a hosted Web conferencing platform called ECP Connect that supports an unlimited number of users for a $75,000 flat-fee annual license. In comparison, bids from competing vendors ranged from $290,000 to $360,000 for 300 concurrent-user licenses.

In addition, Interwise was able to provide Documentum with several technical advances that other vendors weren't able to offer, such as voice-over-IP (VoIP) support, editable recording capabilities and integrated scheduling for Microsoft Outlook.

Documentum has achieved other benefits from the Web conferencing system. In 2000, the last year that the company was using Web conferencing technologies from other vendors, it paid $450,000 in overage charges, says Grubbs. Those fees have been eliminated through the flat-fee agreement with Interwise.

- Eliminated $450,000 in Web conferencing overage charges.
- Cut more than $600,000 in annual phone bridge and other expenses through VoIP support capabilities.

Moreover, because the other Web conferencing vendors didn't support VoIP, Documentum's phone bridge and other costs swelled to more than $600,000 in 2000. Those costs have also been eliminated.

More important, the Interwise system has effectively supported Documentum's education business. After Sept. 11, 2001, revenue from Documentum's classroom training dropped and then flattened out when customers became reluctant to fly employees for classroom training, says Grubbs.

However, revenue for the company's online training courses supported by the Interwise system have grown steadily since they were launched two and a half years ago and now account for 15% of the division's annual sales, says Grubbs. In fact, the last quarter's revenue for the North American education division was approximately $1.3 million. **49001**

WINNER

URL: www.interwise.com
LOCATION: Santa Clara, Calif.
CATEGORY: Enterprise systems
TECHNOLOGY: ECP Connect
HOW IT WORKS: Delivers an unlimited number of Web meetings, audio conferences, e-learning courses and Web seminars for a fixed price. A distributed-server architecture and a multimedia conferencing bridge provide scalable and secure integrated conferencing. Windows or Java-based clients can connect to geographically distributed communication servers that route synchronized real-time or recorded audio, video and data streams.
CUSTOMER SAMPLING: QAD Inc., Halliburton Co., Documentum, Nestlé SA, RWD Technologies Inc.
TIP: Integrate the system with other key business applications and processes (such as portals or CRM systems) so it integrates into employees' daily work.
WHAT'S IN STORE: "One of the trends I see is that conferencing is becoming presence-enabled – it's merging with instant messaging," says Lou Latham, an analyst at Gartner Inc. "A lot of the same vendors are offering products in both spaces, and I see the lines between them starting to blur."

Intelsat Stays a Step Ahead With Data Management Software

BY STEVE ALEXANDER

For the IT department at Intelsat, the telecommunications firm that launched the first commercial communications satellite in 1965, the challenge isn't reaching for the stars but trying to keep up with the pace of its own business.

When it needed a new data warehouse, Bermuda-based Intelsat chose management software from London-based Kalido Ltd., in the hope of being able to rapidly update its business models to cope with massive corporate changes.

Intelsat needed to install a new data warehouse that could be updated rapidly as a result of big changes: In 2001, it became a private company after 37 years as a quasigovernmental institution. It then launched a massive reorganization and, earlier this year, acquired satellite operations from Loral Space and Communications Ltd.

"When we went private, we needed better financial information because we needed to be quicker," says Pradip Sitaram, director of IT for business and operational support systems in Intelsat's ground and information systems department.

"Kalido said if we changed our basic data model, they would change the data warehouse to fit us," Sitaram says. "As a proof of concept, we were able to automatically link our revenue and satellite capacity in the warehouse in 17 days, which allowed us to analyze how much revenue came from which region. If we had followed normal data-warehouse technology, this

Kalido, *continued on page 40*

- Automatically linked revenue and satellite capacity in the warehouse in 17 days.
- Data warehouse was adapted for a major corporate reorganization in seven days.
- Operations pre- and postacquisition can be compared in fewer than 30 days.

Documentum Saves Big With Web Conference Software for Training

BY THOMAS HOFFMAN

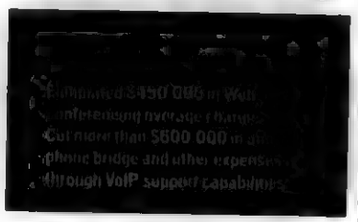
Prior to 2001, Documentum Inc. had used a smattering of Web conferencing platforms to support internal training, corporate communications and outbound marketing activities. Problem was, the Web conferencing systems were becoming increasingly expensive to run and placed severe restrictions on the number of people who could access them.

At that time, John Grubbs, manager for education information systems and e-learning at the document management software maker, had a mandate from his chief financial officer not to increase Web conferencing costs. "We were going to lose 30% of the service level if we'd stayed" with one Web conferencing vendor at the dollar amount the CFO had allocated, he says.

Enter Cambridge, Mass.-based Interwise Inc. To start, Interwise offered Pleasanton, Calif.-based Documentum a hosted Web conferencing platform called ECP Connect that supports an unlimited number of users for a $75,000 flat-fee annual license. In comparison, bids from competing vendors ranged from $290,000 to $360,000 for 300 concurrent-user licenses.

In addition, Interwise was able to provide Documentum with several technical advances that other vendors weren't able to offer, such as voice-over-IP (VoIP) support, editable recording capabilities and integrated scheduling for Microsoft Outlook.

Documentum has achieved other



benefits from the Web conferencing system. In 2000, the last year that the company was using Web conferencing technologies from other vendors, it paid $450,000 in overage charges, says Grubbs. Those fees have been eliminated through the flat-fee agreement with Interwise.

Moreover, because the other Web conferencing vendors didn't support VoIP, Documentum's phone bridge and other costs swelled to more than $600,000 in 2000. Those costs have also been eliminated.

More important, the Interwise system has effectively supported Documentum's education business. After Sept. 11, 2001, revenue from Documentum's classroom training dropped and then flattened out when customers became reluctant to fly employees for classroom training, says Grubbs.

However, revenue for the company's online training courses supported by the Interwise system have grown steadily since they were launched two and a half years ago and now account for 15% of the division's annual sales, says Grubbs. In fact, the last quarter's revenue for the North American education division was approximately $1.3 million. **ID 49001**

Interwise Inc.

URL: www.interwise.com
LOCATION: Santa Clara, Calif.
CATEGORY: Enterprise systems
TECHNOLOGY: ECP Connect
HOW IT WORKS: Delivers an unlimited number of Web meetings, audio conferences, e-learning courses and Web seminars for a fixed price. A distributed-server architecture and a multimedia conferencing bridge provide scalable and secure integrated conferencing. Windows or Java-based clients can connect to geographically distributed communication servers that route synchronized real-time or recorded audio, video and data streams.
CUSTOMER SAMPLING: QAD Inc., Halliburton Co., Documentum, Nestlé SA, RWD Technologies Inc.
TIP: Integrate the system with other key business applications and processes (such as portals or CRM systems) so it integrates into employees' daily work.
WHAT'S IN STORE: "One of the trends I see is that conferencing is becoming presence-enabled – it's merging with instant messaging," says Lou Latham, an analyst at Gartner Inc. "A lot of the same vendors are offering products in both spaces, and I see the lines between them starting to blur."

Intelsat Stays a Step Ahead With Data Management Software

BY STEVE ALEXANDER

For the IT department at Intelsat, the telecommunications firm that launched the first commercial communications satellite in 1965, the challenge isn't reaching for the stars but trying to keep up with the pace of its own business.

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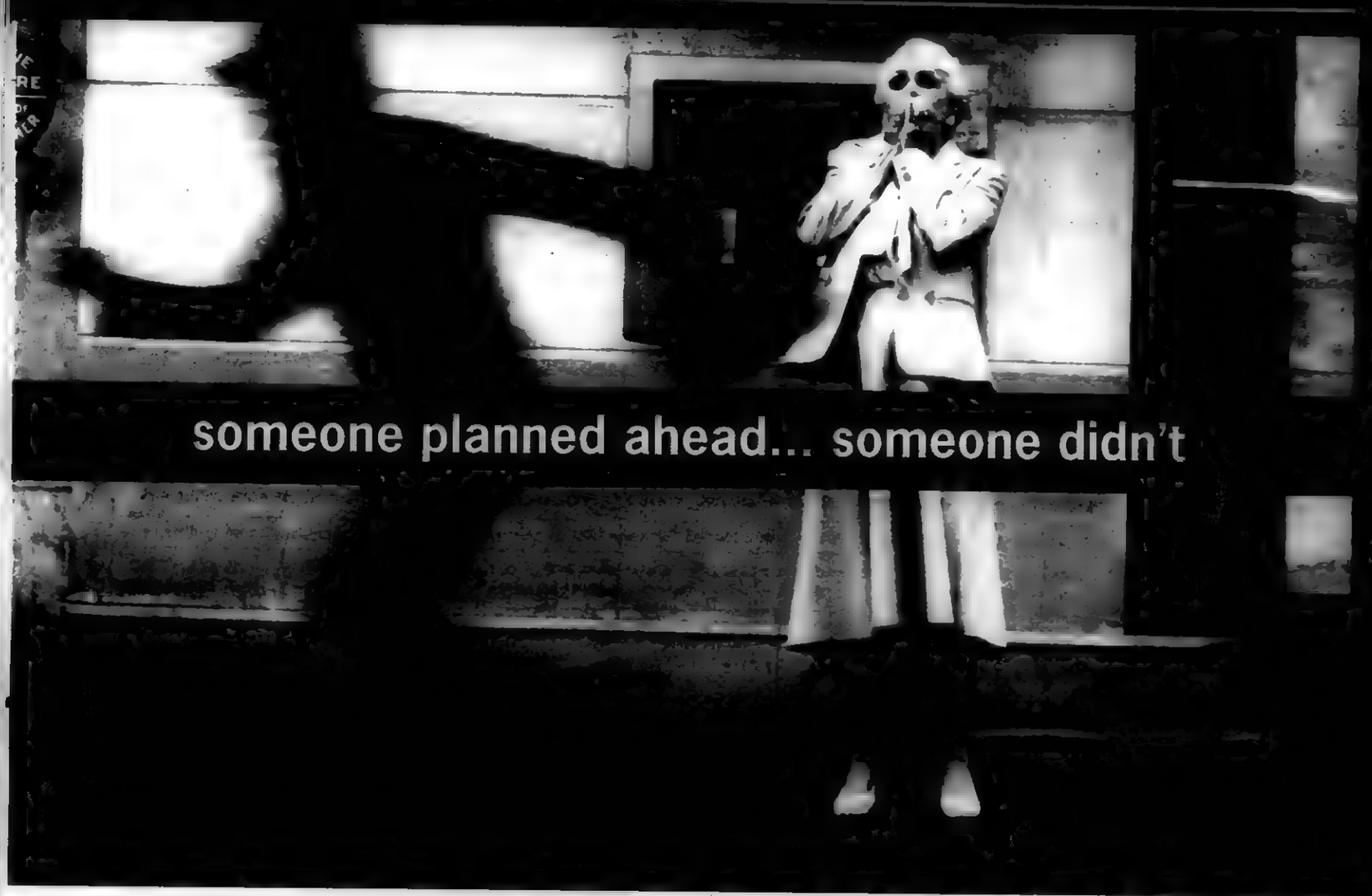
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Kalido, *continued on page 40*





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* Source: Fabric Computing: Beyond the N-tier Data Center, RBC Capital Reports Oct 2003

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[1]Based on FY2003 worldwide blade server revenue and shipments. IDC's Worldwide Quarterly Server Tracker, February 2004. [2]Additional charges apply. Standard support includes next-business-day response in some countries. IBM, the e-business logo, eServer, the eServer logo and BladeCenter are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. Intel, Intel Inside, the Intel Inside logo and Intel Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Other company, product and service names may be trademarks or service marks of others. © 2004 IBM Corporation. All rights reserved.

Kalido, *continued from page 36*

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"The hardest thing, normally, is that IT can't move fast enough. But in this data warehouse project, the reverse was true," Sitaram says. "The business was not able to move fast enough for us in IT." 49012

Alexander is a freelance writer in Edina, Minn. Contact him at sjalexander00@aol.com.

WINNER

URL: www.kalido.com
LOCATIONS: London, with U.S. headquarters in Burlington, Mass.
CATEGORY: Data management
TECHNOLOGY: Kalido Dynamic Information Warehouse
HOW IT WORKS: This data warehouse life-cycle management software uses technology patented in the U.K. (patent pending in the U.S.). All data warehouses embed information in tables that express relationships, but Kalido has dramatically reduced the number of tables required and cut the time needed to update tables for a new business model.
CUSTOMER SAMPLING: BP PLC, Cadbury Schweppes PLC, Georgia-Pacific Corp., Labatt Breweries of Canada
TIP: Kalido's software was designed for complex projects whose total cost is at least $600,000.
WHAT'S IN STORE: "Although Kalido has many differentiating, if not unique, features that greatly facilitate quick data-warehouse deployment, the company's primary challenge is not its technology, but rather its visibility [outside Europe]," says analyst Mike Schiff at Current Analysis Inc.

Mellon Gets Closer to Clients Through Search

Mellon Financial Corp. spent 2002 evaluating search engines for its customer-facing Web site, its intranet and the sites that the financial services company develops for corporate clients.

Edward Cymbalak, a vice president and product manager in Mellon's corporate e-commerce services group, says the search was a big deal because the Pittsburgh company's centralized IT group standardizes on technology components, dubbed "bricks," that are then used across all business units.

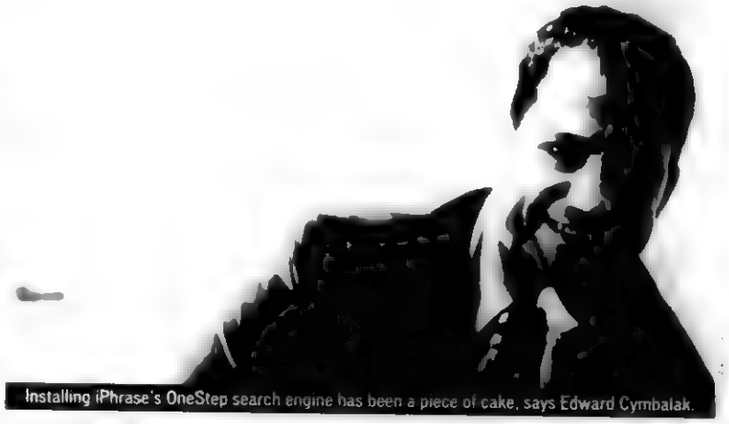
"We settled on iPhrase as our Web search brick," Cymbalak says. "It's the standard technology we use for searching our own Web sites and any sites we create for customers."

Beef up a search engine to make it a CRM tool, and you get iPhrase Technologies Inc.'s OneStep, which promises to improve search capabilities. The flashiest benefits are to be found in retail, where OneStep helps businesses squeeze more revenue out of online shoppers by calling attention to products they may not find on their own.

OneStep consists of a search server,

Project Payback

- Searches return fewer, better-targeted hits, which increases productivity.
- Adaptive learning engine boosts cross-selling and upselling.



Installing iPhrase's OneStep search engine has been a piece of cake, says Edward Cymbalak.

integration hooks and management tools. An adaptive learning engine is the star of the show; the vendor says OneStep can interpret users' natural-language queries to bring answers rather than a list of links.

Integrating iPhrase has been a piece of cake, Cymbalak says; Mellon has deployed it in six Web sites so far, with another three in progress. 49011

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WINNER

URL: www.iphrase.com
LOCATION: Bedford, Mass.
CATEGORY: CRM
TECHNOLOGY: OneStep
HOW IT WORKS: This advanced search tool seeks to improve Web-site responses to customer queries. Its analytics compiles data on what language customers are using and what products or services they're examining. That information is then used to fine-tune the search engine, increase self-service and provide a profile that can be used to upsell and cross-sell.
CUSTOMER SAMPLING: Dell Inc., Netegrity Inc., Bank One Corp., Blue Cross and Blue Shield of Massachusetts Inc.
WHAT'S IN STORE: Analyst David Daniels of Jupiter Research says that in the next three years, products like iPhrase will replace today's basic site-search model "with the subtler and more effective methodology of discovery and managed dialogue."

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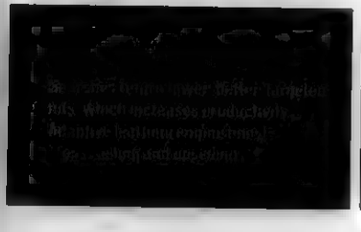
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CHRIS HARTLOVE

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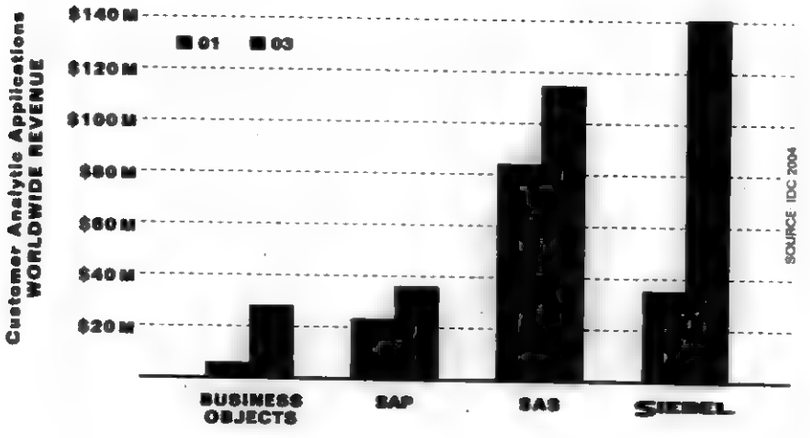
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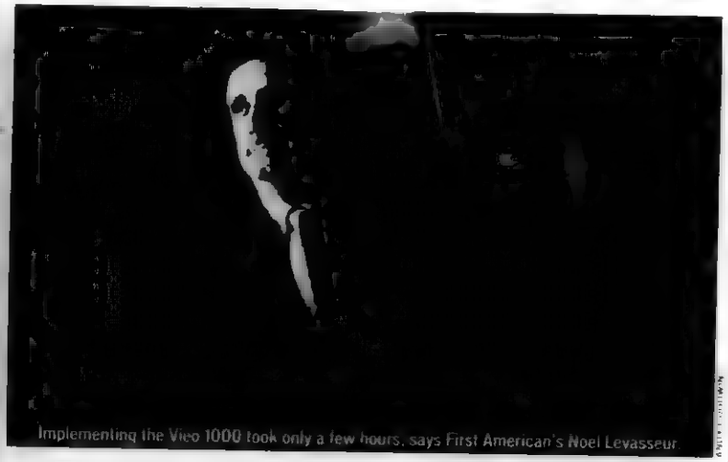
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Implementing the Vieo 1000 took only a few hours, says First American's Noel Levasseur.

WINNER

Bank's Mixed Infrastructure Gets Organized With Network Tool

With fewer than 20 IT staff members, First American Bank "uses a lot of [software] packages and integration," says Noel Levasseur, executive vice president of technology.

The Elk Grove Village, Ill.-based bank has hosted its own online banking applications since 1999. "We've experienced what everyone else has regarding platform solutions — they're unreliable," Levasseur says. The bank needed to gather as much information as possible about the state of its IT infrastructure because "with self-service [banking] apps, there's no longer a spokesperson between you and your customer," he says. "So it's important to eliminate negative experiences."

Levasseur says the bank faced another common challenge: Today's Web and application servers, databases and load-balancing tools work so well that "you may not even know it if they're in a degraded state."

To keep track of things, the bank bought a Vieo 1000 application infrastructure management appliance from Vieo Inc. The Vieo 1000 plugs into a network and automatically learns what hardware and Web applications are present and studies normal usage patterns. With a Vieo engineer assisting, First American's implementation took only a few hours, says Levasseur.

- Installation took just a few hours.
- Existing IT staff can manage Vieo without outside help or new hires.

URL: www.vieo.com
LOCATION: Austin
CATEGORY: Hardware
TECHNOLOGY: Vieo 1000
HOW IT WORKS: The appliance plugs into a corporate network and detects, analyzes and controls service-delivery problems on databases, Web servers and application servers. It presents its findings in a single dashboard-style interface.
CUSTOMER SAMPLING: Burlington Coat Factory Warehouse Corp., Santa Clara County (Calif.)
TIP: While Vieo helps determine the best configuration for your environment, you may want to customize certain policies. For example, during business hours, some enterprises might increase the priority level of an online store.
WHAT'S IN STORE: Jasmine Noel, an analyst at Ptak, Noel & Associates, says the Vieo 1000's ability to learn network patterns is innovative. So is its modeling capacity; if the appliance detects a service-level problem, "it asks, 'What would happen if we added server capacity?' It doesn't just blindly throw more hardware at it," she says.

The bank had looked at other products, Levasseur says, "but it looked like we'd need to hire someone to keep an eye on them. Our existing staff can manage the Vieo." **49014**

Ulfelder is a Computerworld contributing writer in Southboro, Mass. Contact him at sulfelder@charter.net.

Hospital Gets Faster Access to Storage With iSCSI Technology

When Johnson Memorial Hospital needed to replace its existing storage-area network (SAN), it looked for a way to upgrade without spending a lot of money or burning out its two-person IT department.

"Over the past three to four years, our data center doubled in size and our user population expanded about 30%, and we were just running out of storage space," says Mark Rivard, network systems specialist. His IT department serves the Stafford Springs, Conn., hospital and several satellite facilities.

"We will be bringing in scheduling systems and electronic archiving systems, and we're heading toward paperless medical records, so we needed huge amounts of storage," Rivard says.

At the same time, the hospital wanted to abandon an existing Fibre Channel SAN that wasn't expandable. That prompted Rivard to look at Ethernet-based SANs. He chose PeerStorage Array, an Ethernet-based product from EqualLogic Inc., which he estimated would be easy to configure and manage and cost about a tenth as much to expand as a Fibre Channel-based SAN.

- Savings — about 60% on total SAN.
- SAN — now managed by in-house staff rather than an outsourcer.

Rivard says he expects to save about 60% on total SAN costs as a result of automating administrative functions, discontinuing outsourcing and lowering network expansion expenses.

One factor that swung the deal in EqualLogic's favor was that each copy of the SAN product came with its own software, a feature aimed at eliminat-

EqualLogic, *continued on page 44*


ANDY GOODWIN

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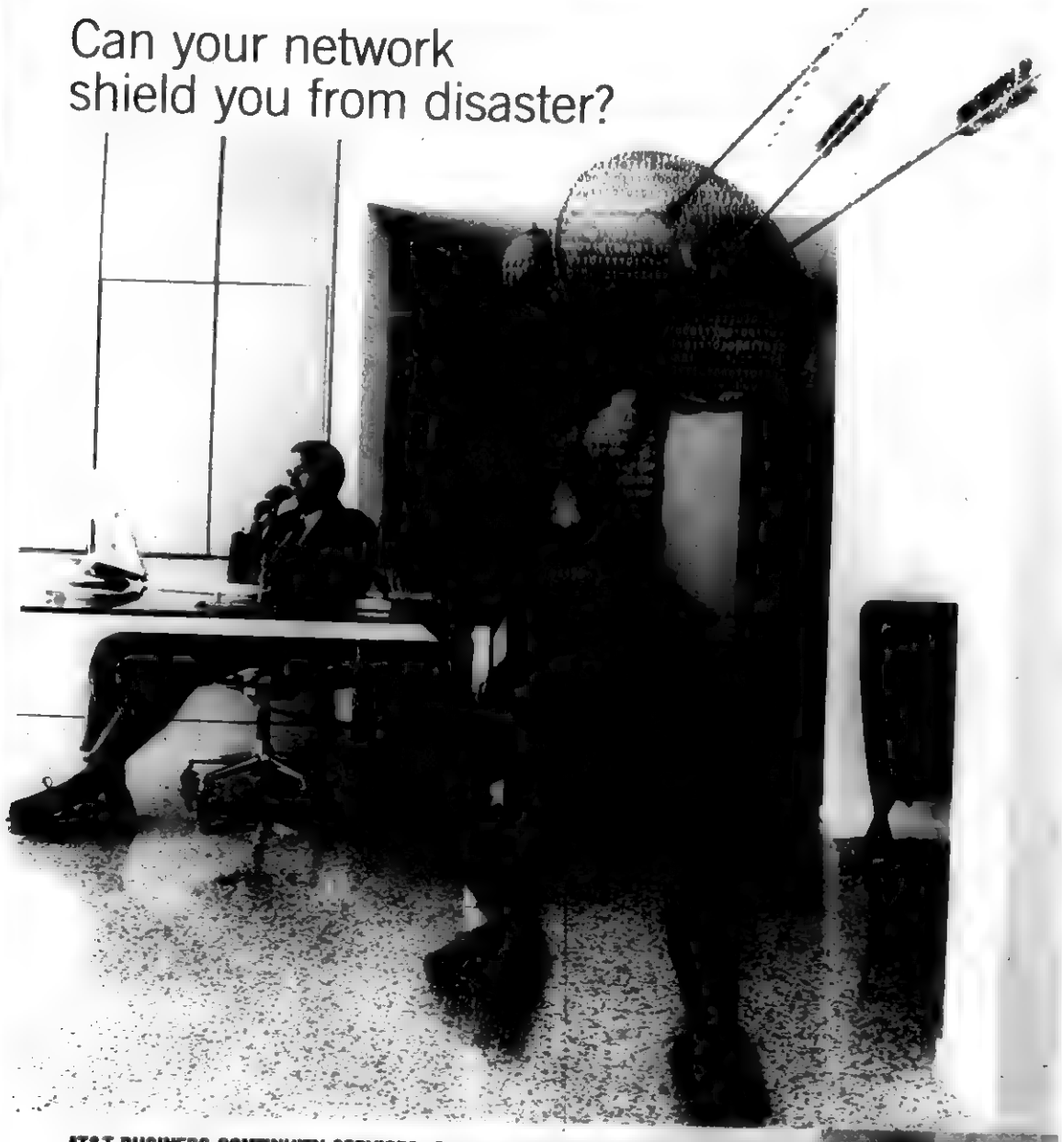


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EqualLogic, *continued on page 44*

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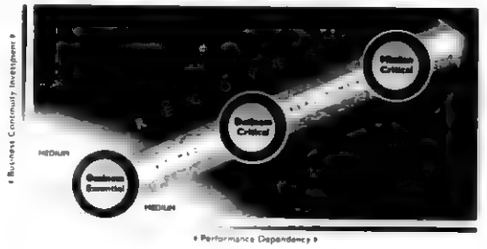
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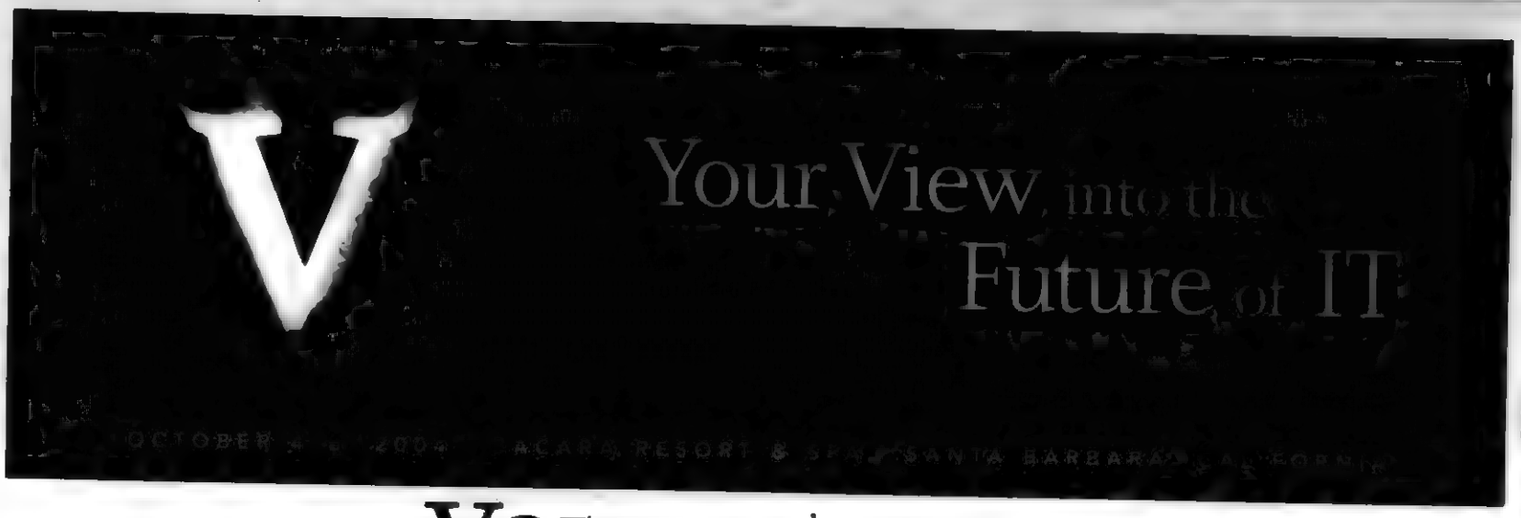
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Network World Events and Executive Forums reserves the right to determine the total audience profile

Computerworld invited IT customers – those companies that use technology but don't produce or sell it – to nominate vendors they believe offer leading-edge technology products or services that provide measurable payback. We received approximately 270 nominations. Customer nominations were verified by *Computerworld* via e-mail.

Computerworld then surveyed those vendors about the nominated technologies. Customer references were contacted for each vendor being considered. Surveys were vetted by a panel of *Computerworld* editors and then divided among a panel of IT executives for further evaluation.

Special thanks go to our panelists: Cathy Hotka, principal, Cathy Hotka & Associates; Frank A. Guglielmo, senior vice president, homeland security, Perot Systems Government Services; David R. Guzman, senior vice president and CIO, Owens & Minor Inc.; Bob Palmer, associate vice president of e-commerce technology, Lenox Inc.; Joseph A. Puglisi, CIO, Emcor Group Inc.; Jeff Orton, CIO and vice president of logistics, Wilsons The Leather Experts Inc.; Priscilla Tate, executive director of the Technology Managers Forum; and Patrick Wise, vice president of e-commerce, Landstar System Inc.

Evaluations were based on these criteria:

- The company's technology is innovative and original.
- It offers demonstrable value to corporate IT operations in Fortune 1,000 companies.
- It creates an advantage or opportunity for customers.
- Customers have successfully implemented the technology and are getting measurable payback or a competitive advantage from it.
- The technology will change the way companies do business or is a technology product of the future.

The solutions profiled here are representative of the best of the nominations we received. They are not intended to be a comprehensive list of all the products that could be considered worthy.

















EqualLogic, *continued from page 42*

ing bottlenecks that occur when a SAN is scaled up. It works by using more controllers to connect disk arrays to the server.

Another factor in the selection was efficiency. Rivard says he was impressed by EqualLogic's approach in storing frequently used documents on the outer part of the disk platter, where they can be accessed more quickly because the disk is spinning more rapidly at its outer edge. Older, less-frequently used documents are stored closer to the center of the disk. **49009**

Alexander is a freelance writer in Edina, Minn. Contact him at sjalexander00@aol.com.

WINNER

EqualLogic Inc.

URL: www.equallogic.com
LOCATION: Nashua, N.H.
CATEGORY: Storage
TECHNOLOGY: EqualLogic PeerStorage Array 100E
HOW IT WORKS: It connects SAN servers via Ethernet and automates administrative functions. It also provides a "virtualized" view of SAN capacity, so storage appears to reside on one drive even though it's spread over many drives. Each array can be a stand-alone unit, offering linear performance growth.
CUSTOMER SAMPLING: Solucient LLC, Zenon Environmental Inc., Cypress Corp.
TIP: PeerStorage uses iSCSI-based storage arrays that cost less than Fibre Channel but also provide lower performance.
WHAT'S IN STORE: "There is a substantial opportunity for low-end servers in corporations to be connected to SANs, but the cost has prevented that up to now," says Bob Passmore, a Gartner Inc. analyst. "This opportunity tends to be limited to the low end of the market because the high end is well established around Fibre Channel SANs."

ADM Fends Off Threats With Automated Vulnerability System

Vulnerability and patch management is already a nightmare for most IT security managers. But what makes it worse is the added challenge of trying to figure out how to prioritize remediation work so that the most critical vulnerabilities get fixed first.

That situation led Gary Mruz, director of technical systems at Archer Daniels Midland Co., to nCircle Network Security Inc. and the vendor's IP360 vulnerability management application.

Mruz says his team had been managing vulnerabilities manually and was spending an inordinate amount of time keeping up with threats and applying patches. It was a recipe for disaster. "Even if we had unlimited staffing resources to toss at the vulnerability concern, there was no way we could have hired enough people to do a thorough enough job or respond to attacks fast enough," he says.

The company needed an automated system to help identify and prioritize security vulnerabilities, so Mruz turned to nCircle. Although Mruz says he looked at other tools, most were server- and agent-based applications that added unneeded complexity to the problem. "What came to the surface immediately with nCircle's approach was that it sat outside the servers," he says. "We didn't have to modify our servers or clients to make it work."

The other aspect that caught Mruz's attention was IP360's centralized reporting approach, which meant he wouldn't have to increase staff just to make the application work.

- Centralized reporting approach meant no additional staff to hire.
- Withstood the Blaster worm and other recent high-profile Internet threats.

And while IP360's reporting function doesn't differ much from other applications, Mruz says the key differentiator is its assessment and prioritization capability. "You still have to assess what a vulnerability really means in your environment," says Mruz, who credits IP360 for helping Decatur, Ill.-based Archer Daniels Midland withstand the Blaster worm and other recent Internet threats.

One of the most useful features of IP360, Mruz says, is its ability to set a baseline for vulnerability remediation on particular servers. "From that point forward, new vulnerabilities show up as a spike in the reporting," he says. "These alerts will show us very quickly where we have new issues to address, and it automatically points you to the patch or the fix. And the good thing is that it might not be a new vulnerability that somebody has discovered, but it might be something that we did that caused a potential problem. In essence, it's always there looking over our shoulders." **49013**

WINNER

URL: www.ncircle.com
LOCATION: San Francisco
CATEGORY: Security
TECHNOLOGY: IP360
HOW IT WORKS: The nCircle IP360 Vulnerability Management System uses a highly scalable, secure, appliance-based architecture that consists of two components. The IP360 VnE Manager is a hardened appliance that serves as the central data repository and management platform, and the IP360 Device Profiler is a hardened, diskless appliance that profiles devices and securely reports its findings to the VnE Manager.
CUSTOMER SAMPLING: Patelco Credit Union, U.S. Agency for International Development, Office of Naval Intelligence
TIP: "You have to plot and decide where the devices should go, and you have to define your baselines for patching," says Archer Daniel Midland's Gary Mruz. "Although there's no way to avoid this initial evaluation, you never have to do it again."
WHAT'S IN STORE: "NCircle's FactoredReasoning raises the bar in the vulnerability management industry, bringing more thorough vulnerability identification and lowering the false-positive noise of misidentified systems and vulnerabilities," says Dan Keldsen, an analyst at Delphi Group.

More on page 47

EqualLogic, *continued from page 42*
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ADM Fends Off Threats With Automated Vulnerability System

BY DAN VERTON

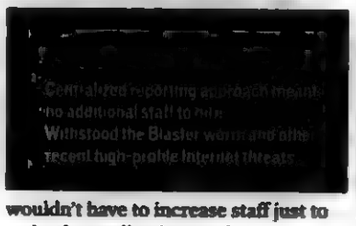
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nCircle Network Security Inc.

URL: www.ncircle.com
LOCATION: San Francisco
CATEGORY: Security
TECHNOLOGY: IP360
HOW IT WORKS: The nCircle IP360 Vulnerability Management System uses a highly scalable, secure, appliance-based architecture that consists of two components. The IP360 VnE Manager is a hardened appliance that serves as the central data repository and management platform, and the IP360 Device Profiler is a hardened, diskless appliance that profiles devices and securely reports its findings to the VnE Manager.
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More on page 47

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— A.G. Lafley, Chairman, President and Chief Executive, Procter & Gamble

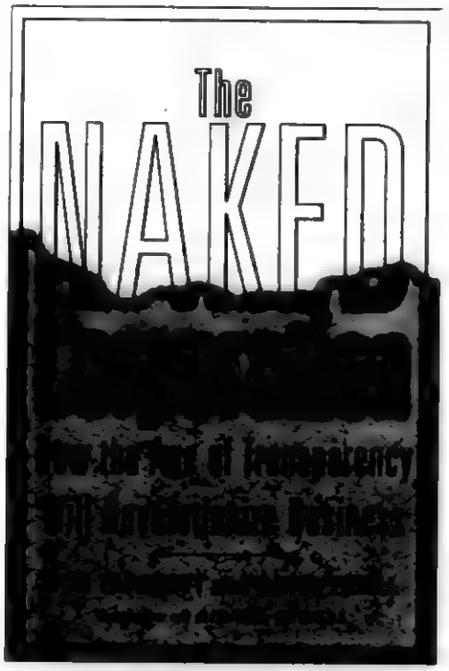
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— Dr. Eric Schmidt, Chairman and CEO, Google, Inc.

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— Indra Nooyi, President and CFO of PepsiCo, Inc.

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— Paul Taaffe, Chief Executive Officer, Hill & Knowlton

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— John Chambers, President and CEO, Cisco Systems

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— Klaus Schwab, Founder and President, World Economic Forum



"The Naked Corporation argues, beautifully and persuasively, that there is no contradiction between good business and the values of honesty and openness. This book belongs in the briefcase of every right-thinking manager in the country."
—Malcolm Gladwell, author of *The Tipping Point*

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Parts Supplier Boosts Network Capacity With WAN Compressor

BY DAN VERTON

Executives at automotive parts retailer O'Reilly Automotive Inc. thought their existing 12Mbit/sec. dedicated communications link provided all the performance they needed. But the retailer soon found that the link between its headquarters in Springfield, Mo., and its disaster recovery center in Texas couldn't transmit large amounts of data to the company's IBM iSeries server during the replication window. That often left transactions waiting to be transmitted because the link was fully utilized. If an outage were to occur, the pending transactions would be lost.

"We were using a DS-3 at 12Mbit/sec., and we were still having latency issues and congestion problems," says Mark Garton, business continuity leader. That was unacceptable for one of the largest specialty auto retailers in the U.S., with 1,000 stores and 11 distribution centers. Garton says he tested WAN compression and acceleration to assess the feasibility of curtailing connectivity costs while increasing the reliability and frequency of backups.

Expand Networks Inc.'s Accelerator was the very first product the company tried. And to the retailer's surprise,



network capacity was immediately quadrupled. "Expand's acceleration results surpassed all our expectations," says Dave Steinle, systems management team leader. "We got full T3 capacity out of our oversubscribed 12Mbit/sec. link." But the real bonus was the cost savings, says Steinle. "With the four times increase in network capacity, we will be able to downgrade our link to 6Mbit/sec. and save over $32,400 annually," he says.

There are also tangible benefits from a performance and management perspective, adds Garton. "Expand's technology is caching as well as compression technology, and that's a perfect fit for us because the nature of our data is that there are a lot of headers and a lot of repetitive data," he says. "Now, we probably average 9Mbit to 10Mbit/sec. and peak at about 40Mbit to 45Mbit/sec. with the Expand Accelerators in place." ● 48090

Expand Networks Inc.

URL: www.expand.com
LOCATION: Roseland, N.J.
CATEGORY: Network management
TECHNOLOGY: Accelerator
HOW IT WORKS: Accelerator is designed to improve enterprise application performance over wide-area networks by using next-generation WAN compression. In addition to increasing WAN capacity, Expand's quality-of-service technology, known as Instant QoS, groups traffic types and eliminates the need to update and maintain the quality-of-service configuration each time a new application is rolled out. It also enables managers to prioritize bandwidth allocation among applications.
CUSTOMER SAMPLING: Continental Airlines Inc., U.S. Environmental Protection Agency, Federal Aviation Administration, U.S. Marine Corps
TIP: "It was a very straightforward installation," says Mark Garton, business continuity leader at O'Reilly Automotive. "We installed it between the switch and the router. There was some configuration work that had to be done on the Expand unit, but they walked us through it. And now Expand has added an installation wizard that makes it possible for a non-technical person to install."
WHAT'S IN STORE: Expand "reflects the market trend," says Lawrence Orans, an analyst at Gartner Inc. "By adding more application performance features to their products, they are blurring the lines between straight data compression and QoS vendors."

However, Orans cautions that a very competitive market will force Expand to continue to focus on improving application performance and technology partnerships. "Enterprises don't want to put multiple boxes from multiple vendors in their branch offices," he says. "Solutions will need to be more broad-based and address various inefficiencies across protocols and packaged applications."

We wrote the book on Email Security.



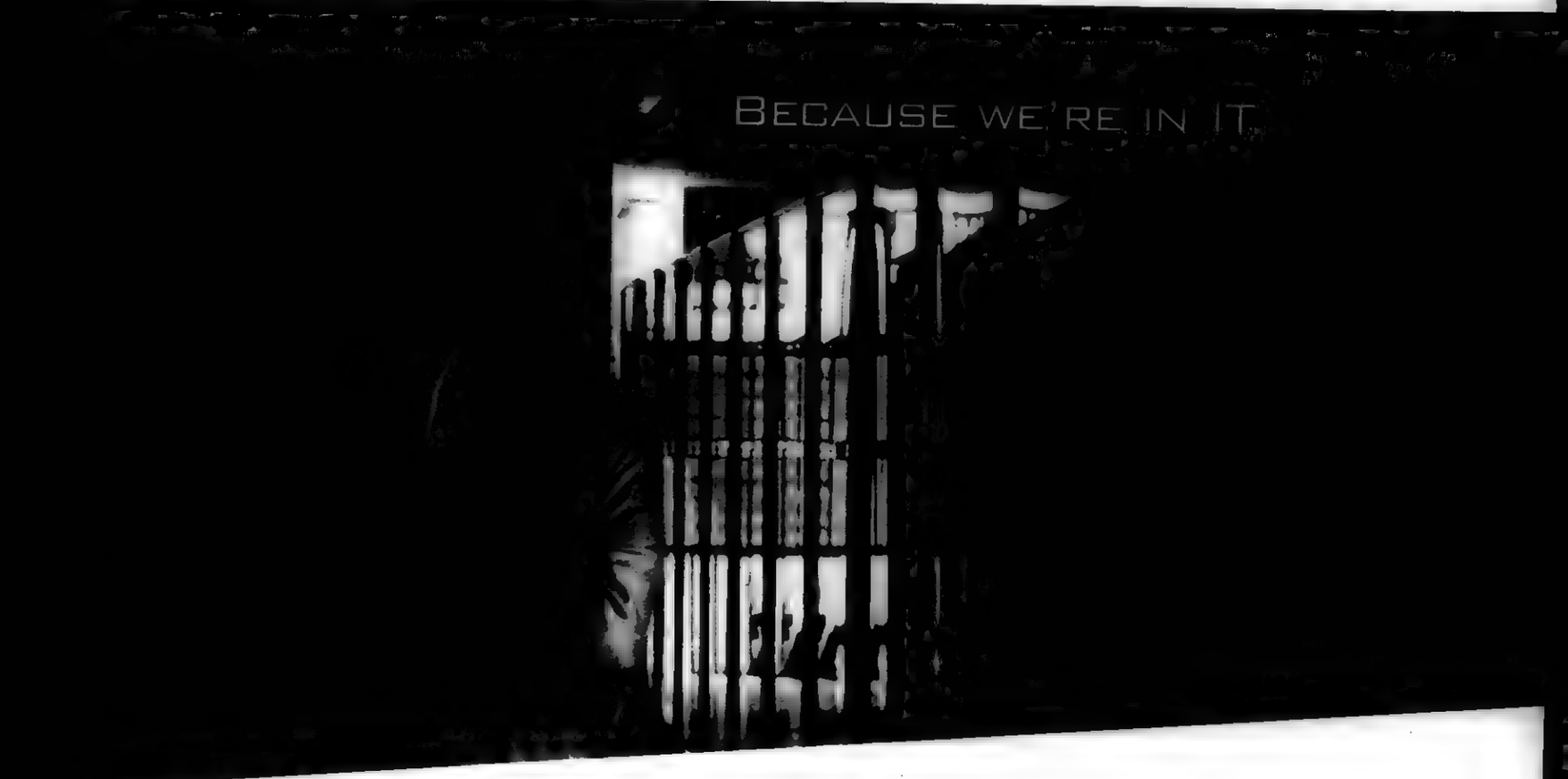
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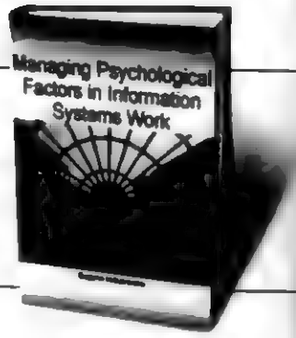
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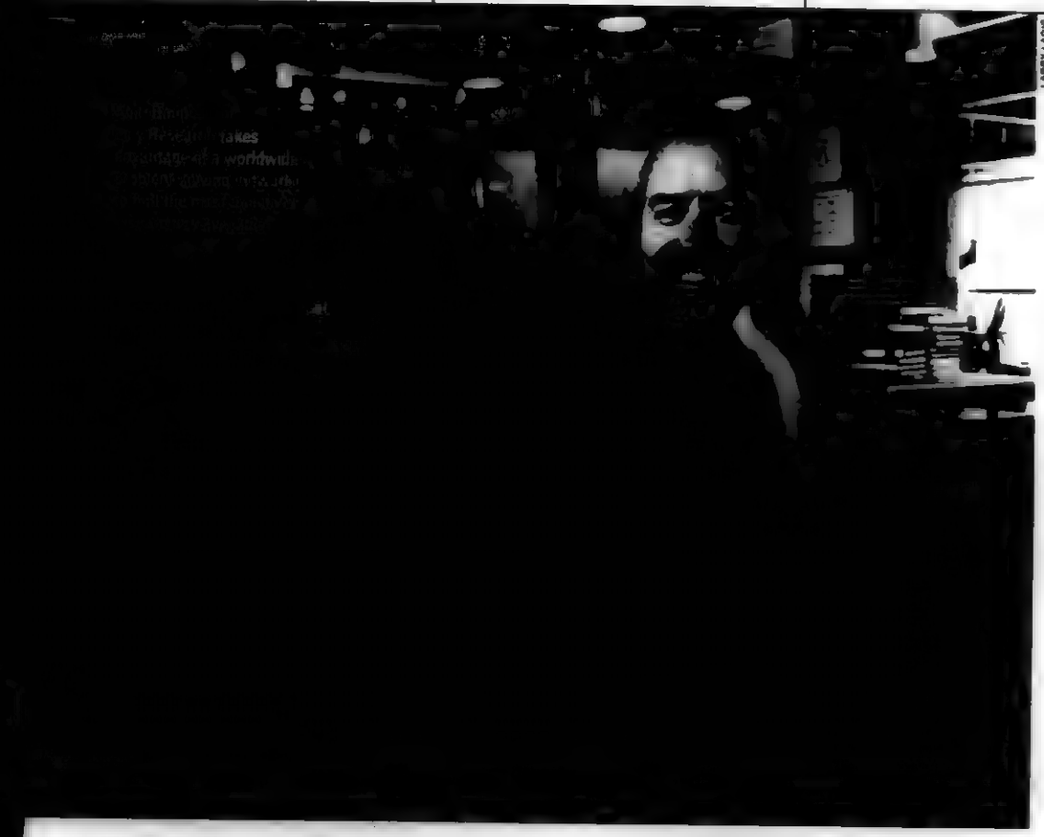
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Career Watch
A not-so-optimistic look at the IT hiring scene for college graduates; fatter paychecks for key IT players; and keeping your politics to yourself on the job. **Page 56**

OPINION
Your Other IT Budget
Gearing up for the budget wars? A different mind-set could provide additional ammunition — and allies. Bart Perkins tells how. **Page 58**

Q&A
Emotional Intelligence
Burned out? You may be working at cross-purposes with your emotional wiring, says Eugene Kaluzniacky, author of *Managing Psychological Factors in Information Systems Work*. Harnessing your psychological strengths can help beat burnout and free up energy and creativity. **Page 54**





INNOVATION Inside Out

IT is helping visionary companies harness outside talent to boost innovation while minimizing costs and risks. By Gary H. Anthes

ASSISTED BY THE INTERNET and advanced search techniques, a handful of companies is leading a revolution in the way new products are designed and developed.

By looking beyond their own R&D labs — to suppliers, universities, freelance inventors and even competitors — they are accelerating the pace of innovation while sidestepping the costs and risks of in-house research.

"The R&D model that most companies are following is broken," says Larry Huston, vice president for research and development at Procter & Gamble Co. in Cincinnati. "There's a drive to increase innovation budgets beyond the [revenue] growth of the firm. That's not a sustainable business model."

But P&G, which spent $1.7 billion on R&D last year, has found a new model, called open-market innovation. Indeed, the consumer products maker has embraced the idea so enthusiastically that it no longer refers to its product-innovation process as R&D; it's now C&D, for "connect and develop."

> **"This is a classic application of the Internet, going back to its origins."**
> Darren Carroll, CEO, InnoCentive Inc.

P&G makes the connections among its employees and external sources with a variety of tools and techniques, including an intranet, Web sites, commercial and homegrown search engines as well as several "innovation networks" — intermediary companies that match innovation seekers and suppliers. In just two years, the company has boosted the percentage of product innovations that come from outside sources from less than 20% to 35%. P&G's CEO wants to raise that to 50%.

"This is a classic application of the Internet, going back to its origins," says Darren Carroll, CEO of InnoCentive Inc., one of the innovation matchmakers. "For those of us on Arpanet in the beginning, it was all about scientists and engineers sharing problems and solutions."

Innovation Networks

The following are some of the resources P&G uses to connect and develop:

- **InnovationNet.** InnovationNet is an intranet Web portal for 18,000 P&G innovators in R&D, engineering, market research, purchasing and patents. Nabil Sakkab, a senior vice president for R&D, calls it a "global lunchroom" for the exchange of ideas.

Doing the Numbers

Larry Huston, vice president for research and development at Procter & Gamble, makes the case for out-of-the-box innovation:

- **P&G has 7,500 researchers in 150 branches of science. Outside of P&G, there are 1.5 million equally qualified scientists around the world. "So, for every person we have, there are 200 on the outside," Huston says.**
- **R&D staff at U.S. companies cost their employers well over $100,000 a year on average. "Somebody in India with a master's degree in a science probably starts at about $3,000 a year," Huston says.**
- **P&G is a $51 billion company growing at 6% to 7% a year. It wants half of all its product innovations to come from external sources. "You can do the math," he says. "If 50% is coming from outside, this is over a $1 billion challenge to bring sales in from the outside through connect and develop."**

"Betting on the Nobel laureate is the best way to go if I have to bet on one person," Bingham says. "But what if an assistant professor at Morgan State University is actually better qualified to solve that particular problem, at that moment, than anyone else on the planet? But I can't find him, so I use a mechanism like InnoCentive."

InnoCentive pays its award money — typically between $5,000 and $100,000 per problem — only when someone comes up with a workable solution. "So now the second reason for going this way manifests itself," Bingham says. "I don't pay the $50,000 until I know the problem was solved."

The third advantage of going with an external innovation procurer is that doing so preserves the anonymity of both buyer and seller, so there's an intellectual property firewall between both parties. "It gives a company like Lilly the ability to hide its problems in plain sight," Bingham says. "Someone can look at our problem and not know it's a drug application. It could be a pesticide application."

Search Magic

Cutting-edge search technologies are essential to the connect-and-develop approach. NineSigma creates a unique database of potential respondents for every client request. "The databases are generated through a variety of searching techniques, some of which are proprietary," says Shauna Brummet, vice president for operations at NineSigma. "It goes significantly beyond Google, and the techniques are evolving."

For each problem, NineSigma sends out 6,000 bid requests on average and receives 10 to 100 responses. Getting high-quality responses is a key to success, says Richard Swarz, chairman of NineSigma, and that requires sophisticated search algorithms to build just the right mailing list, as well as carefully crafted requests for proposals.

InnoCentive searches its database of 70,000 solvers and sometimes other sources as well, depending on the problem. "We have developed some proprietary algorithms that can identify with a higher probability the folks most likely to participate in a challenge," says InnoCentive's Carroll.

P&G is seeking to identify what it calls "superconnected giants" in the networks. "They are connected through patent literature, they are publishing a lot, they speak at conferences, maybe they are at the center of a hub as department head at a major research hospital," Huston says. The average researcher knows 2,000 people; the superconnected ones that P&G covets know 10,000 people, he says.

The Final Connection

While companies like P&G are beginning to tap into open-market innovation, the various methods of doing so are not yet well integrated, says Navi Radjou, an analyst at Forrester Research Inc. "The laboratory management systems and discovery tools that scientists use must provide seamless integration with things like InnoCentive," he says. "I think you'll see that happen in the next two or three years."

But Lilly isn't waiting for software vendors to step up to the challenge. It recently launched a project to automate the internal processes surrounding the use of InnoCentive and is also developing interfaces to InnoCentive's own workflow. "We are doing the IT design for an internal portal to these [third-party] systems so that it becomes part of the scientist's natural workflow," Bingham says.

For example, a Lilly scientist today seeking help with a problem would first have to know InnoCentive exists and then find someone at Lilly to explain how it works, fill out approval forms and disclosure forms, contact the relevant person at InnoCentive and so on, says Bingham. With new workflow automation and interfaces to InnoCentive, that scientist will be able to accomplish the same things with a few mouse clicks. And once the problem definition has been posted by InnoCentive, the Lilly scientist will be able to track its progress online.



Carroll says open-market innovation will dramatically expand in scope over the next five years. "You will see it expand into statistical analysis of business problems, graphics design, advertising and other services industries where this model may apply even more strongly," he says.

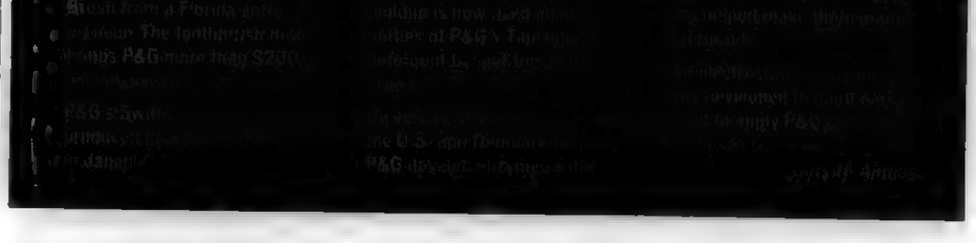
Asked about the future of open-market innovation at P&G, Huston says, "The current business model that people are following is not sustainable, and more and more companies will move this way. It's going to become even more important as we face a scientific talent shortage in the U.S.

"This *is* the future," he says. "People just don't realize it yet." **48824**

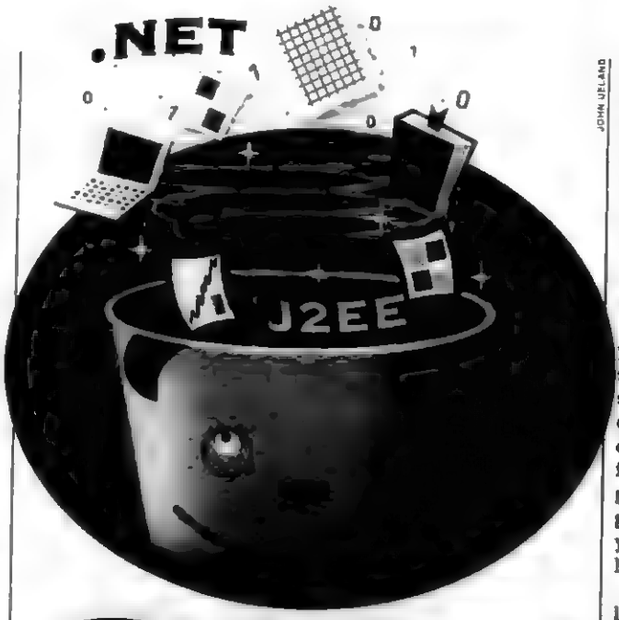
- **InnoCentive.** Founded by Eli Lilly and Co. but operating independently, Andover, Mass.-based InnoCentive claims to be the "largest virtual laboratory in the world." It posts scientific problems from its 30 "seeker" members to a proprietary network of 70,000 registered "solvers" around the world. Each posting includes a promised cash award for the solution. (The problems, which are well defined and typically have provably correct answers, can also be viewed at *www.innocentive.com/servlets/project/ProjectInfo.po*). "The success rate so far has been around 50%," Sakkab says. "Not bad for problems we failed to crack in-house."
- **NineSigma Inc.** This Cleveland-based firm helps its 50 or so clients prepare technical briefs describing projects or problems they are trying to solve and then sends the briefs — without identifying the originating companies — to thousands of researchers around the world. The idea is not to get back specific solutions, as InnoCentive does, but to identify people most likely to be able to provide solutions on a contract basis.
- **YourEncore Inc.** An Indianapolis-based network of about 400 retired scientists and engineers, YourEncore was created 10 months ago by P&G and Lilly but now operates independently. It matches its members with clients for specific, short-term job assignments and pays them their salaries at retirement plus 20% [QuickLink 48720].

Risk-Free R&D

Indianapolis-based Lilly, another pioneer in open-market innovation, supplements its internal R&D resources with the services of InnoCentive and YourEncore. Alph Bingham is a vice president at Lilly Research Laboratories and InnoCentive's chairman. He says that a company like Lilly traditionally would look on the outside for the very best person — perhaps even a Nobel laureate — to solve a hard research problem. But it might pay that person $50,000 for six months of work and still not get a solution.




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2
3
4
5
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Key
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2. Prototype specs updated securely.
3. New specs modified in showroom.
4. Modified specs accessed via PDA.
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ON DEMAND BUSINESS



JOHN JELAND

THE GOODS FOR Grid

Broad IT knowledge, comprehensive experience and an open mind are the keys to harnessing the power of grid computing. By Patrick Thibodeau

GRID MAY BE the liberal arts of computing. It requires knowledge about many IT disciplines, a flexible management approach and acceptance of new ideas.

But résumés boasting grid-specific skills and accomplishments remain relatively rare. Grid is not widely taught, and IT workers with hands-on experience in this young field are tough to find.

Still, many in IT have the background that underpins grid technology, such as experience with service-oriented architectures, componentized software and distributed computing.

Here's a look at the talents you need to play in grid and how some IT shops are honing them.

Different Approach

Grid computing applies the resources of a network to work on a single, complex problem or set of problems. One famous example is the SETI@Home project, the search for extraterrestrial intelligence in which people around the world share their PCs' unused processing cycles to analyze data in an effort to identify signals from outer space.

Implementing a grid takes a variety of skills and an open mind. "The way one approaches the applications [with grid] is very, very different than is traditionally done in high-performance computing environments," says John Hurley, director of grid evaluation and implementation at The Boeing Co. in Chicago. "Grid computing is very different because it requires you to look at things fairly comprehensively."

Grid requires "somebody able to integrate your middleware, your developers, your networking and your vendors, so there has to be a fairly extensive balance" of skills, Hurley adds.

Grid also involves sharing IT resources, which may mean a loss of control for some business units and IT managers. That's "a disconcerting fact for a lot of IT managers; it's not something that they are ready to accept," says Srinivas Koushik, global chief technology officer at Columbus, Ohio-based Nationwide Financial Services Inc. "The pushback from traditional thinking is not something we are underestimating." Grid requires a new mind-set where people can truly trust the network, he adds.

Young Technology

Another challenge facing grid implementers is that standards, applications and middleware are immature. "We still don't have enough standards where we can simply plug and play with these things; we have to glue them together," says Wolfgang Gentzsch, who is leading an effort to build a statewide bioinformatics grid in North Carolina for MCNC Grid Computing & Networking Services, an independent, nonprofit IT research center in Research Triangle Park.

Gentzsch says recruiting people with grid-building skills is a challenge. "You need someone who not only has excellent skills in distributed computing but who ideally has five years' experience" with grid, he says. "And you know grid computing is not five years old," he adds with a laugh. "That's our dilemma."

Grid-specific training is limited, and most IT workers graduated from college without it, says Hurley. "The traditional computing science curriculums just aren't preparing folks to deal with these different kinds of issues," he says.

Today, vendors have most of the grid expertise, so some companies are transferring those skills directly to their IT staffs. That's what Nationwide is doing with its grid vendor, DataSynapse Inc.

Koushik says he has been focusing on hiring top-notch professionals who understand applications, middleware and security. He has assigned some of those employees to work with the vendor to learn about the grid implementation. For its part, DataSynapse has established a program to teach grid technology to users.

Tony Bishop, chief business architect at New York-based DataSynapse, says employees who have a good background for undertaking a grid project understand J2EE, .Net, C++ and how to build componentized applications, as well as systems and application architectures. Systems administration and business analysis skills are also helpful, he says.

IT professionals who understand service-oriented architectures and distributed computing and "how those two mesh" should be in good shape to learn grid, says Bishop.

Because grid involves multiple systems, broad IT knowledge is also desirable, says Charlie Catlett, chairman of the Global Grid Forum (GGF) in Lemont, Ill., which is developing grid standards and best practices. "We would look for people who have a good understanding of 10 things, instead of deep knowledge on two things," he explains.

Boeing has sent employees to a two-week GGF program that offers a mix of training that appeals to the technical guru as well as the manager who may be more interested in developing policies for sharing and departmentalizing information on a grid, says Catlett.

Looking toward the future, Gentzsch is working with educational institutions in North Carolina to develop a grid training program. He sees a need for more people with grid skills, particularly to build environments that leverage the power of grid by reaching well beyond organizational firewalls. A skills shortage "will hurt the advancement of the real global grids," he says, and that's "where the real challenge is." **46716**

THE FOUNDATION

Grid pioneers say that broad IT knowledge, an open mind and a willingness to try new approaches are critical to success. Skills in the following areas are also excellent preparation for grid:

- Distributed computing
- Service-oriented architectures
- Systems administration
- Systems architecture
- Component applications
- Business analysis
- Middleware
- J2EE
- .Net
- C++

MAKING THE CASE

Srinivas Koushik, global chief technology officer at Nationwide Financial Services, says the best way to convince those who doubt grid's potential is to show them that it works. Nationwide is running numerically intensive actuarial calculations on 50 desktops instead of on a single server. In doing so, the company has cut computation time on one process from 36 days to 28 hours.

Koushik says this ability to gain additional computing capacity by using existing resources is a critical benefit of grid. "Our competitive advantage, our bread-and-butter business, depends on our ability to look at data and make something of it," he says.

– Patrick Thibodeau

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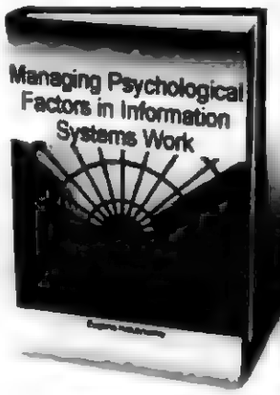
Emotional INTELLIGENCE

Eugene Kaluzniacky is on a mission to beat IT burnout and boost IT energy through a better understanding of what makes technologists tick.

Q&A

In his new book, **Managing Psychological Factors in Information Systems Work: An Orientation to Emotional Intelligence**, *Eugene Kaluzniacky brings together what psychologists know about personality and learning styles with what IT managers know about IT workers. The result, says the instructor in the Department of Applied Computer Science and Administrative Studies at the University of Winnipeg in Canada, is just the first step toward bringing IT to a new level of productivity and humanity. Kaluzniacky told* Computerworld's *Kathleen Melymuka about his vision. He invites feedback and collaboration at e.kaluzniacky@uwinnipeg.ca.*

I've seen books about emotional intelligence and about IT. Why combine the two now? Information systems are sociotechnical in nature. There's a technical component and a people-oriented component. You hear a lot of complaints that technical people often build the system right but don't build the right system. More recently, there has been a lot about burnout among IT workers. I did a poll on the Internet, and about 48% of 500 respondents said they were close to burnout. So that could become epidemic in next few years. IT is a unique area in that you have to create, but you have to create on time and be precise and specific and it has to work. So you've got precision, deadline and creativity at the same time. That doesn't happen in many fields. Also, because technology has proliferated, more is possible and more is expected of IT professionals — sometimes to the point of not being realistic. So people need more tools than they currently have to work in this profession.



How can an understanding of emotional factors help an IT manager work more effectively? A true story of how personality can play in systems development: In a financial services company, two ladies showed up the same on three dimensions of the Myers-Briggs personality inventory and different on the fourth, which measured how much structure they required to be comfortable. I asked them what in the course of their work stressed them the most. The structured person said she became very stressed if she had more than one thing on her desk at once. The person who required less structure said she was really stressed if there was only one thing to work on; she had to have several. So if a person is wired in a certain way and you're having him or her do things that stifle them, you're underutilizing them, and they're burning out because you don't understand their natural style. If a manager understood the personality, thinking styles, operating styles of people, it's incredible how much energy could be freed up.

If there were one thing you'd like readers to take away from this book, what would it be? I think there's a lot of empowerment to be gained from awareness of the psychological factors in the course of IT work.

I wanted to state a vision and bring IT to a new level. I would love to see this book as a first step. I've already created a Web section on wellness in IT (*http://[illegible]ellness.ncf.ca*) and I will build a separate component for comments and questions about the book. That's a start. There will have to be volunteers for the next stage [of research], and I'm looking for them. **48891**

BOOK EXCERPT

Tying Styles to Tasks

Not All Individuals Learn In the Same Way

- **DIVERGERS'** greatest strength is in imaginative ability and awareness of meanings and values. They view a concrete situation from many perspectives and generate alternative ideas as in "brainstorming."
- **ASSIMILATORS'** greatest strength is inductive reasoning and the ability to create theoretical models. Individuals with this style assimilate disparate observations into an integrated explanation. They focus more on abstract concepts than on people and judge ideas by sound logic and precision rather than practicality.
- **CONVERGERS'** greatest strength lies in problem solving and practical application of ideas. People with this style do best in situations where there is one preferred answer, to which they "converge." Usually, convergers prefer dealing with technical tasks.
- **ACCOMMODATORS'** greatest strength lies in doing things. They seek opportunities and take risks. Where theories don't fit the facts, accommodators will likely discard the theory. They adapt themselves to changing circumstances. People with an accommodating style solve problems in an intuitive, trial-and-error way.

Learning Styles and IT Tasks

Even at a glance, it's not too difficult to make preliminary assumptions about relative strengths of different styles in various IT tasks.

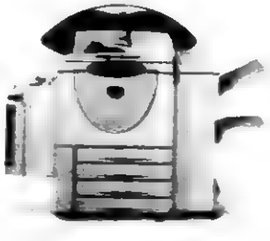
- **PROTOTYPING, USER INTERFACE DEVELOPMENT:** The Diverger can use imagination, assess alternatives and be sensitive to users. The Accommodator can focus on the practicality and usefulness of the interfaces.
- **DATA/PROCESS/OBJECT MODELING:** This is the natural domain of the Assimilator, who goes from observation to abstraction (modeling).
- **PROGRAMMING/TESTING/QUALITY CONTROL:** The Converger takes abstract models and experiments by developing and testing code.
- **SYSTEM IMPLEMENTATION:** The Accommodator is the doer and can be flexible toward sudden changes; his style can be very useful here. The Converger may also fit, preferring a specific outcome after active experimentation.
- **TELECOMMUNICATIONS:** In network design, the Converger could be competently assisted by an Assimilator, especially in complex, wide-area situations.
- **BUSINESS PROCESS RE-ENGINEERING:** In the earlier stages of modeling, alternative ways for an organization to operate can be proposed by Assimilators, possibly aided by Divergers. In the latter stages of BPR, when the new system is implemented and new processes must be taught and initiated, Convergers and Accommodators can rise to the occasion.
- **WEB SITE DESIGN:** The parts that users see, particularly if involving multimedia, would be a natural for Divergers, whereas the technical underpinnings could involve Convergers, possibly assisted by Accommodators.
- **HELP DESK:** This area belongs to the Accommodator style, which prides itself in adapting to changing circumstances ("firefighting"). **48892**

Adapted with permission from **Managing Psychological Factors in Information Systems Work: An Orientation to Emotional Intelligence**, by Eugene Kaluzniacky (Information Science Publishing, 2004).

SMARTER

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Career Watch

It's All About The Money

For experienced IT pros, that is. By 2006/2007, IT salaries will again escalate as the economy improves, putting labor costs at 55% to 60% or more of the IT budget, according to Meta Group Inc. As the economy continues to improve through the end of this year and into 2005, key IT employees will start scanning the horizon for better employment opportunities, Meta predicts. To prevent the exodus of top employees, CIOs should pay closer attention to human capital management programs, including management development, employee welfare/morale, and recruitment and retention programs, as well as performance-based incentives. CIOs should work closely with human resources staff and line-of-business managers to address workforce hiring trends and projected IT staffing requirements, Meta says. They should also focus on selection of proper outsourcing strategies and try to keep annual employee turnover rates in the range of 4% to 6%.

– Julia King

Joe Rich Q&A



TITLE: Executive vice president

COMPANY: Clark Consulting, Marlboro, Mass.

WHAT HE DOES: Having just surveyed 37 U.S. IT companies about their college recruiting plans, Rich is lukewarm at best in his optimism about new IT graduates' job prospects in the U.S. high-tech sector. The main reason: Graduate hiring by U.S. high-tech companies this year increased by a mere 1.6% over 2003. What's more, although the total number of new college graduates has increased, most U.S. high-tech companies hired fewer college graduates this year than in 2003.

What is the near-term IT employment forecast for recent university graduates? Hiring is modestly up but remains relatively low. In 2004, we saw only about 3,600 or so college hires in a sample of 37 companies. The interesting thing is that among the companies that increased rather than decreased staff, the hiring was significant in that they increased college hiring by 83%. Those companies tend to be in networking and telecommunications and software and services. The companies less likely to be hiring are in the semiconductor and hardware space.

What kind of degrees do new hires have? The strongest growth in college hiring is among computer science degrees with an IS emphasis. Overall, the number of hires for bachelor's degrees increased 68%. There was a 141% increase for master's degrees and a 100% increase for Ph.D.s.

How does today's college hiring compare with the pre-dot-com-bust days? In 1999 and 2000, we were seeing closer to 10,000 new college graduates hired in a year.

Given the current employment picture, would you encourage your own children to pursue a degree and/or a career in IT? IT is a less secure degree and career than it was 10 years ago. One reason is that we now have a hole in the bucket. When we do hire employees, they can come from places other than the U.S. – China, for example. As demand increases among U.S. technology firms, for the first time they have the option to go and get those employees somewhere other than the U.S. If I were advising youngsters about what to do about their degrees, I'd tell them to follow their passion. **49124**

Numbers Watch

FOURTH-QUARTER IT HIRING FORECAST

9%	of all CIOs will expand IT staff
3%	of all CIOs will decrease IT staff
80%	report they need Microsoft Windows (NT/2000/XP) administration skills
51%	need Cisco network administration and Check Point firewall administration skills

WHO'S READING YOUR E-MAIL?

A = Companies that hire staff to monitor outbound e-mail content

B = Companies that perform regular audits of outbound e-mail

A	B	INDUSTRY
22%	24%	Goods manufacturing
25%	30%	Retail/wholesale
45.5%	36%	Business services (transportation, construction, engineering)
39%	44%	Finance and insurance
28%	36%	Public service/nonprofit
40%	40%	Other (includes media, entertainment, telecom and utilities)

Keep Your Politics To Yourself

That's the advice of Liz Ryan, a workplace expert and founder and leader of the WorldWIT, an online discussion forum for women in business and technology (*www.WorldWIT.org*). "Over the last six to eight months, the country has split like the San Andreas fault. Now, with this hot, hot election coming up, talking about politics at work can negatively impact your career," Ryan says.

"Your boss or someone else in power may hold a different opinion than yours, so the best thing is to stay out of the political fray and keep the discussion innocuous. They don't need to know if you're a Kerry or Bush supporter. It won't help you professionally to tell them," Ryan says. Should your manager or someone else at work press you on the issue, there are gracious ways to wiggle out of the conversation, she adds. Ryan's personal favorite is to agree that the political rhetoric this year indeed seems more heated than ever before. Then say, "But I've made a commitment not to get derailed by the political situation and let it distract me from my work or anything else."

IN BRIEF

Say Bye-Bye

Over the next four years, more than 140,000 domestic call center jobs – and the IT infrastructure, network and computer support jobs that go with them – will disappear as companies move to cut costs by outsourcing the work to Canada and other countries with lower labor costs, according to a study released late last month by New York-based researcher Datamonitor PLC.

Datamonitor predicts that the number of U.S. call centers will decline by 6% from 50,600 today to 47,500 in 2008. At the same time, 800 new call centers will set up shop in Canada, creating 93,000 call center agent jobs north of the border.

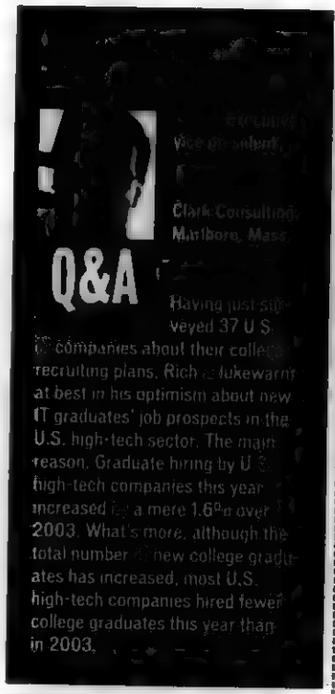
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– Julia King

Q&A



Executive Vice president, Clark Consulting, Marlboro, Mass.

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Numbers Watch

FOURTH-QUARTER IT HIRING FORECAST



Base: 1,400 U.S. CIOs at companies with more than 100 employees

SOURCE: ROBERT HALF TECHNOLOGY, MENLO PARK, CALIF., AUGUST 2004

WHO'S READING YOUR E-MAIL?

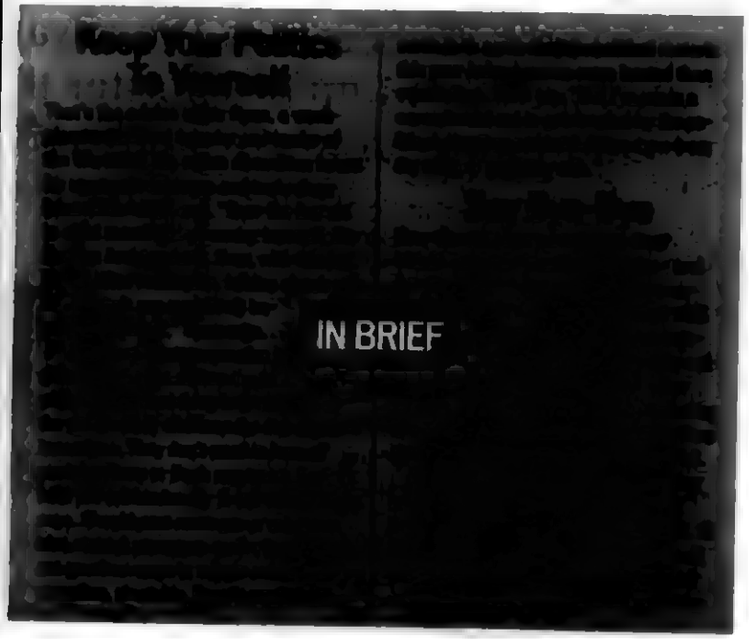
A = Companies that hire staff to monitor outbound e-mail content

B = Companies that perform regular audits of outbound e-mail

A	B	INDUSTRY
22%	24%	Goods manufacturing
25%	30%	Retail/wholesale
45.5%	36%	Business services, transportation, construction, engineering
39%	44%	Finance and insurance
28%	36%	Public service/nonprofit
40%	40%	Other (includes media, entertainment, telecom and utilities)

Base: 140 companies with more than 1,000 employees

SOURCE: STUDY CONDUCTED BY FORRESTER RESEARCH INC. FOR PROOFPOINT INC., CUPERTINO, CALIF., JUNE 2004



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EVENTS

CRM Summit

■ Oct. 4-6, Scottsdale, Ariz.
Sponsor: Gartner Inc.
The Gartner CRM Summit has six tracks: managing CRM, marketing strategies and applications, sales technologies for revenue growth, customer service technologies and analytics, CRM architectures, and specific sectors and industries.
Web site: www.gartner.com/us/crm

Teradata User Group Conference

■ Oct. 10-14, Seattle
Sponsor: Teradata
The Teradata Partners User Group Conference and Expo includes presentations by users and vendors. Topics include backup solutions, data governance and compliance, performance metrics, dimensional modeling and Web analytics.
Web site: www.teradata.com/teradata-partners/conf2004/

HR Technology

■ Oct. 13-15, Chicago
Sponsor: Human Resource Executive
The HR Technology Conference & Expo examines technology for human resources professionals. Topics include technology trends, workforce analytics, performance management software, e-learning, recruiting technology, HR self-service, outsourcing, return on investment and case studies.
Web site: www.ddiworld.com/events/hrdevent.asp?id=503

Knowledge Management

■ Oct. 26-28, Santa Clara, Calif.
Sponsor: KMWorld
Each day of the Conference and Expo on Knowledge Management, Content Management, Intranets and Portals includes three knowledge management tracks with topics like ROI and metrics, collaboration tools and managing data; two intranet tracks, with topics like intranet governance and information architecture; and a content management track with topics like content integration and strategies and practices.
Web site: www.kmworld-intranets.com

BART PERKINS

Your Other IT Budget

FALL IS COMING, and in most corporations, that's the silly season of budget wars. Getting your budget approved requires clear communication and mutual understanding. Unfortunately, the budgeting process is organized around financial practices (capital and operating expenditures), rather than the way IT operates. To communicate the needs of your IT organization more effectively, forget about capital and operating expenses for a while and consider your budget from the perspective of discretionary and nondiscretionary spending.



Nondiscretionary budget. This funds the operation and maintenance of existing systems and infrastructure. It includes the cost of running and maintaining software applications as well as production services (such as e-mail desktop support for office workers). This is analogous to operating a car after you buy it: In addition to buying gasoline, you need to change the oil, rotate the tires, replace the brake pads and so on.

Your nondiscretionary budget is more than just your operating budget. It includes both capital and expense items. For example, capitalized hardware and license fees required for infrastructure support are nondiscretionary items.

The CIO has ultimate responsibility for the nondiscretionary budget and is held accountable for both explaining and minimizing it. To justify its size, you need to know how your unit costs compare with industry norms, such as per seat, per PC installation or per help desk call. Research your costs before you have to justify them. If they are below industry norms, use this information to deflect budget attacks. If your costs are above industry norms, get them down in the following ways:

■ Simplify your architecture to reduce infrastructure support costs, and use commodity products wherever possible. It's easier and cheaper to support less diversity.

■ Comparison-shop for this year's deals, especially for application packages and telecommunications.

■ Manage your vendors and their costs closely.

■ Consider going offshore when it won't compromise quality.

Discretionary budget. This budget is used to fund development of new functionality and replace existing systems or parts of the infrastructure. Discretionary projects usually enable a company to do at least one of the following:

■ Provide financial benefits, such as increased sales or reduced costs. The benefits of a project are usually expressed in terms of financial return. These days, most corporations will fund only projects that provide substantial financial benefits.

■ Meet regulatory requirements.

■ Provide significant intangible benefits. For example, a hospital might fund a system that enables it to deliver a higher quality of care, regardless of financial return.

Your discretionary budget is not the same as your capital budget. IRS regulations on software capitalization require that certain parts of the software development process be capitalized, while others are no longer eligible for capitalization. In contrast, the discretionary budget contains all costs related to specific projects, including both capital and expense items.

For discretionary projects, the path to budget victory is an effective business case. Historically, discretionary projects have depended on the CIO to justify them, but this responsibility is largely misplaced.

The business executive who is pounding on your door demanding a new application should be responsible for developing the business case and accurately quantifying the project's business benefits. (The purported benefits should be included in the business head's performance plan to ensure realistic estimates.) That executive is best qualified to defend the project's importance and should lead the charge through the budget battles. In extreme cases, he may offer to contribute dollars from his own budget to fund a specific program rather than have it cut.

The IT organization will still be responsible for providing accurate estimates of the project's IT costs. In order for the project to survive the budget wars, the CIO and the business executive need to jointly prepare and jointly deliver a rigorous and comprehensive business case.

This year, to get maximum leverage for the IT budget wars, try reassessing your budget from the perspective of discretionary and nondiscretionary categories. You'll still have to recast your budget into operating and capital expenses for the finance department, but you'll be far better prepared to communicate the needs of your IT organization. Your projects will have a better chance of surviving the budget wars, and this time you won't be on the front line alone. 49035

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Advertising Supplement

Labor Day and the IT Professional

Today's interviews are part 2 of a two-part series with the finalists for the annual Black Data Processing Associates' Top Companies for Blacks in Technology, an annual evaluation of 40 criteria by BDPA and WorkplaceDiversity.



During this Labor Day season, the Offshore Tracker, a service provided by TechsUnite, reports that better than 240,000 IT jobs have moved offshore since 2000. During the same timeframe, more than 700,000 jobs were created here in the United States. At issue, then, is where the jobs are, what skills are needed, and how to land one of those jobs.

Allstate Insurance, chosen as the best among the best in the BDPA/WorkplaceDiversity evaluation to identify the Top Company for Blacks in Technology, turns traditional professional development on its side when helping employees develop needed skills. Dr. Robin Richmond, assistant VP for Allstate Protection Technology, says sending IT professionals to volunteer in the community is part of professional development. While serving as external ambassadors for Allstate, the employees also learn skills that go beyond technology – team-building, bringing diverse groups together for a common goal, and communicating in a non-tech community.

Greg Tahvonen, VP of human resources at Delta Airlines, says IT professionals do best when they work in organizations that measure performance. "There's no barrier if you perform." Tahvonen says more is needed in interpersonal skills than hard-core tech skills, which change in definition on a constant basis. Instead, he looks for people who demonstrate an ability to learn, who have the business skills of analysis and project management.

Whether at Blackwell Consulting, Merck, Marriott or HSBC Technology & Services, all the finalists in the Best Companies for Blacks in IT cite these types of requirements for IT workers.

Their input is critical when looking at the latest Information Technology Association of America Workforce Development Survey. Despite continued focus by CIOs on aggressive and demonstrated ongoing learning, the 500 hiring managers responding to the ITASA telephone poll indicated they first look at related experience and academic degrees. However, interpersonal skills were ranked two times higher than project management or team building skills in hiring considerations.

Other data from the survey released Sept. 6 projects the IT workforce will top 10.5 million workers in 2004, up from 10.3 million in 2003. Job growth is slowing, however, with hiring managers reporting plans to hire 230,000 people in 2004 vs. nearly 500,000 in 2003. Almost 80% of the jobs will be with non-IT companies, with the greatest job growth – 5% -- coming in the Northeast.

More IT professionals work in programming than any other job category, but the highest job growth will come in technical support (with a projected 67,000 jobs) and network system design, followed by programming. Information security is forecast to be the job area of greatest growth over the next three years.

For more information about IT Careers advertising, please call: 800.762.2977
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Produced by Carole R. Hedden

System Software Specialist to implement and maintain secure Web infrastructure for the Eskind Biomedical Library that includes Web servers, database servers, multimedia servers, and development servers. Serve as backup system administrator for StarChart/StarPanel (VUMC patient records and clinical management systems); providing 24x7 system support for four redundant clusters of UNIX workstations. Serve as webmaster for the main VUMC Web servers and collaborate with programmers and library staff to develop reusable knowledge management tools and perform hardware installation of Sun servers. Requires: minimum of Master's Degree in Information Sciences, Computer Science or related field and 24 months of working experience in server support, web technologies, and library systems is required. Must have prior working experience with Solaris, Linux, OpenBSD. Must have strong background in MySQL or Oracle database management. Must understand library environment. ALA accredited MLS degree preferred. Please send resumes to Frances Lynch, Vanderbilt University, Eskind Biomedical Library, 2209 Garland Ave., Nashville, TN 37232-8340.

Manufacturing Process & Systems Consultant. Work with manufacturing affiliates to develop strategies, support a multi-site business as project leader/manager for global teams that define/implement information management systems; create, implement/maintain systems to ensure well-developed, standardized & consistent documents & records; leads/contributes to mnfg projects to harmonize methods & improve effectivity; develops strategy, plans, processes & policies for information management; develops training programs & conducts training; leads local implementation of new/modified information management systems; utilize Oracle & project-writing applications. Prior experience must include creation and implementation of complex & novel information technology projects, use of Oracle, and direction of teams and projects. MS in Computer Science and 3 years in the job offered or 3 years in relevant related applications or software engineering. Submit resume & social security number to: Kathy Sanders, Roche Diagnostics, 9115 Hague Rd., Indianapolis, IN 46250. No phone calls please.

Lead QA Engineer. Performs testing of automated scheduling system to maximize customer service, reduce missed commits, & increase technician productivity using UNIX, Win NT, C/C++, Perl, Java, JavaScript, PL/SQL, SQL*Plus, HTML, Oracle app server 4.0B, Oracle 8.0S, & Netscape Navigator. Test functionality of the system Perform Backend/Frontend testing by developing SQL scripts. Schedule UNIX jobs using Cron utility & analyze results. Test data loading of Oracle tables using SQL Loader. Develop shell scripts to transfer files from external systems. Test data transfer processes at all interfaces. BS in Comp Sci, Eng, Info Systems, or related field & 5 years exp as SW Eng &/or Programmer/Analyst & working and/or theoretical knowledge of: UNIX, Win NT, C/C++, Perl, Java, JavaScript, PL/SQL, SQL*Plus, HTML, Oracle application server 4.0B, Oracle 8.0S, & Netscape Navigator. $78,400/yr. M-F 40 hrs/wk. Denver, CO. Must have proof of legal authority to work permanently in U.S. Application by resume only to Workforce Development Programs, PO Box46547, Denver, CO 80202. Ref. job# CO5090483.

SW Dev Engineer. Partner in a team envmt to design, develop, code, test & debug new SW or significant enhancements to existing SW using knowledge of C/C++, HTML, Javascript, Corba, UNIX & PL/SQL. Applets, Servlets, JSPs (Java Server Pages). GUI development & client/server applications. Learn to apply principles, theories & concepts & begin to use methodologies, tools, documentation processes & test procedures to complete projects. Entry-level position working under close supervision of the SW Dev Manager. BS in Comp Sci, Engin, or related & 1/yr exp as SW Eng, Programmer/Analyst, Consultant/Analyst & working &/or theoretical knowledge of C/C++, HTML, Javascript, Corba, UNIX, PL/SQL, Oracle, Applets, Servlets, JSPs (Java Server Pages), GUI development, & Client/Server Applications. $57,700/yr M-F 40 hrs/wk. Denver, CO. Must have proof of legal authority to work permanently in U.S. Application by resume only to Workforce Development Programs, PO Box46547, Denver, CO 80202. Ref. job#CO5090496.

IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations throughout the U.S.) Assist in defining and delivering the technical architecture for client projects and integrating solutions from UNIX and Windows 2000/NT platforms using Enterprise Application Integration tools and web services solutions. Design custom and package technology enabled business solutions using Java, Develop Enterprise Application Integration (EAI) best practices for client implementation projects based on industry standards. Map clients' business processes, organization and technology to the new technology solutions and identify gaps. Create designs for complex technical requirements including gap analysis, infrastructure interfaces, reports, enhancements, and/or conversions. Assist in defining systems strategy and implementation work plans. Participate in a system integration project engagement. Participate in code development within subteams and assist in the development of complex EAI and/or web services modules. The wage offered is $75,000 per year.

The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree in Computer Science, Math, Engineering (any), Information Systems or Business Administration + 1 year of experience in the job offered or 1 year of experience as a Senior Consultant, Consultant, Systems Analyst or related occupation. Related experience must include Java, Windows NT/2000, Enterprise Application Integration (EAI) Tools and UNIX.

Please send your resume, referencing Job Order Number **WE8452288** to the PA Careerlink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

Technical Support Analyst

Experience: Minimum 3 years recent experience in a similar position.

PCS has an opening for a Technical Support Analyst based in Chicago, Illinois. The selected candidate must have a minimum of a bachelors degree in Electronics or Management Information Systems or Computer Science or Computer related field or equivalent. A minimum of 3 years of recent experience in a similar position is required.

Job Description: The job requires the employee to possess a minimum of 3 years recent work experience in a similar position. Prior experience with designing and implementing solutions for extending systems management capabilities of CA-Unicenter TNG for different types of non-IT devices is mandatory. Must possess work experience using Wireless Devices (Vast Data22, Ion Networks, Badger and Rosie) and integration of these devices with CA-Unicenter TNG. Prior experience implementing CA-Unicenter TNG and related suites of Enterprise Systems Management products and software required.

Additional work responsibilities involve performing systems support, computer operating systems configuration, perform systems support and configure TCP/IP and computer networks. **Require prior work experience working on Windows, windows2000** server, **Windows 2000 advanced server,** Linux, **Novell platform** routers, gateways, LANS/WANS and firewalls. Responsible for in-house systems administration, network management, e-mail management, LAN, VPN, remote access management and providing for in-house users and external clients.

The job responsibility requires travel as required. Please send your resume and cover letter to Human Resources, Professional Consulting Services, Inc., 1415 North Dayton, #38, Chicago, IL 60622.

Business Analyst w/ Masters or Foreign Equivalent in Marketing Mgmt or Busi. Admin or Comp Scie + 1 yr exp in research, analyze, gather business requirements, develop, test & implement commercial s/w using Oracle, MS SQL, VB on Win. Analyze s/w requirements, determine design feasibility, develop, debug & test using C, C++, Java, HTML, OO, VC++, Sybase on Unix & Win. Mail res. To: CompuInfo, 1119-1D, Creb Orchard, Raleigh, NC 27606.

Software Engineer. Dsgn, dvlp, integrate & test systems-level s/ware, & nwork distribution s/ware for digital audio/video/voice recording. Set specs & formulate & analyze s/ware reqmts for mid demands using s/ware skills. Knowl in ATL, WTL, socket prgmg, direct draw/show etc tech & debugging skills in Visual Studio a plus. BS w/2 yrs exp in related industry. 8-5p. Send resume to Dan Kelly (VP)-General Solution Ltd, 5902 Sovereign Dr, Houston, TX 77036.

Clutchpoint delivers innovative IT solutions, has openings for experienced Prog/Systems Analysts, S/W Engineers with any of following skills: Oracle, Sybase, SQL, C/C++, Visual C++, OOD, Java, Web Tech, UNIX, NT, VB, ASP, HTML, SAP, Peoplesoft ERP. Send resumes to jobs@clutchpoint.com. EOE.

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IT PROFESSIONALS

Manager

(Glen Mills, PA and other locations throughout the United States) Design and implement custom technology enabled business solutions for clients within the Financial Services industry with a concentration on capital markets and brokerage operations. Responsible for managing part of large, complex system integration projects, defining systems strategy, programming, and developing system requirements throughout the software development life cycle for leading financial services entities. Implement middleware solutions to enable Straight Through Processing within capital markets and enable clients to mix packaged applications, custom software, and legacy software for use across internal and external networks using TIBCO Message Broker and IBM MQ Series products with relational databases including Oracle database. Implement TIBCO Rendezvous to provide a high-performance, scalable platform for e-business infrastructures, enable the creation of robust event-driven applications and ensure minimal integration-driven traffic. Utilize Java to build the inbound and outbound connection mechanism for messaging solution. Determine and resolve troubleshoot issues during production support with utilities built using C, Java and SQL queries. Implement systems integration of client server applications and apply solution specific methodologies to ensure that the delivery and implementation of software solutions meets client requirements and industry standards.

$101,200/year Mon-Fri 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Engineering (any), Computer Science, Mathematics, Information Systems or Business Administration plus 5 years of experience in the job offered or 5 years of experience as a Manager, Software Engineer, Consultant, Senior Consultant or Intern. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials evaluation service. Related experience must include 1 year of consulting to leading financial services entities, utilizing relational databases (i.e. Oracle), programming, TIBCO Message Broker, TIBCO Rendezvous, and IBM MQ Series product.

Please send your resume, referencing Job Order Number **WEB45ZZ91** to the PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

First Consulting Group is a leading provider of information based consulting, integration and management services to healthcare, health plan, pharmaceutical and other life sciences organizations in North America and Europe. We are currently seeking a Technical Master II - Data Architect.

Technical Master II - Data Architect (Atlanta, GA) Build matrices for data collection and data analyses for making high level, complex business decisions. Develop conceptual and data models utilized to store, organize and analyze data in large volumes. Responsible for database configuration, set-up, database back-up and recovery. Coordinate and install database patches, monitor database performance, resolve data management issues and problem resolution. Administer database security, diagnose problems and implement corrective actions. Write financial reports for customers and will oversee a team of subordinate specialists. Require: Bachelor's degree or foreign degree equivalent in Computer Science, or a closely related field, plus 3 years of experience in the job offered or in Software/Network design and development. Must also include 3 years of experience using ORACLE.

Send resume to: recruiter@fcg.com (preferred) or DP-Human Resources, First Consulting Group, Inc., 111 W. Ocean Blvd., 4th Floor, Long Beach, CA 90802 (No Phone Calls Please).

IT consulting firm located in Vermont has multiple openings for IT professionals to serve multiple clients throughout the U.S. Job duties include: Analysis, design, development and testing of computer applications. Specific skill sets needed include:

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- Peoplesoft Developers
- Cognos Developers
- Windows/Unix Administrators
- Ab Initio/Business Objects Developers
- Web-based & content based developer working with ECM, WDK, OFC, Applications Builder & Workflow Manager
- Client server developer with C, C++, Java, XML, Solaris, & Intranet
- QA Testers
- ERP Consultants - Oracle/Peoplesoft/SAP

All positions require a B.S. degree in computer science, math, engineering, or business. Some senior level positions available. Competitive salary is offered. Experience required varies from 1-5 yrs. exp. in skills identified above. Send resumes with salary requirement to: rt@rTechUS.com. Applicants must have authority to work permanently in the U.S.

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Software Engineer sought by IT solutions company in Broomfield, CO to work in Broomfield and other unanticipated job sites in the U.S. Engage in systems analysis, design, development, and implementation of Lotus Notes and Domino database projects using Lotus Script and Formula language, HTML, JAVA Script, Visual BASIC Script and ActiveServer Pages. Requires bachelor's or foreign equivalent in electronics engineering or a related field; 1 yr exp performing the core duties and using the technologies above, must have following certifications from Lotus: 1)Developing Domino Applications for the Web, 2)Lotus Script in Notes for Advanced Developers, 3)Domino R5 Application Development Update. M-F, 8am-5pm; $75,828/yr. Respond by resume to Employment Programs, PO Box 46547, Denver, CO 80202 and respond to JOIN CO5080512.

Software Engineer - Analysis, design & devel of comp sftwr for ERP (Enterprise Resource Planning) app using SQL, PL/SQL, VB, JAVA, CASE (Computer Aided Sftwr Engg) tools & Oracle. Hrs: 8am-4:30PM (40 hrs/wk). Master's degree req'd w/major field of study: Busn, Comp Sci or Comp Engg. Min 2 yrs exp. Send resume to: Uday Nene, Honzon Companies, Inc., 2025 Lincoln Hwy, Ste 322, Edison, NJ 08817.

Sr. DBA wanted by Franklin Credit Management Corp. in Jersey City, NJ. Requires MS in comp sci or related field w/min 5 yrs Microsoft SQL Server db program/admin exp. Extensive exp in all phases of db admin, incl install, config, physical & logical database design, performance tuning, writing stored procedures & triggers, security, troubleshooting & managing backup & recovery plans. Generate various reports using Excel, Crystal Report / Business Object. Call center exp req'd. Must be Certified Microsoft DBA (MCDBA). Email resume to resume@franklincredit.com

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Sr. S/Ware Developer (CCNA) needed to install, configure & operate LAN/WAN, dial access services; configure & operate IP, IGRP, OSPF, EIGRP, Serial, Frame Relay, IP RIP, VLANs, RIP, Ethernet, Access Lists on Cisco routers & multilayer switches; dsgn, dvlp, test & implmt various systms & web appls using C/C++, C#, Java, XML, CORBA, Oracle, Informix, SNMP, CMIP, TLI, ATM, Sonet, DLS, IP-VPN, Frame-Relay, Unix, AccessVision, AdventNet, DSET, Purify, ClearCase, DDTS, CVS & HP Openview. Resume to: Global Consultants, 8800 Grand Oak Circle, #100, Tampa, FL 33637.

Programmer Analyst to consult on project assignments. Requires programming background in document imaging and workflow systems. Job is based in Cleveland with domestic and international project assignments. Send resume to Boundless Flight, Inc., 11700 Point Overlook Place, Strongsville, OH 44136, Attn: HR Manager. Must reference job code #PA4. EOE.

Premier Technologies, Inc.

Programmer Analysts: Design and develop in PeopleSoft 8.x HRMS including PeopleTools, App Engine, Component Interfaces, workflow, security, sqrs, DB2, SQL Server, Oracle, UNIX and NT. Develop programs using Java, ASP, XML, JavaScript, VB Script and Plumtree portal. Req. Bachelor's in Comp. Science or related and 2 yrs of exp. Send Resume to: Premier Technologies, Inc., 12808 West Airport Blvd. Suite # 230 Sugar Land, TX 77478. E-mail hrd@premiema.com

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Software Engineer (3 Openings) BA in Computer Sci, Electrical/Electronics Engg, Math or Physics & 3 yrs exp reqd. (multi pos.) Must've verif refs & be able to work wknds, hldys & OT on short ntc. Design, code & implement ProTech software solutions involving use of proprietary tools such as: MSE, eDeveloper/Magic, as well as Visual Basic, ASP, SQL, HTML, jScript & XML. FT Job in Fargo. Proof of right to work perm. in US reqd. Send a copy of resume w/salary reqd to Mr. Steve Janoske, General Mgr, ProTech, 14900 Sweitzer Lane, Ste 201, Laurel, MD 20707, or via email at: sj@ptassoc.com.

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First Consulting Group is a leading provider of information based consulting, integration, and management services to healthcare, health plan, pharmaceutical and other life sciences organizations in North America and Europe. We are currently seeking a Business Systems Analyst.

SENIOR BUSINESS ANALYST. Organize and lead design teams to review and customize system content. Lead site preparation activities to identify and meet electrical and cabling needs. Write specification for software configuration changes using Cerner Command Language and SQL. Assist programmers in making programming changes and assisting in the development and maintenance of scrupulous change management records. Manage specification and testing process for ADT (Admit, Discharges, Transfers) and laboratory system interfaces. Develop training manuals, establish training schedules and conduct multidisciplinary training classes. Provide on the spot training for physicians. Manage and support the clinical system day to day to insure optimal performance for end users. Plan, manage and lead the clinical system upgrade through two release levels. Modify codes in order to customize the application according to each user preference. Requirements: Bach. degree in Computer Science, Business Administration or a closely related field, with 4 yrs. of exp. in the job offered or as a Systems Analyst. Experience must include 4 years of experience with Cerner software.

Send resume to: recruiter@fcg.com (preferred) or DP-Human Resources, First Consulting Group, Inc., 111 W. Ocean Blvd. 4th Floor, Long Beach, CA 90802 (No Phone Calls Please)

Manhattan Associates, Inc. a worldwide leader in supply chain execution systems is looking for IT professionals to join our team at our Atlanta, GA, Burlington, MA, & Mtn. View CA, locations. All positions require BS or MS degrees in a technical field unless otherwise noted.

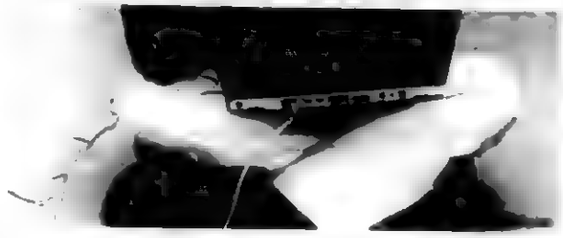
Technical Consultants. Responsible for sys analysis, design, develop, config & implement of end-to-end proj. for clients using Co. prod & dev methods, 3rd party prod. (ERP,CRM,SCM) or specialized knowledge of Supply Chain Industry (Planning & Execution) including mgmt of implements, resources, deliverables, client relationships, & issue resolution for all level of accts. Use OOD, C++, Oracle, SQL, Java, Javascript, J2EE, Perl, Visual Basic, Servlets, JSP, HTML, XML, Web Services, IBM Websphere, WebMethods, MQ-Series, or Unix. **Sr App. Architect.** Design bus. processes for distributed order mgmt sys using large-scale commercial app develop. Arch design & implement server-side modules, create & maintain design docs. Design tools for rapid app develop using OOD/OOA skills with Java, J2EE, EJB, Oracle, XML, XSL, XSLT, Jboss, BEA Weblogic, or IBM Websphere. **Project Mgr.** Plan, organize, & control assigned prod lines from conceptual states-product life cycles to meet mktg, financ, & corporate growth obj, using Bizlalk, SQL, MSMQ, IIS. Knowledge of internet security (eg firewalls, DMZs, & Digital Server). Crystal Reports, Supply chain sys integration & architecture using EIS tools (SeeBeyond, WebMethods, etc). **Analysts/Developers** with the following tech: N-Tier C++, VB, VC++, EJB, COM, C++, C#, & VC#, for developing large-scale software applications.

Ops Research Analyst Analyze complex mgmt info req for transportation/logistics optimization-based decision support sys; incorporate math & computer models & other analytical approaches to deliver research based algorithmic/heuristic solutions for re-engineering into production-ready engines & incorp into existing software apps. Req. PhD in operational research, transp or Transpo Sys Engg or logistics optimization.

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IT Systems Engineer. Assist in providing systems engine support & ensure availability of midrange Unix based, NT, & Data comm HW platforms & enviros using C, C++, COBOL, Shell, VB, Java, & Pascal prog languages. Assist in problem identification & resolution, benchmarking, monitoring, analyzing, vendor management, documenting probs, & client interface. Provide tech support relevant to Midrange & Data Comm HW enviros using knowledge of HTML, ManageX, IIS, WTS, SQL, Cons Cisco, TCP/IP network, & Cold Fusion network admin tools & UNIX O/S, IT/O, & NT op systems. This is an entry-level systems engn position working under close supervision of the IT Manager. BS Comp Sci Eng, or related & 1 yr exp as System Admin, IT Specialist, Assoc. Systems Eng. Working &/or theoretical knowledge of C, C++, COBOL, Shell Prog, VB, Java, & Pascal prog languages. HTML, ManageX, IIS, WTS, SQL, Cons, Cisco, TCP/IP, & Cold Fusion network admin tools, UNIX O/S, IT/O, & Win NT op systems. $55,500/yr, M-F 40 hrs/wk. Denver, CO. Must have proof of legal authority to work permanently in U.S. Application by resume only to Workforce Development Programs, PO Box 46547, Denver, CO 80202. Ref job #CDS000571.

Software Quality Assurance Engineer

PCTEL Inc. a global leader in simplifying mobility seeks an experienced Software Quality Assurance Engineer to evaluate and test computer software systems according to specifications and standards. Will develop and write test scripts, initiate the test, and analyze and results. Will perform testing of wireless mobility solutions products, write and execute test plans, test cases and scripts. Develops new test strategies, improve processes for incident handling, test development, automated testing, and release control. Develop and maintain detailed test plans of each product line in test. Reviews functional specifications and design documents for accuracy, testability, and to test customer usage scenarios. Requires min. of two years product exper with Windows 98/ME /2000/XP, MS Office, MS SQL Server, Pocket PC. Extensive knowledge of 802.11 A/B/G. Working knowledge of GPRS, UMTS and CDMA. a B.S. degree in Computer Science or equivalent and a min.of two years exper. in the job offered. Requires travel to Eastern Europe approx. 20% of the year. Candidate must be legally eligible to work in the U.S. for any employer.

Send resume directly to: jobs@pctel.com. Please include **Job code 909** QA Engineer in the subject line. Or mail directly to: HR Dept., PCTEL, Inc. 8725 W. Higgins Rd. Suite 400, Chicago, IL 60631. PCTEL Inc. is an equal opportunity employer.

SENIOR INTEGRATION DEVELOPER to provide on-site consulting in analysis, design, development, testing and implementation of business to business and cross-platform integrations of applications. EDI to support enterprise applications using WebMethods integration tools. J2EE SAP R/3, CORBA, Oracle, Java, JavaScript, C/C++, C# and SQL Require: B.S. in Computer Science and four years experience in the job offered or as Web Developer/Technical Consultant (M.S. with two years experience may be substituted for B.S. and four years experience). 40% travel to client sites within the United States required. Competitive salary and benefits. 40 hours/week, 8 am to 5 pm, M-F. Mail resume to: Vice President, Frontline Consulting Services, Inc., 8701 Mallard Creek Road, Charlotte, NC 28262.

Intercall, Inc. has five openings for Software Engineers to lead teams to design, develop products for the telecom industry using VB, Power Builder, Developer 2000, Seagate Crystal, Java, XML, HTML, OOP, OOD, Oracle, Sybase, systems architecture and programming on Unix, Windows NT platforms, analyze business processes to determine requirements which conform to overall strategic plan and provide operations support, train end users and team members. Require MS (or foreign equiv.) in CS/Engineering (any branch)/ related field & 1 yr exp in IT or BS (or foreign equiv.) in one of the above fields with 3 yrs exp in IT/FT. Competitive salary. Travel involved. Resumes to HR, Intercall, Inc., 1211 O G Skinner Drive, West Point, GA 31833. Please refer Job #CI0804.

SOFTWARE ENGINEERS - APPLICATION DEVELOPMENT. Resp. for software requirements specification, system architecture design & analysis, implementation, integration, technical writing, code reviews, software configuration management, utilizing skills in product definition, analysis, design & development, Microsoft Appication development technologies, & ATL, COM/DCOM, COM+. Position will involve some traveling. Req's: Bach. deg. or for equiv. in Computer Engineering or closely related field and min. of 1 yr. exp. as Software Engineer. Send resume to: Faith Smack, H.R. Director, Sagestone, Inc., 616 Kenmoor Ave. SE, Ste 200, Grand Rapids, MI 49546.

PROGRAMMER ANALYSTS for Chicago, IL office. Develop & maintain software applications using Orbix, J2EE, MKS, C, C++, Java, Interwoven, Coolgen, Metrica, Netrac, Tuxedo, Tango, Eclipse, CORBA, RMI, RUP. Bachelors or Equivalent Degree reqrd in Computers, Engineering or related field + 2yrs of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Infobahn Softworld, Inc., 10 South Riverside Plaza, Ste 1800, Chicago, IL 60606.

Application Developers/Software Engineers needed. Seeking candidates possessing BS or equivalent and/or relevant work experience. Part of the req. rel. work exp. must include 1 year working with SQL Server, ASP and XML. Duties include: Write technical functional specs; design software; develop apps; gather requirements; Work with the following: C++, XML, ASP, SQL Server, Web Services and IIS. Mail resume, references and salary requirements to: Aursax Corporation, 2018 156th Street, NE #100, Bellevue, WA 98007.

Programmer/Analyst - Plan, develop, test, implement & document computer software for ERP (Enterprise Resource Planning) applications using Oracle 11, 11i & BAAN ERP in Unix (Conceptual Knowledge) & Java. Bachelor's degree, Engg major, 40 hrs/wk, 8am-4:30pm, 2 yrs exp. Send resume to: Uday Nene, Mgr Employee Relations, Horizon Companies, Inc. 2025 Lincoln Hwy, Ste 322, Edison, NJ 08817.

Cyber Technology Group, Portland, Maine needs experienced Programmer Analysts having a Bachelors degree/diploma with minimum two years of progressive work experience in Power Builder (v 8.0) with PFC, Oracle 8.0, C, Sybase, SQL Navigator, MS SQL Server 6.5/7.0 databases, Visual Basic and Java using Microsoft Project, Power Designer, AppMinister and Erwin 3.x. Competitive salary and benefits. M-F 40 hrs/week. Please mail your resume to Cyber Technology Group, HR Dept, 480 Congress Street, Ground Floor, Portland, Maine 04101.

Systems Accountant

Devises and develops accounting and financial system, software and related procedures for clients. Req a BS or foreign equiv degree in Accounting, Comp. Sci or Mathematics and profi in PL/SQL and core Oracle Financials. 40hrs/wk. Send resume to HR, Dinero Solutions, 35 Technology Pkwy South, #170, Norcross, GA 30092. Fax: 770-813-5205.

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Sunnyvale, CA 94085
Email: cwjobs@hcltech.com
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Software Engineer: Prepare design docs and functional specs for retail software applications. Design and develop transaction and master entry screens and user interface. Create stored procedures using SQL server, and create ActiveX and MTS components. Develop software using VB.NET, COM Plus, HTML, MTS, Visual Studio.Net, SQL Server 2000 and IIS 5.0. Req's B.S. in Comp. Sc., Comp. App. Electrical Eng. or M.I.S. and 2 yrs. exp. in software development for retail applications. Also req's expertise in software devel. using ASP, MTS, HTML, IIS and Oracle 8.i.; and expertise in unit and integration test plans and test cases. Position located in Minneapolis, MN. **Job code JR-618-SE.**

Submit resume to Human Resources, Aquent LLC, 711 Boylston St., Boston, MA02116, attn. Job Code _____

GAME JOBS: Activision, an interactive entertainment software co., has openings for VP-Engineering, Technology Director, Systems Analyst, Software Engineer and Design Specialist in Santa Monica, CA. Send resume to Staffing Coordinator, 3100 Ocean Park Blvd., Santa Monica, CA 90405.

COMPUTER - Software Engineer (San Carlos, CA & client sites nationally) Cono seeks a Member Software Development Engineer in the area of application development with ERWIN, Oracle, and J2EE technologies. The position is charged with designing, developing, and implementing data extraction, cleansing, transport and load processes using Oracle 8.1.6 & other ETL tools. S/he will perform data modeling using ERWin 3.5 data modeling tool. S/he will create programs & scripts to schedule & monitor ETL jobs using UNIX shell scripts. Position requires Bachelor's or equiv. in Computer Science, Information Systems, or Engineering (any) & a minimum of 2 years of relevant professional experience to include data modeling using ERWin 3.5, database design & implementation using Oracle 8.1.6 or higher, database administration & UNIX & J2EE. Please send resumes to Ashu Singh, Cono, 959 Skyway, Suite 160, San Carlos, CA 94070. EOE. Please reference Code 444HD

SYSTEMS ADMINISTRATOR to administer, install, configure and maintain Sun Solaris, HP-UX, AIX and Windows 2000 Servers in processing and analyzing the business transactions for large complex environments. Install and configure SUN Servers for HA through VERITAS and SUN clustering. Setup and configure Jumpstart process for Solaris. Upgrade systems and install patches. Setup IBM AIX RS6000 systems and Oracle database environments. Monitor and troubleshoot Servers/Network problems through Tivoli Net View, HP-Openview, Big Brother BMC Patrol and CISCO Works for 24/7 complex environments. Implement VoIP (Cisco) and upgrade Network in LAN / WAN environments. Require Bachelor's degree in Computer Science, Business Admin., Management/Computer Info. Systems, or a closely related field with 2 yrs of exp in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Shilpa Chaudhry, Elite Solutions, Inc., 1670 Reserve Way, Ste 203, Decatur, GA 30033; Attn: Job SK

COMPUTER PROGRAMMER to analyze flow chart diagrams describing project specifications in the PLM domain and confer with supervisors to analyze and determine program requirements. Develop, modify and test software applications using C++, C, Java, C++ foundation class libraries, UNIX shell scripts and lex on Unix and Windows platforms to satisfy project requirements. Analyze, debug and modify software applications to support changes in project specifications; Create and maintain documentation supporting the development, operation and update of software applications; Train workers to use software applications. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Vijay Vasandani, Axiom Systems, Inc., 11575 Great Oaks Way, Ste 130, Alpharetta, GA 30022, Attn: Job RN

Software Development Engineer (multiple openings) - Ft. Lauderdale FL. Req. Bach.'s degree or equiv foreign educ in Computer Science or Engineering. (In lieu of stated degree, will accept degree in another field with addt'l coursework constituting equiv of a concentration in computer science.) In addition to degree, must have 3 yrs.' exp. in the job offered or 3 yrs.' exp. in the design and development of software applications. Stated exp. must include server side C++ and at least 1 of the following: ATL, COM, ASP or Win32 API. Must pass company's technical review. Research, design, develop & maintain key elements of advanced multi-user software enterprise applications based on Windows or web technology using a thin-client or browser architecture. Forward resume by e-mail to dlinrecruiting@citrix.com or by mail to Recruiting, Citrix Systems, Inc., 851 W. Cypress Creek Rd., Ft. Lauderdale, FL 33309. Reference job code (35) in subject line of e-mail or in written response. EEO/AA Employer.

DATABASE ADMINISTRATOR to administer, develop and deploy Oracle databases running on SUN and HP-UX Servers in High Availability configurations using HP service guard and SUN Cluster; Develop clustering agents using Korn Shell Scripts; Perform Perl and TCL Scripting; Tune databases for optimum performance using DBtuner; Test and correct errors, and perform troubleshooting. Require M.S. degree in Computer Science, Mathematics, or a closely related field with 2 yrs of exp in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Roz L. Alford, ASAP Staffing LLC, 3885 Holcomb Bridge Rd., Norcross, GA 30092, Attn: Job SP

Java Developer to program, analyze, test, troubleshoot and develop web-based Java software as a front end for use in multiple RDBM (such as Foxpro, Oracle, Interbase and Sybase) legacy informational systems installed in a distributed client server environment including implementation in an intra/internet environment. May use tools such as J Builder, J Developer, Weblogic, Websphere, JDK, EJB, ETL, Java Swing, Corba, Jdbc, or XML/XSLT as dictated by particular project assignments. Requires four years direct experience. Work location: Various unanticipated client sites. Send resumes only, no calls, to: Genome International Corporation, 583 D'Onofrio Drive, Madison, WI 53719.

Software Engineer (Waltham, MA) Provide functional and empirical analysis related to the design, development, implementation and maintenance of software systems on mainframe based computer systems for the archive, retrieval and display of customer telephone bills. Participate in the development of test strategies, devices and systems. Provide technical leadership to the team responsible for the development and maintenance of the KDE/CADE bill consolidating system for large customers using JCL, COBOL and DB2 database. Requires Bachelors degree in Computer Science or Mathematics and 2 yrs exp in job offered or 2 yrs exp in business and financial applications design, development and maintenance in JCL, PL/1, DB/2 and Mainframe. Salary $80,000/yr, Mon-Fri, 8am-5pm, 40 hrs/wk. Submit two (2) copies of resume to: Case # 200300274, Division of Career Services, Labor Certification Unit, 19 Staniford St, 1st Fl., Boston, MA 02114

Systems Test Consultant - Responsible for the analysis of requirements and design of applications and software to ensure appropriate test plan and test case development. Engage in project management testing and full development efforts. Work with vendors to monitor and report on quality issues. Monitor, analyze, and report on multiple projects, ensuring compliance with company project standards. Requirements: Bachelor's degree in Computer Science or Information Systems or equivalent education or experience and two years experience in job offered or in Information Technology Testing. Experience must include: 18 months IT testing of accounts-receivable and general ledger applications for documentation and requirements analysis, consisting of six months of SEI/CMM-MI methodology. Salary: $70,066/year. Work hours: 8 am to 5 pm, M-F. Send resume to Dawn at fax number 252-246-4646.

Programmer Analyst. Delphi, multiple positions, to program, analyze, test, troubleshoot and develop Delphi software as a front end for use in multiple RDBM (such as Foxpro, Oracle, Interbase and Sybase) legacy informational systems installed in a distributed client server environment including implementation in an intra/internet environment. Uses tools such as MIDAS, SOAP, COM/DCOM, Object Pascal, ASP, ADO, XML, Web Logic Server, T-SQL, CORBA, DLL, TOAD, Quick Reports, tiS, Swing, JSP and CSS as required in performance of duties. Requires four years direct experience. Work location: Various unanticipated client sites. Send resumes only, no calls, to: Genome International Corporation, 583 D'Onofrio Dr Madison, WI 53719

SOFTWARE DEVELOPER to design, develop and implement client/web server application software for data processing, auditing and statistical reviews using web design, html layout, Macromedia Flash, OOAD programming and methodologies, UML design and modeling tools with Rational Rose, as well as high-level programming languages including Java, C++ or C#. Develop RDBMS including stored procedures and triggers using Oracle or SQL Server. Require: Bachelor's degree in Computer Science/Info. Systems, Business Admin., or a closely related field. Must have a demonstrated ability to perform the stated duties gained through academic coursework/previous work experience. Competitive salary offered. Apply by resume to: Calvin M. Holman, Colonial Tax Compliance Company, 300 Colonial Center Parkway, Suite 300, Roswell, GA 30076; Attn: Job JG

INFORMATION TECHNOLOGY Member Technical Staff, QA. Req. Master's degree or equivalent in Comp Science or Eng. Must have coursework, training or experience covering C, VC++, Perl scripting, TCP/IP networking protocols and Unix. Will accept a Bachelor's degree and 5 yrs. of progressive post-baccalaureate systems eng. exp. in lieu of a Master's degree. Develop software tools and automated test scripts on Win, Unix and Linux OS platforms. Configure and prepare test bed hardware and software. Send resumes to: L. Eitgen, Job Reference #068, Network Appliance, Inc., 627 Davis Drive, Suite 200, Morrisville, NC 27560.

Next Generation Professionals are hiring all levels/multiple positions of Oracle Application DBAs and other IT Professionals. Senior Level Oracle Application DBAs' require Masters/equiv and 3 yrs of exp or Bach/equiv and 5 yrs exp. Job location: Tustin, CA, but may be placed at client sites nationwide. Send resumes to PO Box 3943, Tustin, CA 92781-3943.

SENIOR SOFTWARE ENGINEER to design, develop and implement payment processing EBPP and EIPP based systems using J2EE, C#, VB Script, Java Script, ASP, ASP.NET, SQL Server, DB2, Crystal Reports, Oracle and XML. Develop systems and technical documentation, interface systems with various payment processors and client implementation teams. Require: B.S. degree in Computer Science/Engineering, or a closely related field with 5 yrs of exp in the job offered or as a Software Developer. Competitive salary offered. Send resume to: Cheryl Escober, Harbor Payments, Inc., 1900 Emery St. NW, 2nd Floor, Atlanta, GA 30318, Attn: Job MH.





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Virtual Server

products have become popular with companies that are consolidating underutilized servers, streamlining test and development environments, and setting up disaster recovery systems.

Eric Kuzmack, a Silver Spring, Md.-based IT architect at Gannett Co., said his company was looking to consolidate servers in 2002 and had no interest in waiting for Virtual Server.

But that wasn't the only reason Gannett opted for VMware's technology. Kuzmack said he prefers the ESX Server architecture, which has a built-in host operating system. In contrast, Microsoft's Virtual Server and VMware's GSX Server need a host operating system to run, and with Virtual Server, the lone choice for the host operating system is Windows Server 2003.

"Even with the slimmed-down version of Windows Server, there's a lot of extra stuff," Kuzmack said.

Eric Berg, a group product manager at Microsoft, said the company focused on capabilities that the majority of users need, and most of them currently use virtual machines for testing and development purposes. He said the company chose Windows Server 2003 as the host operating system because it provided the best performance and most secure base. Berg said Microsoft will look into additional functionality in future products based on customer feedback.

Kuzmack also expressed concern about the level of patching his company might need to do with Windows and the effect that the downtime of 15 virtual machines would have on users of the applications running on them.

"With ESX, the number of patches is counted in single digits per year, not single digits per month," he said.

Kuzmack added that with ESX, patches can be applied without requiring the applications to be taken down. Using an add-on called VMotion, Gannett is able to move the virtual machines off the server to another physical server while patching and then shift the workload back when finished.

Customer Needs

Mark Ewert, director of systems architecture and engineering at Waltham, Mass.-based Integrated Healthcare Information Services Inc., said ESX provides better performance and more fine-grained control over system resource allocation than other virtualization products.

"In GSX Server and similar products, due to their interaction with the underlying operating system, I do not have that control," Ewert said. He said that even though ESX is more expensive, "it's cheaper in the long term."

Bob Armstrong, director of Internet and information management at Delaware North Cos. in Buffalo, N.Y., said he looked at Virtual Server when it was still owned by Connectix. When Armstrong took a second look at the technology last December, he said he found that Microsoft was "still playing catch-up to VMware's current technology."

One of Armstrong's biggest concerns was that Virtual Server wouldn't allow his company to run its casino player tracking system on more than one processor. Virtual Server allows users to carve up only one processor, whereas ESX Server supports symmetrical multiprocessing (SMP), allowing an application to use more than one processor.

Berg said that most users of virtual machines today look to subdivide one processor. But Microsoft will look at multiprocessor support in the next version of Virtual Server.

Even one of Virtual Server's contented early adopters, Curtis Bagwell, manager of distributed computing at American National Insurance Co. (Anico), said he would like to see Microsoft add SMP support to its product.

Galveston, Texas-based Anico was thrown a curveball when Microsoft decided to support only Windows Server 2003 as the host operating system for Virtual Server. Anico had used Windows 2000 for the Virtual Server customer preview and had to upgrade to Windows Server 2003 for the beta.

But Bagwell said Virtual Server is still cheaper for his company than VMware's products (see chart). And the main reason Anico opted for Microsoft's offering was that VMware's recommended ESX product doesn't support his company's storage-area network based on products from Storage Technology Corp.

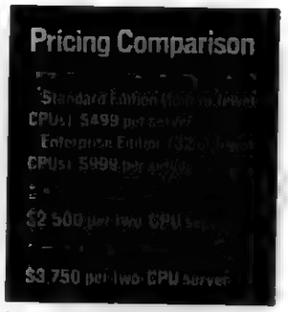
Bagwell said he has been happy with his decision. He noted that Anico was able to consolidate 205 servers to 29 dual-processor boxes in preparation for the relocation of its data center from Galveston to League City, Texas. Bagwell said the software has been stable. The only problem his company encountered involved running one or two DOS-based applications on Virtual Server, and Microsoft helped fix those problems.

Likewise, Allstate Insurance Co., another participant in Microsoft's Technical Adoption Program, has been happy with the stability and performance of Virtual Server.

Michael Mark, a senior planning consultant at the Northbrook, Ill.-based insurer, said Allstate was able to host up to 70 images on a single Hewlett-Packard Co. quad-processor server in a lab environment. He said the company also was able to simulate about 1,500 users through a Web server that was running as a guest on Virtual Server at Microsoft's test center.

"We have had nothing but a great experience with the product stability," Mark said.

He said Allstate is looking to have about 115 virtual machines for testing and development running on instances of Virtual Server by year's end and 250 virtual machines, including applications in production, by the end of 2005. The target is four virtual machines per physical server, but Mark said Allstate thinks it can exceed that goal. **48365**



Microsoft Targets Virtualization With Cheaper Offering

VMware may have gotten a three-year head start on Microsoft with its server virtualization software. But Microsoft is aiming to make a splash based on price.

"We really want to be the most cost-effective solution where people are using virtual machines on Windows Server 2003," said Eric Berg, a group product manager in Microsoft's Windows and enterprise management division.

Berg said Microsoft evaluates customers' needs based on workloads, focusing on three areas: software testing and development, legacy application rehosting and targeted production workloads, such as Active Directory domain controllers, networking and departmental applications.

"We have a lot of tools that will help them," he said. "Virtual Server is just one tool."

Berg said Microsoft has a Component Object Model application programming interface that can be used to create scripts to automatically deploy new server builds and "great integration" with its server management tools, so customers don't have to buy a specific tool to manage both virtual machines and physical servers.

Tom Bittman, an analyst at Gartner Inc., predicted that VMware will keep 80% market share for the consolidation of servers to run production-ready applications. But he added that Gartner expects Virtual Server to command at least 50% of the market for test and development workloads by the end of 2005.

"The price differential is going to kill [VMware] unless they change it," Bittman said.

Michael Mullany, vice president of marketing at VMware, which was acquired earlier this year by EMC Corp., said only that the company "always listens" to customers on pricing.

Dan Kusnetzky, an analyst at Framingham, Mass.-based IDC, said the underpinnings of what Microsoft is doing are different than what VMware is doing. He said Microsoft is using its Virtual Server technology to help customers running older stacks of applications on Windows NT 4 migrate to new hardware rather than continue to run them on separate machines.

Kusnetzky said VMware's focus is to help users move to a highly virtualized environment "so they can tune what they do to their business needs" and assign IT resources as needed.

– *Carol Sliwa*

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COMPUTERWORLD

THE VOICE OF IT MANAGEMENT

FRANK HAYES ■ FRANKLY SPEAKING

IT Jobs Chill

THE ANNUAL IT WORKFORCE STUDY is out from the Information Technology Association of America. And for once, it's genuinely useful. Gone is the rah-rah boosterism of years past. Gone are the million-new-jobs estimates that never came true and the predictions that most new IT jobs would go wanting because there just weren't enough U.S. IT people to fill them.

Instead, it's a sober assessment stuffed with information of value to anyone hiring or looking for work in corporate IT. Much of that information is clearly presented in the report, which you can get at *www.itaa.org/workforce/studies/04wfstudy.pdf*.

And then there's the stuff that's hidden between the lines.

Officially, the report's executive summary says the U.S. IT workforce grew about 2% between March 2003 and March 2004 — from 10.3 million to 10.5 million IT workers. Another 230,000 IT jobs should be created by next spring. Technical support, networking and programming are the areas that account for the most new jobs, and the biggest increases were in the Northeast.

But digging deeper — and then slicing and dicing the numbers — yields a somewhat different story for corporate IT people. Add in some information the ITAA isn't anxious to admit, and the picture isn't pretty.

■ **How many new IT jobs?** According to the hiring managers surveyed, 230,000 by spring 2005. But historically, the people the ITAA polls are, to put it kindly, optimistic. Each year, they typically predict they'll hire twice to four times as many people as the following year's survey indicates they actually did hire. So a prediction of 230,000 new IT jobs suggests there will really be 100,000 new IT jobs — maybe less.

■ **Where?** The highest IT job growth by percentage was in the Northeast, sure enough. But the largest number of new IT jobs last year was actually in the South, the region that now leads the nation, with more than 3 million IT jobs. The West actually lost 20,000 IT jobs from 2003 to 2004.

■ **What kind of employers?** A whopping 77% of corporate IT jobs are at companies with fewer than 100 employees. Those companies also say they value employee loyalty far more than larger companies.



Frank Hayes, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at [redacted]

■ **What kinds of jobs?** Security jobs in networking and databases will be hot. Tech support will be the largest category of new jobs, about 30% of the total; last year, it represented nearly half of all new IT jobs. Web development and the "digital media" category — the people who create graphics, text, sound and animation for software — are growing slowly.

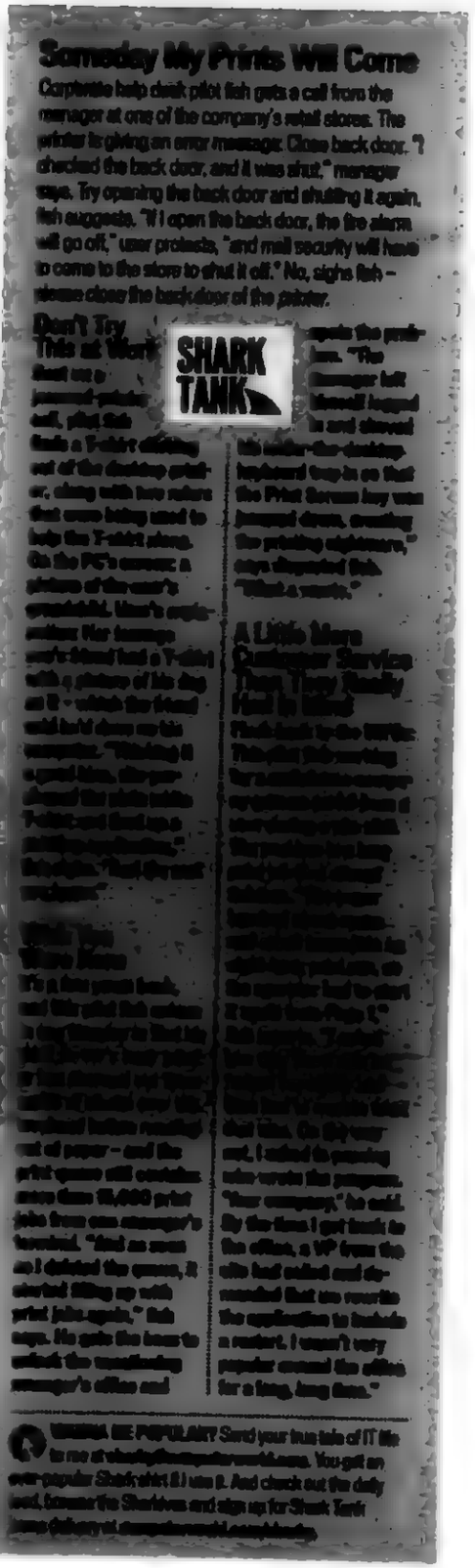
But here's where it gets ugly for corporate IT workers. Programmers are in trouble: 28,000 jobs lost last year, with only 29,000 new jobs expected next year by the most optimistic estimates. Tech writing is flat. Enterprise systems integration is barely showing a pulse.

In other words, if you're in operations, bone up on security and you may find a job. But if you're looking for work developing traditional corporate IT systems, you're toast.

■ **What qualifications?** Forget certifications — for a new job, you need four years of college and at least a year of experience, all directly related to the job. Certification and on-the-job training are good for promotions, though.

■ **What else?** Interpersonal skills are what roughly half of all companies of all sizes rate as most important among "soft" skills — more than project management, team building, or oral and written communications.

All this may not be comforting. No rah-rah, no pipe dreams, just chilly reality. That's not what we expect from the industry cheerleaders at the ITAA. But for delivering the cold, hard goods, they deserve our thanks — just this once. 49310



Someday My Prints Will Come

Corporate help desk pilot fish gets a call from the manager at one of the company's retail stores. The printer is giving an error message: Close back door. "I checked the back door, and it was shut," manager says. Try opening the back door and shutting it again, fish suggests. "If I open the back door, the fire alarm will go off," user protests, "and mall security will have to come to the store to shut it off." No, sighs fish – please close the back door of the printer.

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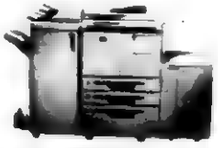
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SEPTEMBER 20, 2004 VOL 38 NO 38 $5/COPY

J.P. Morgan Scraps $5B IT Deal With IBM

Bank confirms plans to cancel outsourcing agreement, bring IT operations back in-house

BY STACY COWLEY

IBM lost one of its highest-profile IT outsourcing clients last week, as J.P. Morgan Chase & Co. confirmed that it's canceling the remainder of a seven-year, $5 billion contract that the two companies signed in late 2002.

Sources told *Computerworld* last spring that New York-based J.P. Morgan planned to bring most of the IT work it had outsourced to IBM back in-house after completing its $58 billion acquisition of Bank One Corp. in July [QuickLink 47508]. At the time, a spokesman for J.P. Morgan said the bank couldn't comment "on future negotiations."

Last week, J.P. Morgan said the addition of Bank One created a larger company with the capacity to manage the technology infrastructure on its own. The merger also brought J.P. Morgan two prominent advocates of running IT internally: Bank One CEO James Dimon and CIO Austin Adams. Dimon is due to take over as CEO of J.P. Morgan in 2006, and Adams now heads IT for the merged company.

"We believe managing our own technology infrastructure is best for the long-term growth and success of our company," Adams said in a statement. He added that reintegrating IT operations into the bank "will give us competitive advantages, accelerate innovation and enable us to become more streamlined and efficient."

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J.P. Morgan and IBM will wind down their contract this year, and the 4,000 IT employees and contractors who were shifted to IBM after the deal was signed will be transferred back to the bank in January.

The IT infrastructure functions currently being handled by IBM include management of the bank's data centers, help desks, distributed computing systems, and data and voice networks.

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CRM Goes Vertical

SPECIAL REPORT

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Server Consolidation Can Cut Costs, but IT Faces Challenges

Streamlined systems boost utilization rates

BY MATT HAMBLEN

Server consolidation projects are reducing systems management complexity and costs in many data centers, IT managers said at a conference here last week. But some noted that consolidations may not be easy because of problems such as getting end users to cooperate and dealing with displaced IT workers.

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A Pentagon unit begins a $290M IT consolidation.
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For example, Jason Glazier, chief technology and e-commerce officer at Lincoln Financial Group in Philadelphia, said the financial services company reduced the number of servers it has from about 300 to 100 over the past year after finding that end users were underutilizing some of the systems.

In addition to reducing its hardware costs, Lincoln has reaped significant savings on software licenses by lowering the number of operating system images installed on its servers from 600 to 200, Glazier said. He was one of the speakers at Enterprise Management World 2004, a new conference sponsored by *Computerworld* and Distributed Management Task Force Inc.



Ohio CIO Greg Jackson says the state is consolidating e-mail servers.

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CRM Goes Vertical

SPECIAL REPORT



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Ohio CIO says the state is consolidating e-mail servers

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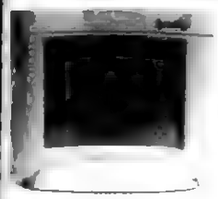
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20 **Virginia Robbins** suggests thinking small the next time you're looking for a job, because small businesses are likely to deeply value your contributions.

21 **Michael Gartenberg** has found that the best way to maintain ubiquitous connectivity is with a handheld that offers four mobile services.

26 **Keith Spitz,** a veteran of the CRM front lines, reports on failed implementations and details how to do them right.

31 **Barbara Gomolski** notes that, modest growth aside, the pressure to reduce IT costs isn't going away. She predicts IT spending trends for 2005.

50 Frankly Speaking: **Frank Hayes** says RFID technology isn't ready for prime-time IT. But if you're required to use it, give the project to staffers who are best at improvisation.

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KNOWLEDGE CENTER CRM

CRM Goes Vertical

Managing sales and customer service in the manufacturing sector is dramatically different from CRM for financial services or health care. So in this special report, we profile seven industries and their different CRM needs.

SPECIAL REPORT

PACKAGE BEGINS ON PAGE 33.

34 Bridging the Data Divide. Automotive CRM tools were designed to aid the exchange of data between carmakers and dealerships.



36 Turning Data Into Dollars. Retailers are using call center and data-gathering CRM tools to manage millions of customer relationships.

38 Creating Brand Awareness. Consumer product makers don't sell directly to customers, so advanced analytical CRM tools that evaluate branding efforts are key.

39 Unifying Customer Views. Financial services CRM is taking fragmented data and turning it into a complete view of customers.



40 Gaining Taxpayer Respect. Government agencies are using conventional CRM software to provide improved services to citizens.

41 Preventing a Data Overdose. Pharmaceutical companies took early advantage of CRM to help manage customer data and complex regulations.

41 Building Patient Loyalty. Health care CRM attempts to contain costs, build loyalty among patients and provide better service while adhering to regulations.

42 Opinion: CRM and personalization apps are becoming so simple to put in place, marketers don't need much help from IT. That makes Mark Hall wonder, What can you do to save your job?



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Editor's Picks: CRM. We choose the most useful CRM articles from *Computerworld*'s archives, including the "CRM Readiness Quiz," which can help you figure out whether your company is prepared to start a CRM project.
QuickLink 48015

Vertical CRM: It's No Panacea. Douglas Turk, co-author of the book *CRM Unplugged*, explains the pros and cons of vertical CRM packages, and why so many CRM projects fail, in this Q&A.
QuickLink 48008

Book Excerpt. Tips on assessing a CRM project that's heading for disaster, from *Just Enough CRM*.
QuickLink 48009

AT DEADLINE

Microsoft Could Sue Open Office Users

Microsoft Corp. said it's looking for ways to work cooperatively with the developers of Open Office, a set of open-source desktop applications that competes with Office. But it's also reserving the right to sue Open Office users or distributors, according to a legal agreement between Microsoft and Sun Microsystems Inc. that was signed in April and made public last week. Users of StarOffice, Sun's commercial version of Open Office, are protected from any legal liabilities.

Nortel Lowers Its Revenue Forecast

Nortel Networks Ltd. said it expects third-quarter revenue to come in below the $2.6 billion that the company reported on a preliminary basis for the second quarter. The Brampton, Ontario-based vendor also projected that its year-over-year revenue growth for 2004 will be in the mid-single digits. Nortel said it will likely lose market share as a result.

US Airways Filing Will Hurt EDS in Q3

Electronic Data Systems Corp. said its third-quarter earnings will be negatively affected by US Airways Group Inc.'s Sept. 12 bankruptcy filing. EDS has a long-term contract to provide IT services to US Airways, and the Plano, Texas-based vendor said in a filing to the U.S. Securities and Exchange Commission that it expects to set aside reserves for up to $27 million that it's owed by the airline.

Short Takes

IBM has upgraded some ThinkCentre PCs with chips from NATIONAL SEMICONDUCTOR CORP. that store passwords, digital certificates and encryption keys. . . . STRATUS TECHNOLOGIES INC. in Maynard, Mass., today will introduce an entry-level fault-tolerant server that runs Windows.

Sun Changes Course, Releases First NAS Box

Drops its resistance to technology as part of effort to fill gaps in storage line

BY LUCAS MEARIAN

SUN MICROSYSTEMS Inc. tomorrow plans to announce several storage products, including its first network-attached storage (NAS) box and a midrange disk array that uses virtualization technology to pool storage capacity from its products and rival offerings.

Sun — which Gartner Inc. rates as a "promising" vendor in the storage hardware market — is trying to fill gaps in its product line and catch up to storage leaders such as EMC Corp. and IBM.

The foray into the NAS market is a big departure for Sun, which previously dismissed the technology but found itself losing sales to vendors such as Network Appliance Inc., said Michael Peterson, an analyst at Strategic Research Corp. in Santa Barbara, Calif. "That's like a religious epiphany" for Sun, he said. "They fought against NAS for a long time."

Mark Canepa, executive vice president of network storage at Sun, disclosed some details about the products in an interview last week, but pricing wasn't available.

A Growing Market

The entry-level StorEdge 5210 NAS device, which scales to 5TB of capacity, allows Sun to dip its toes into a growing market. NAS sales grew 15.2% from the second quarter of 2003 to the same quarter this year, according to IDC. The market is led by NetApp, with a 37.2% revenue share, followed by EMC, with 35.2%, IDC reported earlier this month.

MORE ONLINE

Sun is also expected to announce an all-in-one storage device.

QuickLink 49468
www.computerworld.com

Chuck Sears, manager of research computing at Oregon State University's College of Oceanic and Atmospheric Sciences, was among the first to beta-test a StorEdge 5210 NAS, with a 1.5TB capacity. Sears said he likes how well it integrates with his other Sun hardware and management software.

"We took that thing out of the box, and without going through documentation . . . we just rolled up our sleeves and were up and running in 15 minutes," he said. "It fit the existing management framework we've had for years."

Sears added that he likes the built-in support for the Network File System and Common Internet File System, which allows him to see all of his high-end Unix and low-end Windows servers under one view.

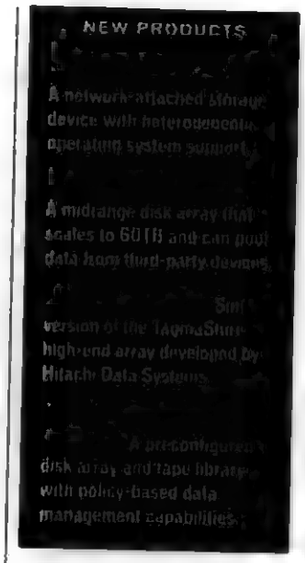
Sun will also announce its latest midrange storage array, the StorEdge 6920, which comes with high-end features such as the ability to plug in third-party arrays and create a pool of storage that can be carved into 1,024 separate volumes, each capable of serving a host system. The box comes with up to 60TB of storage capacity, plus the ability to partition the array into 14 domains.

James Dobson, a systems architect at Dartmouth College in Hanover, N.H., has been beta-testing the array for the past six months. Dobson said he likes the flexibility of the system but wants Sun to certify Linux and other server operating systems to run on it.

"It's important for us to have a mix of operating systems work on it," Dobson said. "We want to be able to pool resources and connect everything in the data center to one source. Otherwise, you start creating islands of storage."

It's easy to create new volumes on the StorEdge 6920 or change the size of existing ones on the fly, through either a Web or command-line interface, he noted.

Dobson added that the ability to attach third-party arrays — and manage it all through a single interface — means he can take advantage of less-expensive ATA disk drives. **QuickLink 49468**



Be Cautious on Investments In RFID, UPS Exec Advises

BY CAROL SLIWA

United Parcel Service Inc. is not only piloting radio frequency identification technology for internal use, but it also plans to provide consulting and services to help its customers comply with RFID mandates issued by Wal-Mart Stores Inc., other retailers and the U.S. Department of Defense. In an interview last week, **David Barnes**, a vice president of information services at UPS, spoke about some of the lessons the Atlanta-based company has learned about RFID. Excerpts follow:

Q&A

What sort of RFID services is UPS offering to its customers? Customers are coming to us on many fronts, back to that simple "slap and stick": "Can you help us meet that deadline?" and "We just need to get this done." And there are customers in active discussions with us about "Can you just take it over and do it for us?" versus "Can you come in and consult and help us do it better?"

What do you tell them about what works and what doesn't work? If you go into some of the early-edition readers, a lot of these did not have the ability to be updated by software. One of the early lessons learned coming out of this is to be cautious of what you're investing in. Make sure it's adaptable to rapidly changing standards. If you're buying readers and hardware and such, make sure things can be backward-compatible and upgradable.

How many of your customers are dealing with the middleware aspects of RFID at this early stage? From what we have heard in discussions, a lot of customers have chosen middleware and bought that. I think what they're seeing is that it's rapidly changing. So there's an issue of "don't get too close to it because it's going to change rapidly over time." But middleware is a necessity in this. It's one thing to buy the tag. It's another to encode the tag. It's another to read the tag. But once you've read that tag, you have to have middleware to bring that back to some application, because even with the DOD or with Wal-Mart, you have to provide the information backwards. **QuickLink 49471**

Boeing Readies RFID Standards For Release to Suppliers in 2005

But aircraft maker won't mandate usage

BY JAIKUMAR VIJAYAN
CHICAGO

The Boeing Co. is on track to issue a set of radio frequency identification specifications to its suppliers sometime during the first half of next year, an executive from the aircraft maker said at the Frontline Solutions Conference and Exposition here last week.

The specifications will spell out Boeing's technical standards relating to issues such as the frequency, memory capacity and size of RFID tags and labels. Suppliers that ship parts to Boeing will eventually need to label their components with RFID tags that meet the specifications.

However, there will be no mandate from Boeing requiring suppliers to implement RFID tagging right away, said Daryl Remily, deputy program manager of the company's Auto-ID program.

Boeing also hasn't decided which of the thousands of parts that go into making an aircraft it wants to be tagged first, Remily said. That decision will be based on a study of several factors, including the cost of a part, its importance to aircraft operations and how easy it is to repair, he added.

Common Standards

Boeing's plan to RFID-enable its supply chain is similar to moves being made by companies such as Wal-Mart Stores Inc. and Airbus SAS, Boeing's European aircraft rival. In fact, Boeing and Airbus are working together to promote common standards for the use of RFID within the aviation industry [QuickLink 47350].

One issue that still needs to be addressed is whether suppliers will get any tangible paybacks from their RFID investments. "A lot of people are rushing into RFID without a clear idea of what their business case is," said Jeff Woods, an analyst at Gartner Inc.

But companies in the aerospace and defense industries could benefit from the more efficient marking and tracking of parts that RFID technology makes possible, Woods added. "The trick is to make sure that everyone benefits from it, including the suppliers," he said.

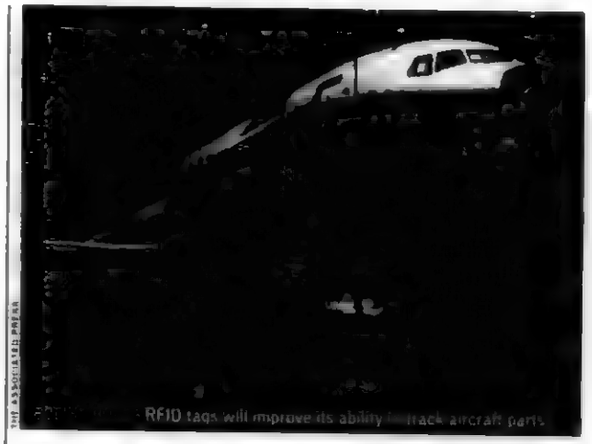
Boeing expects the use of RFID tags to lower its receiving costs, improve its ability to track parts and reduce the risk that unapproved components will find their way into planes, according to Remily. Potential benefits for suppliers include lower inventory costs as well as improved configuration control and more detailed repair histories, he said.

Boeing and Airbus plan to use The Air Transport Association of America Inc.'s Spec 2000 e-business standard for specifying how individual RFID labels need to be constructed using parts numbers, serial numbers and manufacturers' codes, Remily said.

Boeing is also carrying out a series of tests to verify the usability of RFID tags on commercial airplanes. Earlier this year, it completed a 90-day evaluation of 13.56-MHz passive RFID labels that were affixed to different parts of an MD-10 freight airliner owned by FedEx Corp.

The 10Kbit labels were tested for their potential to create electromagnetic interference, as well as for adhesiveness, readability of data and the ability to write data into them. According to Remily, the labels showed no detrimental environmental effects and didn't cause any electromagnetic problems during the test.

In the next few weeks, similar tests will be conducted on RFID tags that will be stuck to the engine cowling on six Boeing 757 aircraft belonging to Delta Air Lines Inc., Remily said. **40473**



THE ASSOCIATED PRESS

RFID tags will improve its ability to track aircraft parts

MORE THIS ISSUE

RFID technology isn't ready for prime-time IT, writes columnist Frank Hayes. See page 50.

IBM Broadens Suite of RFID Services

Reaches out to industrial and midmarket firms

BY JUAN CARLOS PEREZ

IBM last week expanded the consulting and implementation services that it offers to companies seeking help on installations of radio frequency identification technology.

Over the past several months, IBM has developed separate sets of RFID services for industrial and midmarket companies. Services for industrial users include initial consulting, business case development, technical proof-of-concept work, pilot rollouts and full system deployments. Services for midsize businesses include project development workshops, site surveys and testing, IBM said.

Eric Gabrielson, vice president for RFID at IBM Global Services, said companies are exploring RFID for reasons beyond complying with mandates from their trading partners. He noted that corporate executives also hope to get tangible benefits from the technology, such as improved business processes and enhanced capabilities for collaborating with customers.

That's the case at H.J. Heinz Co. Doug Ostrosky, Heinz's RFID program manager, said the Pittsburgh-based company wants to see how the business case for RFID will look 10 years out, including "where we can see some benefits [and] where we can see some cost offsets."

In addition, Heinz wants to extend its use of RFID "from 'slap and ship,' which is the 2005 retailer mandate, all the way out through tagging items in a production environment," Ostrosky said.

> **"For our product, the technology still isn't where we'd like it to be."**
>
> **DOUG OSTROSKY**, RFID PROGRAM MANAGER, H.J. HEINZ CO.

For now, Heinz is focused on getting a pilot project up and running. In June, it hired IBM to help with the project, which is slated to end by November with the installation of RFID equipment at one facility. Ostrosky said IBM is helping with product testing, drafting a business case and setup of the pilot facility.

Vendor Candor

So far, Ostrosky has been happy with IBM's services, particularly with the vendor's candor about the still-immature technology. "If they don't know an answer, they don't make it up," he said. "They find the right source, ask the right questions and come back with the most honest answer."

And some questions simply don't have a definitive answer in the RFID world yet, including the technology's acknowledged difficulties with certain materials and packaging. One such case is Heinz's flagship ketchup product and its containers, Ostrosky said. "We have a liquid product in a sometimes glass or plastic container with metal or plastic lids, and that for some reason doesn't lend itself to 100% [RFID] readability all the time," he said. "For our product, the technology still isn't where we'd like it to be."

Meanwhile, midmarket companies such as Kayser-Roth Corp. in Greensboro, N.C., don't want to be left behind. Kayser-Roth isn't one of Wal-Mart Stores Inc.'s 100 largest suppliers, so it wasn't required by the retailer to start using RFID tags on some goods by January. Nevertheless, the apparel maker volunteered to meet the deadline.

Gary Stegall, senior project manager at Kayser-Roth, said the company is working with IBM on a pilot project to RFID-enable a distribution center in Burlington, N.C. "Our goal is to use IBM to help us get this first pilot off the ground and then enable the rest ourselves as we need to," he said. **40472**

Perez writes for the IDG News Service.

BRIEFS

Microsoft Tries to Patch JPEG Flaw

Microsoft Corp. issued software patches designed to fix a JPEG-related security flaw that affects various versions of Windows, Office and other products. The company said attackers could exploit the buffer overrun vulnerability in its JPEG processing code to take full control of unprotected systems. Microsoft gave the flaw a "critical" severity rating.

Sendo, Microsoft Settle Legal Claims

Microsoft and mobile phone maker Sendo International Ltd. said they have agreed to settle a 2-year-old legal dispute over smart-phone technology. Both denied any legal liability in the case, but Microsoft agreed to surrender its 4% stake in Birmingham, England-based Sendo. The two companies said the settlement also includes "a monetary component," but they wouldn't disclose the details.

Sun Reduces Q4 Earnings by $12M

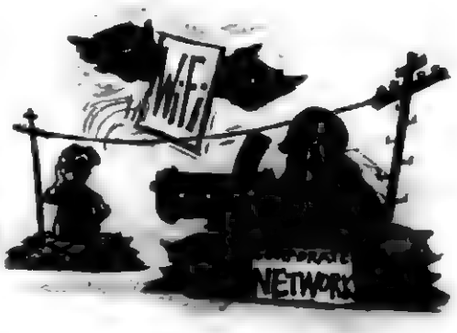
Sun Microsystems Inc. trimmed the preliminary financial results it had reported for its fourth quarter, which ended June 30. In a filing with the U.S. Securities and Exchange Commission, Sun said it lowered fourth-quarter net income by $12 million after a final accounting of asset-retirement obligations and the legal settlement it signed with Microsoft last spring. Sun's profit for the quarter is now $783 million.

Short Takes

CISCO SYSTEMS INC. said it will pay $55 million to buy Dynamicsoft Inc., a Parsippany, N.J.-based vendor of voice-over-IP software for telecommunications carriers. . . . SAP AG has opened a customer support center in Dalian, China, that will provide services to users primarily in the Asia-Pacific region.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FRUMKIN

Hot Spot Problem Gets Hotter . . .

. . . with a compact, 6 oz. 802.11b Wi-Fi device that can turn a simple dial-up line into an online access point for an 11Mbit/sec. Ethernet wireless network. The WiFlyer from Houston-based start-up Always On Wireless Inc. will up the ante in ease of Internet access when it ships in mid-October. The $149 device creates an instant wireless LAN that connects up to 14 PC or Macintosh users. It can use its two Ethernet ports to connect to a broadband network or its RJ-11 connection to link to an ISP for Internet access. This creates potential security issues for IT, though. If the WiFlyer is connected to a corporate LAN inside the firewall by some enterprising data thief and then linked to the outside world via an unsecured dial-up line (and which of your dial-up connections are secure?), it could be a way to bypass your network security systems. On the other hand, as a tool for teams of corporate road warriors, the WiFlyer can be a real asset by making it possible to set up instant workgroups in hotel and meeting rooms and other locations with or without broadband access. Just another technology miracle you need to worry about.



WiFlyer turns dial-up into hot spots.

Real-time RFID data capture . . .

. . . hits 10,000 events per second with the ObjectStore RFID Accelerator, set to ship in Q4, from ObjectStore, a division of Progress Software Corp. in Bedford, Mass. Although you might be facing more than data-capture hurdles in your RFID exploits (see "RFID Adventure," page 50), this tool is at least based on ObjectStore technology that's currently used for gathering data about high-speed events in financial markets, such as stock price updates. The stored data can be queried from its object database via standard XML expressions. Pricing starts at $25k, and the software runs on Linux, Solaris or Windows servers.

Lotus alternative offers standard . . .



. . . Java development tools that mimic the Notes/Domino programming environment but retain the messaging and calendaring tools built into Notes, so end users need not be moved off of IBM's popular groupware technology. So promises Peer Reinhard, CEO of Quality On-Line Inc. in San Diego. He brags that it's a snap to port existing Notes apps to work with his 100% Java programming tools. And you know that Java-savvy developers outnumber those with Notes smarts, which could be a factor in your decision on whether to stay the Notes course. Quality On-Line's application control system, called Organization Manager, and its Integrated Process Control workflow tool are available this week. The company's Incident Handling software will ship next month. Pricing starts at $25k.

Deal boosts SOA integration . . .

. . . work between Web services registry and management technology. Service-oriented architecture projects often get hung up on the link between the UDDI registry of available Web services and the tools necessary to manage them. That can hit IT budgets hard, claim Amber Point Inc. in Oakland, Calif., and Systinet Inc. in Cambridge, Mass. So the two today are jointly releasing an SOA starter pack that provides a preintegrated bundle of Amber Point Management Foundation 4.2 and Systinet Registry 5.0. At a cost of $25k, the companies claim you'll save up to $50k in SOA development costs.

49%
Infonetics Research's estimate of corporate SSL traffic, out of total packets in 2004

SSL traffic breaches IDS/IPS security . . .

. . . because the devices can't "see" the encrypted packets. That's one big shortcoming in the false security offered by intrusion detection and prevention systems. An IDS/IPS tool reads only the "clear text" of a packet. Traffic between a server and a browser client that uses Secure Sockets Layer technology for protection just slides through. You think hackers don't know that? You think pop-up porn purveyors are unaware? Think again. The problem has been that IDS/IPS appliances had to stop and decrypt SSL packets in order to determine their safety, thus breaking the flow and ending the secure session. So they just let them pass. Until now. Breach Security Inc. in Carlsbad, Calif., today ships a Windows version of BreachView, a software module that runs on your IDS/IPS server, mirrors SSL traffic, decrypts it using secured keys and then passes the clear text to the IDS/IPS software for evaluation — all in real time. If the IDS/IPS detects a problem, it can shut down the session, alert a sysadmin or do whatever it's been programmed to do. SSL technology growth is exploding, according to Infonetics Research Inc. For some applications, it's virtually 100% of the data traffic. And it makes little sense to let it go unmonitored, as Breach Security CEO John Payne wryly observes. "After all," he says, "your most valuable traffic is what you put in SSL in the first place." Pricing starts at $5k. A Linux version of BreachView ships mid-October. 49466



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PeopleSoft's Prospects Top Agenda at Show

Pro-Oracle legal ruling raises questions about vendor's future as users gather

BY MARC L. SONGINI

As PeopleSoft Inc.'s Connect 2004 conference in San Francisco this week, the software vendor is expected to face questions from users about its ability to fend off Oracle Corp.'s hostile takeover bid and remain independent.

The user conference comes two weeks after a federal judge turned down the U.S. Department of Justice's attempt to block Oracle's offer on antitrust grounds [QuickLink 49350]. PeopleSoft promptly issued a letter assuring customers that it still has a number of options, and whether Oracle will succeed in its 15-month-old buyout quest is an open question.

But PeopleSoft user John Matelski isn't taking any chances. Matelski is deputy CIO for the city of Orlando, which runs financial applications that were developed by J.D. Edwards & Co. and are now part of PeopleSoft's EnterpriseOne product line.

Last week, Matelski attended the Connection Point 2004 conference held in Orlando by the Oracle Applications Users Group (OAUG). He said he wanted to ask Oracle users how they feel about their vendor. It's too early to tell what will happen, he noted, "but it we become part of Oracle, I wanted to do the legwork."

Matelski also plans to attend Connect 2004 to learn more about PeopleSoft's payroll and human resources applications because he's considering migrating away from the Infinium Software products he now uses. Infinium was acquired by SSA Global Technologies Inc. in 2002.

In addition, Matelski said he wants to examine PeopleSoft's loosely controlled network of about 170 small user groups that are organized by industry, product or region. Matelski sits on the board of Quest International Users Group, an independent group of J.D. Edwards users that has had a major falling-out with PeopleSoft.

PeopleSoft officials declined to comment about Oracle's bid during a briefing about a human resources software upgrade that's due to be announced at Connect (see box).

Dave Hyzy, director of IT at Benderson Development Co. in Buffalo, N.Y., said he's concerned about the possibility of Oracle buying PeopleSoft. "Of course there is fear and trepidation regarding the persistent thought of a takeover by Larry Ellison," Hyzy said, referring to Oracle's CEO.

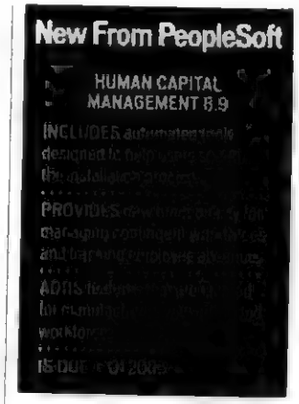
Benderson uses the World software that PeopleSoft acquired when it bought J.D. Edwards. Hyzy said the real estate developer "just spent the better part of a year groping through the morass of changes wrought by the PeopleSoft acquisition." The thought of dealing with another buyout "is sobering," he added.

On the other hand, Peg Nicholson, CIO at golf equipment maker Acushnet Co. in Fairhaven, Mass., was stoic about the situation.

"I don't worry about what I can't change, nor about what has not happened yet," said Nicholson, who runs PeopleSoft's flagship Enterprise applications. "One day, it will be resolved, and then we'll decide what options we have."

Several Oracle users said at the OAUG's conference that they are in favor of the merger. "It will give Oracle the ability to be more competitive in the industry," said Pat Dues, a project officer for the Las Vegas city manager's office and president of the OAUG. "We see a complement between Oracle's products and PeopleSoft's." **49474**

New From PeopleSoft



Correction

The first name of the U.S. District Court judge who ruled against the U.S. Department of Justice's effort to block Oracle Corp.'s takeover bid for PeopleSoft Inc. was misspelled in a story in last week's News section ("Judge Rejects Antitrust Claims, Lets Oracle Pursue PeopleSoft"). The judge's name is Vaughn Walker.

Oracle Improves App Stability, Support

But users say patch installation process could be easier

BY MARC L. SONGINI

Oracle Corp. is expanding the management functionality offered to users of its business applications and is working with members of the independent Oracle Applications Users Group to improve its technical support and software development processes.

The software vendor has made strides in stabilizing its E-Business Suite applications and making them easier to install and maintain, according to OAUG members who attended the user group's Connection Point 2004 conference here last week. But several attendees said they still find the installation of service pack updates containing bug fixes and other modifications to be time-consuming and trying.

OAUG board member Arthur Hunt said Oracle prefers to release large sets of software patches and updates instead of incremental fixes. Hunt, who is a manager of IT systems at Yale University, noted that Oracle's approach requires a lot of regression testing to ensure that applications will continue to function after patches are deployed.

"We have found it hard, but we deal with it," said Hunt, whose IT shop runs Oracle's E-Business Suite 11.5.8 public-sector applications.

Nevertheless, Hunt added that rollouts of Oracle's applications are getting easier and that the company's technical support generally is good — as long as its internal troubleshooters have the necessary documentation. He also noted that Oracle's support staff now can access Yale's applications and do direct diagnostics instead of waiting for IT workers to send in event logs.

Installing updates could be easier if the various pieces, such as bug fixes or new functionality, were broken down and issued separately, said Brent Moody, an analyst for financial and administrative systems at Salt Lake City-based Intermountain Health Care Inc. The nonprofit health care provider uses Oracle's human resources software.

To make the software maintenance and update process easier, IT staffers at Rochester Institute of Technology in New York use Oracle Applications Manager, a tool that runs scripts and is designed to help users identify problems.

Kimberly Sowers, an IT services manager at RIT, noted that Oracle's human resources and payroll applications often require large patches for legal compliance reasons. As a result, the school's IT managers must plan ahead so they have enough manpower for upgrades. But, she added, "at least it's predictable."

Oracle officials didn't respond to requests for comment. Two weeks ago, the company said it's increasing the integration between Applications Manager and a separate Grid Control tool for managing systems with a mix of its software and products from other vendors (see box).

In addition, Oracle's internal customer advisory boards are working with the OAUG to get feedback on ways to improve its applications, said OAUG President Pat Dues, a project officer for the Las Vegas city manager's office.

And for three months, several OAUG special-interest groups have been piloting a process that would enable users to click on a link on Oracle's MetaLink support Web site to request software enhancements. Requests would be reviewed by OAUG volunteers for potential submission to Oracle's development staff, Hunt said. **49475**

Integration Plans

Oracle said the increased ties between its Applications Manager and Grid Control tools will:

- **Be delivered as part of an E-Business Suite 11i.10 upgrade** due within 60 days.
- **Let IT managers use one console** to manage multiple E-Business Suite systems.
- **Support underlying database and application servers** in addition to the business applications.

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But PeopleSoft user John Matelski isn't taking any chances. Matelski is deputy CIO for the city of Orlando, which runs financial applications that were developed by J.D. Edwards & Co. and are now part of PeopleSoft's EnterpriseOne product line.

Last week, Matelski attended the Connection Point 2004 conference held in Orlando by the Oracle Applications Users Group (OAUG). He said he wanted to ask Oracle users how they feel about their vendor. It's too early to tell what will happen, he noted, "but if we become part of Oracle, I wanted to do the legwork."

Matelski also plans to attend Connect 2004 to learn more about PeopleSoft's payroll and human resources applications because he's considering migrating away from the Infinium Software products he now uses. Infinium was acquired by SSA Global Technologies Inc. in 2002.

In addition, Matelski said he wants to examine PeopleSoft's loosely controlled network of about 170 small user groups that are organized by industry, product or region. Matelski sits on the board of Quest International Users Group, an independent group of J.D. Edwards users that has had a major falling-out with PeopleSoft.

PeopleSoft officials declined to comment about Oracle's bid during a briefing about a human resources software upgrade that's due to be announced at Connect (see box).

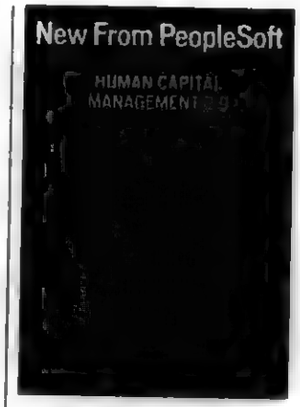
Dave Hyzy, director of IT at Benderson Development Co. in Buffalo, N.Y., said he's concerned about the possibility of Oracle buying PeopleSoft. "Of course there is fear and trepidation regarding the persistent thought of a takeover by Larry Ellison," Hyzy said, referring to Oracle's CEO.

Benderson uses the World software that PeopleSoft acquired when it bought J.D. Edwards. Hyzy said the real estate developer "just spent the better part of a year groping through the morass of changes wrought by the PeopleSoft acquisition." The thought of dealing with another buyout "is sobering," he added.

On the other hand, Peg Nicholson, CIO at golf equipment maker Acushnet Co. in Fairhaven, Mass., was stoic about the situation.

"I don't worry about what I can't change, nor about what has not happened yet," said Nicholson, who runs PeopleSoft's flagship Enterprise applications. "One day, it will be resolved, and then we'll decide what options we have."

Several Oracle users said at the OAUG's conference that they are in favor of the merger. "It will give Oracle the ability to be more competitive in the industry," said Pat Dues, a project officer for the Las Vegas city manager's office and president of the OAUG. "We see a complement between Oracle's products and PeopleSoft's." 49474



Correction

The first name of the U.S. District Court judge who ruled against the U.S. Department of Justice's effort to block Oracle Corp.'s takeover bid for PeopleSoft Inc. was misspelled in a story in last week's News section ("Judge Rejects Antitrust Claims, Lets Oracle Pursue PeopleSoft"). The judge's name is Vaughn Walker.

Oracle Improves App Stability, Support

But users say patch installation process could be easier

BY MARC L. SONGINI
ORLANDO

Oracle Corp. is expanding the management functionality offered to users of its business applications and is working with members of the independent Oracle Applications Users Group to improve its technical support and software development processes.

The software vendor has made strides in stabilizing its E-Business Suite applications and making them easier to install and maintain, according to OAUG members who attended the user group's Connection Point 2004 conference here last week. But several attendees said they still find the installation of service pack updates containing bug fixes and other modifications to be time-consuming and trying.

OAUG board member Arthur Hunt said Oracle prefers to release large sets of software patches and updates instead of incremental fixes. Hunt, who is a manager of IT systems at Yale University, noted that Oracle's approach requires a lot of regression testing to ensure that applications will continue to function after patches are deployed.

"We have found it hard, but we deal with it," said Hunt, whose IT shop runs Oracle's E-Business Suite 11.5.8 public-sector applications.

Nevertheless, Hunt added that rollouts of Oracle's applications are getting easier and that the company's technical support generally is good — as long as its internal troubleshooters have the necessary documentation. He also noted that Oracle's support staff now can access Yale's applications and do direct diagnostics instead of waiting for IT workers to send in event logs.

Installing updates could be easier if the various pieces, such as bug fixes or new functionality, were broken down and issued separately, said Brent Moody, an analyst for financial and administrative systems at Salt Lake City-based Intermountain Health Care Inc. The nonprofit health care provider uses Oracle's human resources software.

To make the software maintenance and update process easier, IT staffers at Rochester Institute of Technology in New York use Oracle Applications Manager, a tool that runs scripts and is designed to help users identify problems.

Kimberly Sowers, an IT services manager at RIT, noted that Oracle's human resources and payroll applications often require large patches for legal compliance reasons. As a result, the school's IT managers must plan ahead so they have enough manpower for upgrades. But, she added, "at least it's predictable."

Oracle officials didn't respond to requests for comment. Two weeks ago, the company said it's increasing the integration between Applications Manager and a separate Grid Control tool for managing systems with a mix of its software and products from other vendors (see box).

In addition, Oracle's internal customer advisory boards are working with the OAUG to get feedback on ways to improve its applications, said OAUG President Pat Dues, a project officer for the Las Vegas city manager's office.

And for three months, several OAUG special-interest groups have been piloting a process that would enable users to click on a link on Oracle's MetaLink support Web site to request software enhancements. Requests would be reviewed by OAUG volunteers for potential submission to Oracle's development staff, Hunt said. 49475

Integration Plans

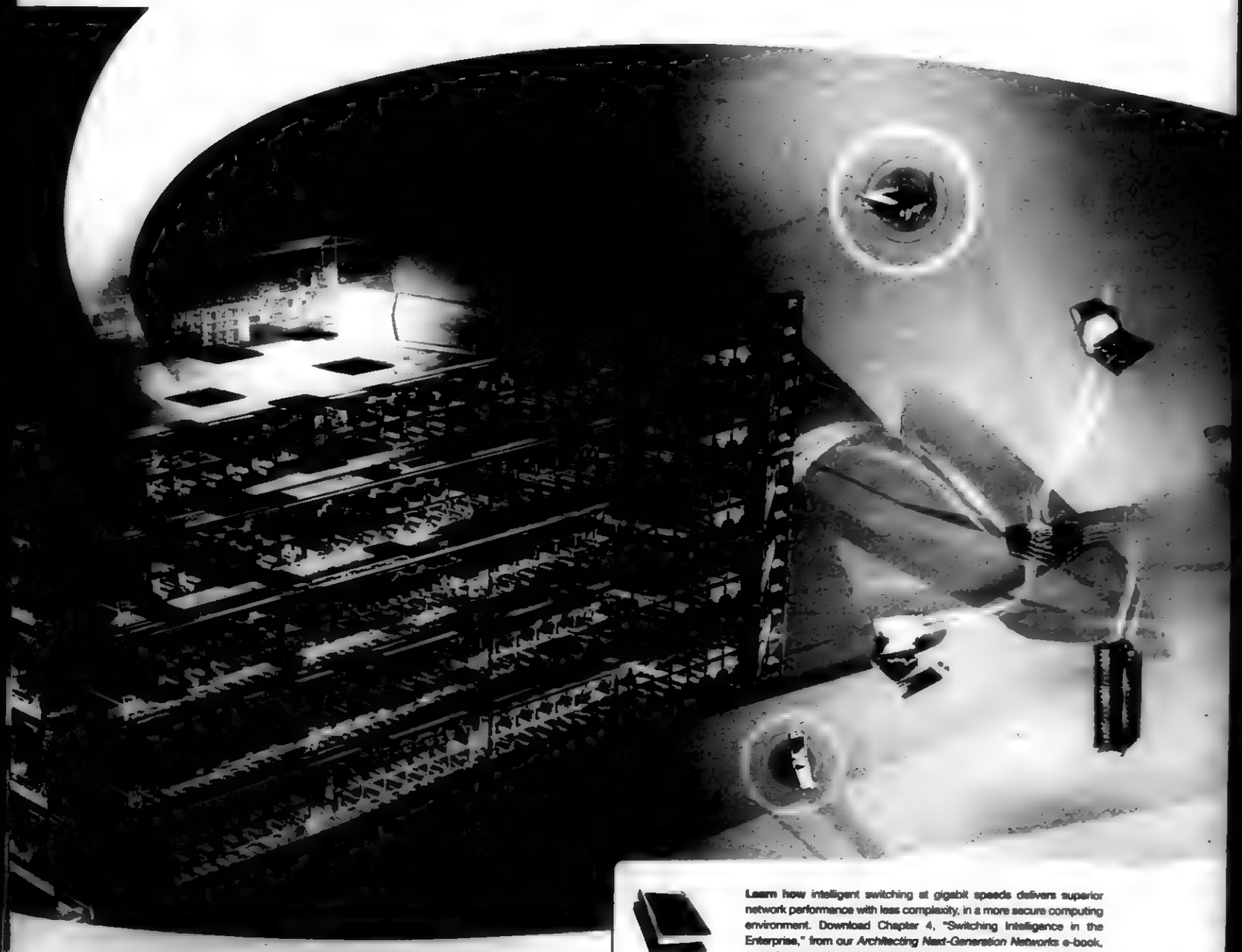
Oracle said the increased ties between its Applications Manager and Grid Control tools will:

- Be delivered as part of an E-Business Suite 11.5.10 upgrade due within 60 days.
- Let IT managers use one console to manage multiple E-Business Suite systems.
- Support embedding data from non-Oracle applications in addition to the Oracle applications.

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[1]Source: IDC, Network Chips, August, 2003

BRIEFS

IBM Opens Speech Recognition Code

IBM announced plans to release some of its speech recognition development tools as open-source code. The company said it's giving the Apache Software Foundation control of its Reusable Dialog Components technology, a set of building blocks for adding basic voice-enabled functions to applications. IBM is also donating a set of speech markup editors to the Eclipse Foundation.

Oracle Adds ISV Hosting Services

Oracle Corp. launched a set of software hosting and management services for vendors that develop products on top of its database and application server technology. Oracle said independent software vendors will continue to support their applications for users. But Oracle will take over management of its software and also take responsibility for supporting third-party components.

Sales, Profits Rise During Oracle's Q1

Oracle reported a 7% year-over-year increase in revenue and a 19% profit gain for its first quarter, which ended Aug. 31. Sales of new software licenses also rose by 7% to $563 million. But sales of its business applications fell by 38%.

ORACLE BY THE NUMBERS

	REVENUE	
Q1 FY05	$2.2B	$509M
Q1 FY04	$2.1B	$440M

Short Takes

NOVELL INC. announced two identity management tools, including an embeddable repository for end-user identification data. . . . PROXIM CORP. and SYMBOL TECHNOLOGIES INC. have settled patent infringement claims, with Proxim agreeing to pay Symbol $22.75 million in damages plus a royalty on future sales of some wireless LAN products.

DHS Seeks Real-World Data on Security Breaches

Asks corporate IT to detail incidents so researchers can test effectiveness of tools

BY DAN VERTON
SAN MATEO, CALIF.

THE U.S. Department of Homeland Security plans to launch several pilot projects that officials at the agency hope will help solve one of the most pressing cybersecurity research problems: a lack of real-world data about attacks.

"The cyber community has suffered for years from the lack of good data for testing," Douglas Maughan, security program manager at the Homeland Security Advanced Research Projects Agency, said last week at a conference sponsored by the U.S. Secret Service. That's why the DHS is moving ahead rapidly with a new program called Protected Repository for Defense of Infrastructure Against Cyber Threats, Maughan said.

The program, known informally as Predict, began last February and is aimed at convincing large companies to volunteer data about actual IT security incidents.

Layers of Protection

Security researchers would be able to use the information to test product prototypes, said Maughan. He noted that the government wouldn't hold the data and that companies taking part in the program could have their data "anonymized."

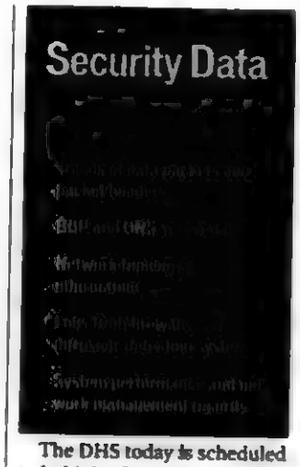
Maughan said the program will rely on a trusted-access process that's built around written agreements with data providers. The incident information will be stored in a data repository hosted by a third-party company, and researchers will have to apply to take part in the program.

Companies submitting data will be able to block specific researchers from accessing their information, Maughan said. He added that nearly two-dozen organizations have expressed interest in the program, which is due to go live after Jan. 1. However, a final budget for Predict still needs to be approved.

The DHS is also spearheading the creation of a vendor-neutral cybersecurity testbed, known as Deter, that's designed to help vendors develop next-generation security technologies. So far, $14 million has been earmarked for the Deter program, Maughan said. The DHS plans to hold an industry day on Sept. 27 to answer questions about the program, and it's looking to award pilot project contracts in January.

> **"The cyber community has suffered for years from the lack of good data for testing."**
>
> **DOUGLAS MAUGHAN,** HOMELAND SECURITY ADVANCED RESEARCH PROJECTS AGENCY

In addition, the DHS has formed an ad hoc government and industry steering committee to develop security pilot projects for the Internet's Domain Name System. Its goal is to study specific threats and vulnerabilities to the DNS, including denial-of-service attacks, Web site hijackings and a loss of Internet coherence resulting from unauthorized root servers and top-level domains. Pilot projects are now being planned for the .us and .gov domains, Maughan said.



The DHS today is scheduled to hold the first meeting of its Border Gateway Protocol steering committee, which is preparing a series of projects to develop secure protocols for the Internet routing infrastructure. Maughan said the current BGP architecture makes it vulnerable to human error as well as to malicious attacks against routers, the links between routers and the management stations that control the devices. **ID 48477**

Microsoft Updates Beta for Visual Studio 2005 Release

BY CAROL SLIWA

Microsoft Corp. has yet to release a feature-complete beta version of its upcoming Visual Studio 2005 development tools. But at last week's VSLive conference in Orlando, it announced a refresh of the existing beta release and disclosed more details about the product.

The software vendor said the Visual Studio 2005 Standard Edition will add features for building Web and mobile applications and bundle all of the programming languages that the tool supports — Visual Basic .Net, C#, J# and C++.

The standard edition of the existing Visual Studio .Net 2003 release is available only in language-specific editions, noted Jay Roxe, a Visual Studio product manager at Microsoft.

Microsoft hasn't announced pricing for the Visual Studio 2005 Standard Edition, which is scheduled to ship in the first half of next year. There will also be Express, Professional and Team System editions.

The update of the first Visual Studio 2005 beta release adds Microsoft's modeling technology, code-named Whitehorse, and new elements of the company's Team Foundation change management and version control tools, a Microsoft spokeswoman said.

"We're actively soliciting feedback on all parts of the product," Roxe said. He added that users can log suggestions and report software bugs on the MSDN Product Feedback Center Web site.

Also last week, Microsoft announced a version of Visual Studio .Net 2003 that includes the tool's professional edition, developer editions of Windows Server 2003 and SQL Server 2000, and Visual Studio Tools for the Microsoft Office System. Roxe said the software bundle is priced at $749, or $549 for customers who are upgrading from prior versions of the tools.

Visual Studio .Net Professional 2003 sells for $1,049, but existing customers won't be given a price break to get the extra elements that come with the special release, according to Microsoft. The bundle "is targeted at the people who haven't upgraded yet," Roxe said.

Meta Group Inc. analyst Thomas Murphy said Visual Studio .Net 2003 will be replaced by new versions in less than a year, "so this is kind of like the end-of-year model blowout sale." He said Microsoft is trying to get more users to upgrade to the products, building on Windows Server 2003. **ID 48467**

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Insurers Use Wireless Systems To Process Hurricane Claims

Claims adjusters go into the field armed with laptops, wireless modems

BY THOMAS HOFFMAN

INSURERS increasingly are relying on technologies such as laptop PCs and wireless networks to speed claims processing for their policyholders, including homeowners and businesses in hurricane-ravaged areas of Florida.

For example, claims adjusters for The Hartford Financial Services Group Inc. used Global Positioning System equipment to pinpoint the home addresses of customers in Florida who were stranded without power or telephone service after Hurricanes Charley and Frances roared across the state.

Once customers were located, the adjusters entered information about damage to their cars into Panasonic CF-29 laptops, along with insurance claims forms and digital photos of the vehicles, said Martin Iverson, vice president of auto physical damage for the Hartford, Conn.-based insurer. Wireless modems built into the laptops were used to transmit the information to one of The Hartford's claims offices.

The data was sent via land lines to a company in Chicago that helped prepare repair estimates. The Hartford then sent e-mail messages with approved repairs to the adjusters, who could write checks to customers on the spot. The entire process took a matter of minutes, according to Iverson.

He added that the wireless-enabled laptops, which The Hartford rolled out to 187 field appraisers in June, have helped "enhance our ability to respond to these events."

"As the speed and memory capacity of laptops increases and the costs have dropped, insurance companies have looked at them as a pretty good investment for their adjusters," said John Eager, senior director of claims at the Property Casualty Insurers Association of America in Des Plaines, Ill. "They can do estimates, request checks — they're almost an office unto themselves."

State Farm Insurance Cos., the largest insurer of homes in Florida and across the U.S., has deployed about 1,200 wireless modems nationwide for its claims adjusters over the past eight months. And Bloomington, Ill.-based State Farm has bought another 1,000 wireless cards for independent adjusters contracted to help out during disasters such as Charley and Frances, said Mark Winland, the insurer's director of claims automation and procedures.

"The [wireless] coverage has become much better, and it's much less cost-prohibitive with carrier plans that offer all-you-can-eat data transmission," Winland said. The technology "has allowed our claims representatives to be more productive for our customers," he added.



...is installed in one of State Farm's 13 mobile claims offices in Florida.

Although he was not sure how much State Farm has spent on the wireless cards, Winland said the insurer "has more than seen the returns in efficiency gains and returns to our policyholders."

In parts of Florida where cellular towers were damaged or destroyed by the storms, State Farm also recently deployed 13 mobile claims units equipped with satellite dishes. Winland said that the mobile units allow adjusters and claims agents to connect to regional State Farm offices at T1 speeds, enabling them to quickly process and transmit customer claims.

Insurance companies are also making increased use of catastrophe modeling systems and predictive analytics to help forecast the cost of insurance losses for particular regions after disasters occur, according to Jamie Bisker, an analyst at Needham, Mass.-based TowerGroup. **49476**

IETF Panel Deals Setback to Microsoft's Spam Proposal

Patent questions raise red flags about Sender ID

BY PAUL ROBERTS

An antispam technology proposed by Microsoft Corp. as a standard way of identifying the senders of e-mail messages suffered a blow this month when a group within the Internet Engineering Task Force sent it back to Microsoft for more work.

Members of the IETF's Mail Transfer Agent Authorization Records in Domain Name System working group voted two weeks ago not to proceed with the Sender ID standards proposal that Microsoft submitted in June. The group's members reached "a rough consensus" that questions about intellectual property claims made by Microsoft could torpedo deployment of the technology, according to a message posted to a discussion list for the group.

The vote by the working group, which is known informally as Marid, followed complaints by two top open-source software groups, which said they wouldn't incorporate Sender ID into their products because Microsoft's terms for using the technology violate the provisions of their licenses.

Microsoft Undaunted

In an e-mail statement, Microsoft said Marid's vote "does not mean Sender ID has been rejected." The company added that it accepts Marid's plan to look for other mechanisms for checking whether the addresses used by senders have been spoofed.

"While we would have preferred a single technical mechanism as the standard, we believe this proposal to allow multiple scopes in the protocol is a reasonable approach to provide additional choice and flexibility," Microsoft said.

Sender ID was designed to help users identify spammers who are faking a message's originating address. The technology works partly by verifying source information contained in the message "envelope" against so-called sender policy framework (SPF) records that list approved e-mail servers.

The SPF piece was developed by Meng Weng Wong, founder of Pobox, an e-mail service owned by Philadelphia-based IC Group Inc. In May, Microsoft and Meng agreed to create Sender ID by merging SPF with the Microsoft-developed Caller ID technology, which authenticates messages by checking information in the e-mail header.

> **"We're trying to solve the spam problem together. If we can't do that because people have shortsighted vision, then that would be a real tragedy."**
>
> MENG WENG WONG, FOUNDER, POBOX

Meng said he backs the IETF working group's decision because the patent threat was too big an unknown to simply pass over. He said he had repeatedly warned Microsoft about the patent issue.

Such criticisms registered with Marid members. In a message posted to the group's discussion list, Marid co-chairman Andrew Newton wrote that questions about Microsoft's unpublished patent claims in Sender ID could not be ignored and that the group would have to look at alternatives to the algorithms offered by Microsoft.

The IETF could find itself caught between the ideologically opposed Microsoft and open-source camps, Meng warned. "At the end of the day, we're trying to solve the spam problem together," he said. "If we can't do that because people have shortsighted vision, then that would be a real tragedy." **49427**

Roberts writes for the IDG News Service.

Commercialization of Linux Helps Microsoft, Exec Says

BY CAROL SLIWA

Martin Taylor recently marked his one-year anniversary as Microsoft Corp.'s chief Linux strategist. Taylor, whose official title is general manager of platform strategy, spoke with *Computerworld* this month about the insights he has gained.

What are some of the lessons you've learned? I initially thought that people were really lining up Windows and Linux side by side, and they'd say, "Hey, Linux gives us better TCO." Actually, it's less about that. What they know is, "Hey, we can save money getting off Unix or off of RISC. So the question is, do we go to Linux or do we go to Windows?" That's where more of the comparison comes from. When I talk to customers and they say, "Hey, we can get better TCO with Linux," they're not always saying better than Windows. They're saying better than Unix.

Any other surprises? One other thing that's come up more over the last 12 months is this notion of indemnification [against patent and copyright claims]. More and more customers are asking us, "Help me understand what you do from an indemnification perspective versus HP or IBM or Red Hat or Novell." ... And I began to say, "Wow. We really stand behind our technology in a pretty aggressive way. We should make sure that we get credit for that compared to Linux in many ways." And it's actually been something that tips the scales sometimes when people are on the fence.



Another thing that shocked me this year was the commercialization of Linux — in a good way, quite honestly, for me ... because it allows us to talk more in those commercial terms. When you're getting something for free, [vendors] get a lot of "get out of jail free" cards. You [hear people saying], "Oh well. We didn't pay for it, so we shouldn't care too much about security. We'll fix it ourselves. Oh, there's no regression testing. Who cares? We'll do that ourselves." But once you start writing a check, you now have demands, and rightfully so.

What's your take on Novell? They're in this in-between period. They want to be platform-agnostic a little bit, because really their business is not NetWare. Their business is ZENworks and all the stuff that runs on top, and they wanted to do that on Windows and on Linux and on NetWare. But over time, they're going to have to really get committed to a platform and further invent that.

In Toronto in July, I had 12 top Novell resellers from around the world for about four hours and just listened. I really have to understand what's happening in the marketplace. And Novell is pushing very hard obviously to get them up to speed on SUSE [Linux]. ... I think they are going to outpace Red Hat as the preferred Linux distribution.

So in the long term, Novell is your greatest Linux competitor? No question, because they have the best point-to-point stack from the kernel through to the application layer and things that go on top of it.

Now the challenge will be [that] they're going to need to do stuff to differentiate themselves from Red Hat, which then means that they need to find ways to basically almost have a customized distribution. And you can end up with Linux not being Linux, but Red Hat Linux being different than Novell SUSE Linux, Debian Linux and Mandrake, or whatever the case is.

Microsoft commissioned analyst firms to do reports to help you "get out the facts" about Linux. Are you still doing that? If there are facts or things that are needed, I'm going to hope that I can entice the analyst firms to go do it on their own because they think it's also important. But if they don't, then I'll commission it.

If you could turn back the clock, is there anything you would do differently? If I had one extra arm or 24 hours in parallel, I would have spent a bit more time on our Unix migration activities, because that's where you continue to see good traction from a Linux perspective. And we have a pretty good story to tell.

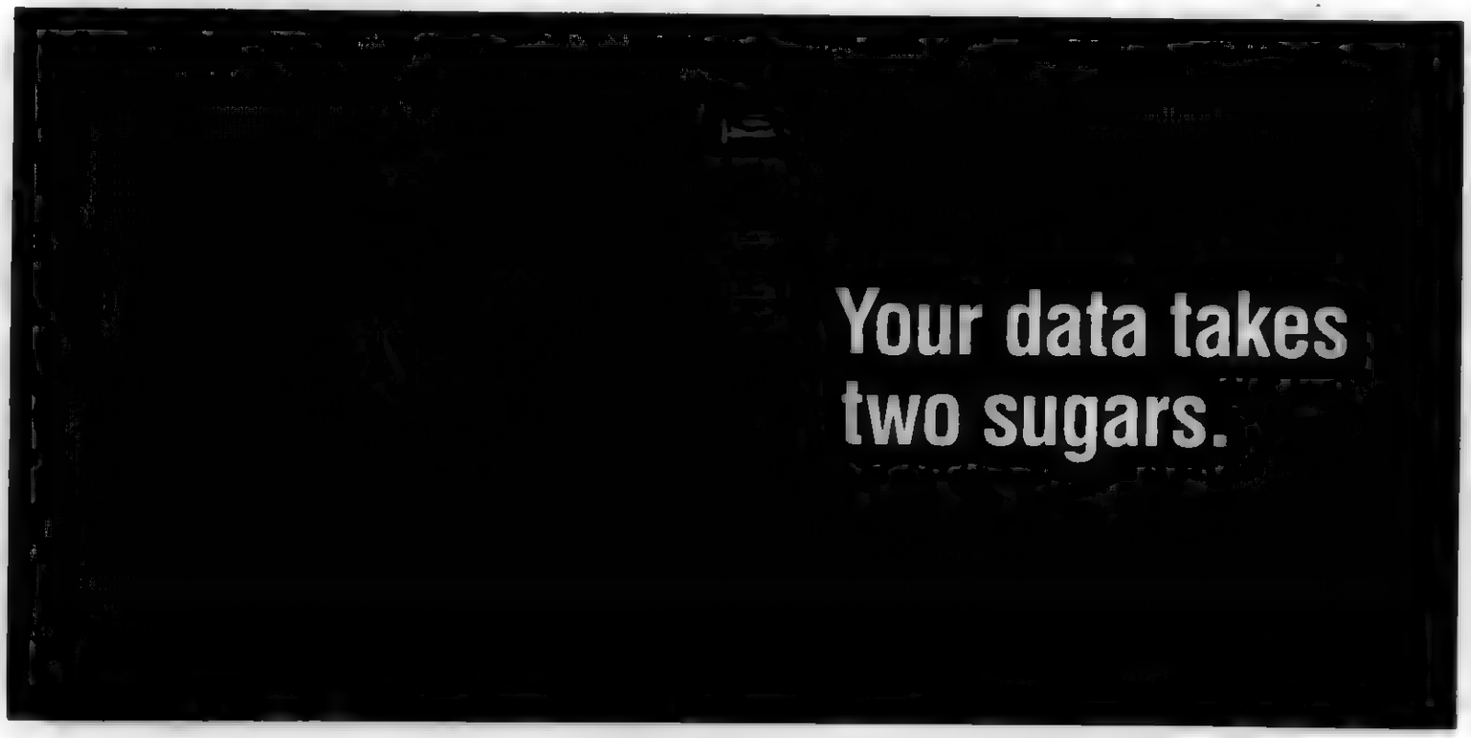
Are customers still complaining about Microsoft's licensing policies? I spend half [as much of] my time on licensing than I did a year ago. ... [With] all my customers over the last two months, I might have discussed licensing three or four times, whereas it was a guaranteed conversation a year ago.

49452

MORE ONLINE

An extended version of this interview can be found on our Web site.

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Politically Savvy IT Managers Key to Grid Project Success

Executive Summit panelists suggest early intervention to head off user resistance

BY PATRICK THIBODEAU
PHILADELPHIA

INFORMATION technology managers embarking on grid computing projects could get some tips from the candidates in this election season. That's because political savvy is required to build support for grid projects, which tend to cover wide areas of an enterprise.

"It's like running for office," said Ben Flock, vice president of virtualization and applications frameworks at Cigna Corp., a Philadelphia-based health insurance benefits company. "You're educating a pretty broad community."

Flock said IT managers should also heed the advice in Sun Tzu's *The Art of War*: "Keep your friends close and your enemies closer." There may be people who feel that a grid project will adversely affect them, he said. "If you don't bring them to the table early, they can act like a sniper later in the day," Flock said.

Control Issues

Resistance to grid projects can stem from a loss of "ownership," say grid experts and early adopters. By virtualizing, pooling and centralizing computing resources in an enterprise, a grid implementation can lead to a business unit losing control over its IT resources, and that could fuel opposition to the project.

Flock was a panelist at a Computerworld IT Executive Summit held here last week, where IT managers shared experiences about their grid projects. In Flock's case, Cigna is undertaking a server virtualization implementation across some 3,000 servers, and that effort will ultimately lead to grid computing.

Implementing grid projects takes strong senior management support, clear and rapid deliverables, and partnerships to keep internal resistance at bay — steps that apply generally to all kinds of IT projects, Flock said.

Grids are different in some key respects, though. The goal is to treat all IT resources dynamically and allow enterprises to shift computing power and data to wherever they're needed. Grids are enabled by a variety of technologies, such as virtualization, blades and storage-area networks.

However, the technologies that support grid approaches aren't mature yet, and early adopters face challenges. Among them is the prospect of being joined at the hip with a vendor, because the lack of mature standards means users will likely have to use some proprietary technologies.

"I wouldn't be presuming that there are global standards that are tying vendor products in the grid space," said Jim Gray, engineering manager at Iron Mountain Inc., a Boston-based data-protection firm. Gray said he will ask vendors about their standards plans, but at this early stage, he isn't expecting them to adhere to development standards.

There are several ongoing grid standards efforts, including a vendor group called the Enterprise Grid Alliance. That organization has the backing of big players such as Oracle Corp., Sun Microsystems Inc. and Hewlett-Packard Co., but IBM and Microsoft Corp. are missing.

Competitive Strategies

Competition among vendors may also keep them from readily adopting grid standards, panelists agreed.

As soon as a vendor is hired, the grid project team members should start getting in-house training on its system, said Gregory Rhoney, program director at San Diego-based defense contractor Titan Corp., which is helping the U.S. Special Operations Command develop a grid system. "Make [training] a condition of your contract," he said.

Rhoney said customers should have people who know the vendor's system "inside and out . . . so if something happens in the future, you can protect yourself."

The team managing a grid project should be diverse but also have some deep specializations, panelists said. Cigna uses a "virtual team model" in which employees are pulled from a variety of areas, depending on the project. A grid project may include people from engineering, project management, operations and architecture disciplines. "The trick is to balance all those things," Flock said. **49470**



AT A GLANCE

Grid computing projects must have the following:

- Proper management support
- Involvement of affected parties, including business unit managers
- A solid technology infrastructure
- Vendor knowledge transfer

Continued from page 1

J.P. Morgan

IBM spokesman James Sciales said IBM will still provide hardware, software and services to several J.P. Morgan business units, including its investment banking operations and its retail banking, treasury and securities services.

He added that IBM still had been investing in building up the resources it needed to support J.P. Morgan's systems. As a result, IBM doesn't expect the contract cancellation to negatively affect its financial results this year. Sciales declined to comment on whether IBM will receive a termination fee from J.P. Morgan.

When IBM announced the J.P. Morgan contract, it hailed the deal as a groundbreaking agreement that would illustrate the value of its "on-demand" strategy for adding flexibility to corporate IT infrastructures.

Changing Needs

ZapThink LLC analyst Ronald Schmelzer predicted at the time that the deal would be IBM's "poster child" for the on-demand approach. "Poster children have pluses and minuses," Schmelzer said last week after the cancellation was announced. He added that IBM will likely avoid any major damage to its reputation as an outsourcing vendor if the termination is seen by other users as being driven by changing needs at J.P. Morgan.

"There are a lot of companies that do big outsourcing deals, but IBM is really in a league of its own," Schmelzer said. "The whole on-demand computing plan is unique to them. Whether or not it's a long-term success depends on their ability to execute and demonstrate returns for their customers."

Bill Bradway, an analyst at Financial Insights in Framingham, Mass., said the changing-needs explanation for the contract cancellation is believable in this case. Bank One brought J.P. Morgan a much larger retail-banking presence, and Adams is known for his do-it-yourself ethos, Bradway said.

Bradway doesn't expect the insourcing move to spark a rip-and-replace program within J.P. Morgan's IT department. "At the end of the day, what's happening is that 4,000 people will turn in their IBM badges and get J.P. Morgan ones," he said. "Many of the systems they're working on will continue to be the same ones." **49478**



"We believe managing our own technology infrastructure is best for the long-term growth and success of our company."

AUSTIN ADAMS, CIO, J.P. MORGAN CHASE

Cowley writes for the IDG News Service.

Sun Makes IT Services an Integral Part of Its Offerings

BY PATRICK THIBODEAU

Sun Microsystems Inc. is broadening its IT services offerings in an attempt to become more competitive with IBM and Hewlett-Packard Co. in that area [QuickLink 43645]. The company said its services revenue grew 7% year over year and topped the $1 billion mark for the first time in its fourth quarter, which ended June 30. **Marissa Peterson**, who took over as executive vice president of Sun Services in March, spoke with *Computerworld* about the unit's strategies and plans.



What's driving the growth that you're seeing? We've worked very closely with our sales force so that they think of services more and more as an integral part of the sale versus just an add-on. We're really focused on selling solutions, and services is kind of the wrapper that puts it all together. There's also phenomenal market growth in managed services.

Unlike some of its rivals, doesn't Sun focus on services that support only its own hardware platforms? For [our new Sun Preventive Services offering], that's true. But for our overall support and services capability, we have been offering more and more the ability to support third-party equipment.

Are your managed services users primarily Sun shops, though? I would still say primarily that's the case. But the year-over-year growth of third-party support has gone up 25%. I do think heterogeneous support is the game-changer in this industry. But what's going to differentiate us uniquely is to really support Sun equipment better than anyone else. So that will be our lead strategy, surrounded by heterogeneous capability.

In terms of supporting vertical industries, where do you feel you're strong or weak? We're very focused on financial services, telecommunications, government — those are probably our top three. And we focus on education as well. Certainly, we want to go after manufacturing more. We have tried to get into retail and health care, as well as life sciences, but we've prioritized where we think we are the most capable and have the partnerships that we can build upon.

What are your plans over the next 12 months? My focus has been on delivering new services and solutions. For instance, subscription models for IT services — you'll see us offer that more and more. We're offering a storage utility, which is a pay-for-use model. In our offerings today, we provide the capability via our partners, where we actually put equipment in our partner's site and our partner meters and bills the customer for the specific utility. Going forward, you'll see us offer different types of compute utilities.

Will your partners continue to provide these utility services? We'll do it via our partners primarily, but we'll be willing to host it ourselves on behalf of our partners. We're in the process of actually building some hosting capabilities so we can do that. 49401

A Step Toward Interoperability

Sun Microsystems and Microsoft Corp. next month plan to provide more details about the joint development work they're doing to make their products more interoperable.

The announcement will focus on interoperability in the Web services and directory services areas, said Mark McClain, vice president of software marketing at Sun, during a meeting with reporters and analysts at Sun's offices in Burlington, Mass.

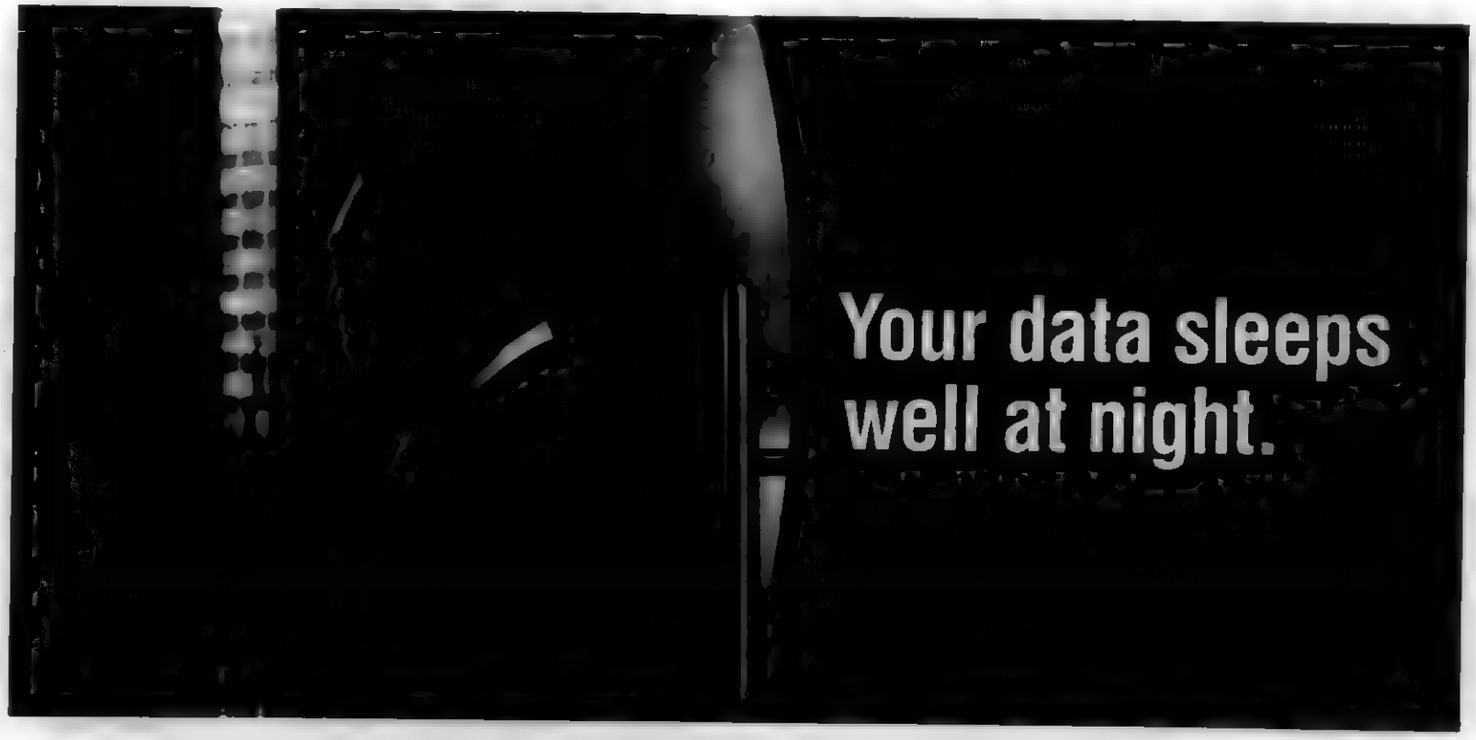
The two rivals are slightly behind schedule on the interoperability work, which they agreed to as part of a broad legal settlement that was signed in April [QuickLink 45957]. Sun CEO Scott McNealy said at the JavaOne conference in late June that the companies would detail their initial collaborative work during the summer.

"We're going to miss that summer target," a Sun spokeswoman acknowledged last week. "As happens when large organizations are working together, things take a bit longer."

But when the announcement is made, Sun and Microsoft will be able to demonstrate at least some of the planned interoperability between their respective technologies, the spokeswoman added.

"We want to make sure that it's a solid announcement," she said.

– Joris Evers and Tom Krazit, IDG News Service



IT Key to Patient Care At High-Tech Hospital

Heart facility puts PCs in every room, uses GE software to automate records

BY TODD R. WEISS

BY BUILDING one of the world's first all-digital cardiac care facilities, St. Francis Heart Hospital in Tulsa, Okla., has made it possible for doctors to access patient data from anywhere inside the hospital, at home or off-site via a wireless network.

The hospital, which opened in April, was built with IT systems in mind every step of the way, according to St. Francis officials. The 52-bed facility has installed 70 servers and more than 275 PCs, and each patient room is equipped with a PC and Internet access. In addition, the hospital has 12TB of storage available for data and medical images.

St. Francis announced the details of its IT setup last week in conjunction with General Electric Co.'s GE Healthcare unit, which supplied the clinical applications that are being used to integrate patient information into electronic medical records and automate the process of prescribing medications.

The hospital's goal is less paperwork and better patient care. "By using all this technology, we're giving doctors and clinicians their time back so they can have more human interaction [with their patients]," said Robert Schad, an IT team leader at St. Francis.

Patient Care Concerns

Hospital officials expect the paperless approach to help them address several care-related problems, including concerns that doctors don't spend enough time with patients and that illegible handwriting on charts or prescription orders could lead to medical errors.

"We had an opportunity as a brand-new facility to partner with GE and face both of these concerns," said St. Francis CEO Bob Dolan. He added that doctors have said they can make their rounds 30% faster than they can at facilities with less of an emphasis on IT.

GE Healthcare's Centricity Clinical Information System software also enables the hospital to update medical records with lab test results about 30 minutes after the tests are taken, St. Francis said. In addition, the admissions process is fully automated and can typically be completed within 10 minutes.

Most of the systems installed at the hospital run Windows 2000 or 2003, although some Linux boxes are also in use. A wireless network extends throughout the facility, and St. Francis also has more than 500,000 feet of cabling for its wired networks.

Brandon Savage, GE Healthcare's general manager of enterprise solutions for clinical information technologies, said the vendor also equipped Indiana Heart Hospital in Indianapolis with its digital health care systems technology.

Dr. Thomas Handler, a radiologist who works as an analyst at Gartner Inc., said the health care industry has been trying to move to more fully automated clinical systems for years. But it has been hard to do because of high costs and the complexity of disparate systems, he added.



have reduced the time it takes doctors to make their rounds, says Bob Dolan, CEO of Saint Francis Heart Hospital.

"This is a wonderful proof of concept," Handler said. He noted, though, that the specialized focus on cardiac care at St. Francis and Indiana Heart means they have more money to invest in such projects than other hospitals do.

In addition, one potential shortcoming with GE Healthcare's offering is that the vendor obtained much of its technology through acquisitions and then created interfaces to allow the different systems to work together. "From a CIO perspective, that's a fairly complicated system they've installed in that place," Handler said. **49409**

Boston Hospital Will Track Assets With Wireless System

BY LINDA ROSENCRANCE

Beth Israel Deaconess Medical Center, a busy hospital in Boston, needed a way to more efficiently track the location of costly medical equipment — and to keep tabs on patients and its medical staff. But the hospital also wanted to leverage an ongoing investment in wireless networks to avoid any technology redundancy.



worth of equipment is misplaced each year, says Halamka

So John Halamka, CIO at parent company CareGroup Inc., is turning to a new asset tracking and visibility system built around wireless LANs and radio frequency identification tags. The system, which was announced last week by PanGo Networks Inc., uses an infrastructure of 802.11 wireless access points as its reader network. That eliminates the need for single-use RFID readers, according to PanGo.

The Framingham, Mass.-based vendor said its PanGo Locator system provides map-based views of assets that users can drill down into on a floor-by-floor basis. Users can get detailed data about individual assets by clicking on their map images, and the system logs and stores activity data for reporting and analysis.

PanGo is offering a version of its technology tailored for hospitals, and Beth Israel is one of the pilot sites. The two-campus hospital "has probably millions and millions of dollars of mission-critical equipment," Halamka said. But between $300,000 and $400,000 worth of the equipment disappears each year, "because in the course of normal care, it gets misplaced," he added.

"What RFID does, in an active way, is to say right now where our equipment is."

Beth Israel is currently working on campuswide WLAN deployments to provide wireless voice-over-IP and location-based communications services, as well as improved data connectivity, said Halamka. The hospital bought WLAN technology from Cisco Systems Inc., which is working with PanGo to deliver a turnkey system.

Installation of PanGo Locator is due to start later this month at Beth Israel, said Richard Barnwell, PanGo's chief technology officer. The hospital initially will use the geolocator technology in its emergency room and cardiac care unit to track mobile medical equipment, Barnwell said.

He added that the system will also monitor the locations of medical staffers to help hospital officials analyze workflow. During the pilot phase, people will be given pagerlike devices containing the RFID tags. Later, the tags could be embedded in wristbands or attached to neck cords.

Halamka said Beth Israel also plans to use PanGo's technology to track the whereabouts of patients. As part of the project, the hospital will integrate patient location data with its electronic whiteboard, a 50-in. plasma screen that shows detailed information about each patient — although only initials are used to protect privacy.

"Now, we'll not only be able to show that Mrs. Smith has had this lab result and is going to be admitted to cardiology but that the patient is currently in radiology receiving a test," Halamka said. "There's a lot of workflow optimization just making your emergency room work better because you can coordinate all the caregivers and all the patients."

Halamka said Beth Israel's investment in WLAN infrastructure was a big factor in its decision to choose PanGo's system. "I can say the wireless network is already there, and now it does something else," he said. "That's a huge win for me as a CIO." **49436**

Pentagon's Logistics Agency Begins $290M IT Consolidation

HP to streamline systems, centralize infrastructure

BY LINDA ROSENCRANCE

The U.S. Defense Logistics Agency (DLA) last week said it has awarded Hewlett-Packard Co. a 10-year, $290 million contract to install and manage a unified IT infrastructure that will consolidate the agency's data centers, servers, applications and storage devices.

The Enterprise Data Center (EDC) program is designed to create a streamlined IT setup agencywide for the Fort Belvoir, Va.-based DLA, which provides supply chain support as well as technical and logistics services to the U.S. military, several federal civilian agencies and some foreign governments and international organizations.

Mark Philip, the agency's EDC program manager, said the IT consolidation initiative is aimed at reducing technology costs and modernizing the DLA's systems so its units can operate more efficiently and better serve their customers.

"We looked at our [IT] operations, and we found there were areas we could make improvements in," Philip explained. "We weren't always optimizing and modernizing the infrastructure across the enterprise."

Paring Down

The EDC project will pare about 2,300 existing servers down to 400 machines, Philip said. Most applications and storage devices will also be consolidated and migrated with the servers to new centralized IT facilities that HP will set up and run for the DLA. "To do that will save a lot of money," Philip noted.

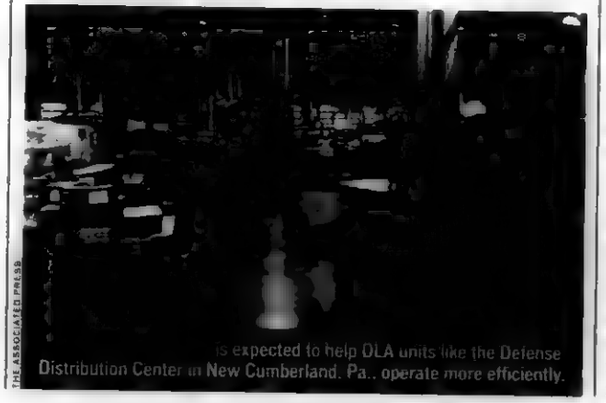
In addition, the consolidation project is expected to enable the DLA to more effectively implement information assurance programs and expand its disaster recovery and business continuity capabilities, according to Philip.

The agency's contract with HP covers five years upfront and includes options for five one-year extensions. HP will do the IT consolidation and migration work in stages in an attempt to avoid disrupting the DLA's business operations.

The first migration will involve systems at the DLA's headquarters and several field operations, including the agency's Defense Energy Support Center and Defense Logistics Information Service. Consolidated systems for those units are expected to be up and running within seven months, the DLA said, adding that the entire IT infrastructure makeover is due to be completed by August 2006.

The DLA is also working to modernize its business systems through a $500 million project that began four years ago and includes the installation of ERP, supply chain and procurement applications from vendors such as SAP AG and Manugistics Group Inc.

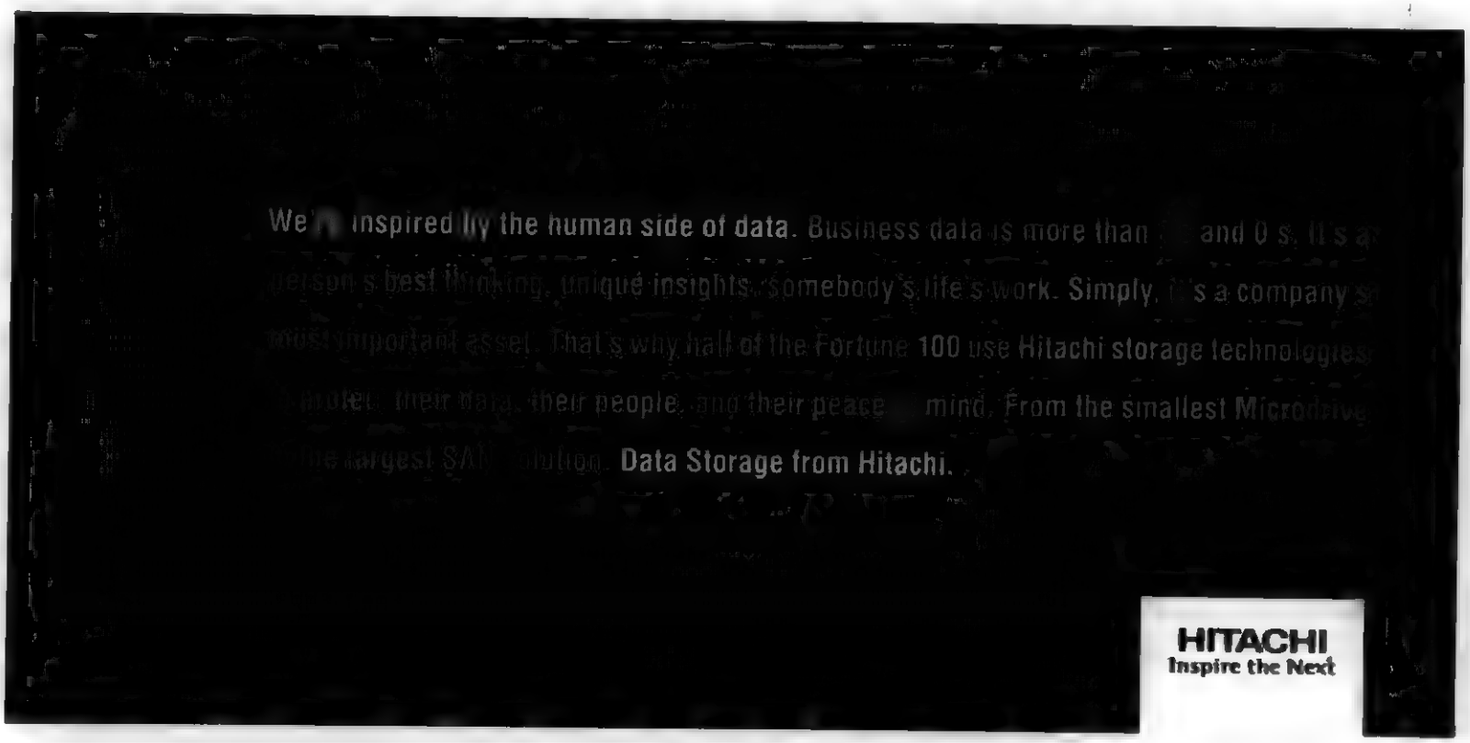
DLA officials said a "concept demonstration" phase that began in mid-2002 now involves 250,000 supply items and nearly 1,200 registered end users. The agency plans to begin full-scale deployment of the applications in January, pending approval from the secretary of Defense's office. By September 2006, the modernized systems are expected to support management of 5.2 million items by more than 5,000 users. **49431**



THE ASSOCIATED PRESS

...is expected to help DLA units like the Defense Distribution Center in New Cumberland, Pa., operate more efficiently.

> **"We looked at our [IT] operations, and we found there were areas we could make improvements in."**
>
> MARK PHILIP, EDC PROGRAM MANAGER, DEFENSE LOGISTICS AGENCY



DON TENNANT

A Moving Experience

I'M A SENTIMENTAL FOOL. As we pack up to move to our spacious new digs a few blocks away, it seems every item I lovingly place in the moving crates opens another floodgate of fond memories. I need to pack everything very carefully because my colleagues took away my packing materials. (I think they're just jealous that *they* can't play "She Bangs" with a piece of bubble wrap.)



Here's the "Speedo" nameplate that adorned my cubicle wall throughout my tenure as News editor. The nickname stuck after I issued the disturbing warning early on that if our writers didn't file their stories on time and up to our exceedingly high standards, I would come into the office wearing a Speedo. It's amazing what the threat of seeing a middle-aged guy in a bathing suit will do for newsroom productivity. Can you say "Magazine of the Year"?

What's this? Ah — the transcript of my April 2003 interview with Novell CEO Jack Messman. That one was nothing if not entertaining. In the interview, Messman called Linux an "immature operating system" that needed Novell's steady hand and fatherly guidance to help it grow up into a robust, enterprise-ready OS. Within a few days he'd received so much hate mail from Linux enthusiasts (I would say "Linux loonies," but there's no sense in generating more hate mail) that he had to issue an oops-what-I-*really*-meant-to-say apology [QuickLink 37902]. What a hoot.

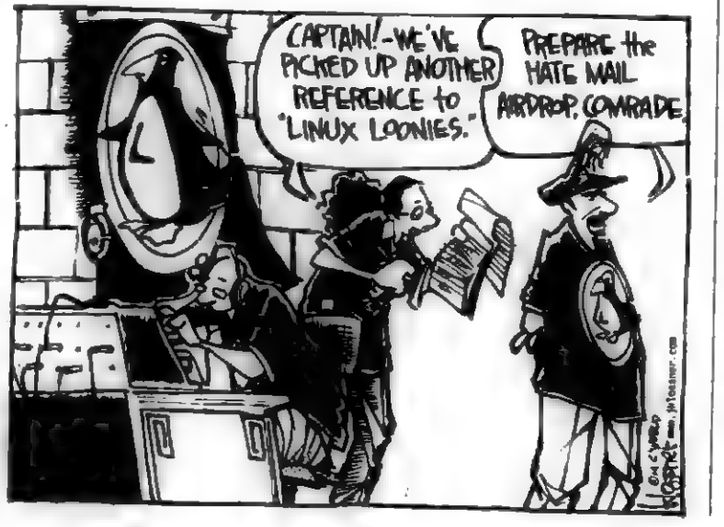
Well, what do you know? I was wondering where this was. Here's my signed copy of Bill Gates' book *Business @ the Speed of Thought*. I got it after having hooked up with the Big Guy for an interview on a chartered boat from Guangzhou to Hong Kong a while back.

That reminds me of something I just have to share. You know what kind of book Gates writes. But did you ever wonder what he reads? On that boat to Hong Kong, I noticed that he was carrying a paperback, and being the nosy sort, I strained to see the title. It was a book of tips for playing better bridge. I asked him about it, and he said he was going to his friend Warren Buffett's house that weekend to play bridge and was prepping. Can you imagine? If I was a billionaire, bridge would be about the billionth thing down on my list of things to do.

Speaking of to-do lists, I know you have about a billion things on yours, too. But I would still encourage you to budget a few minutes to check out our CRM Knowledge Center, which begins on page 33. Our unique coverage of how CRM challenges differ across seven vertical industries is a compelling read, regardless of the status of your customer-facing systems. Check it out and let executive editor Mitch Betts, our Knowledge Center shepherd, know what you think, at mitch_betts@computerworld.com. **49442**

I have an idea, and I'm absolutely serious here: Let's auction it off to the highest bidder, with 100% of the proceeds going to The ALS Association (*www.alsa.org*). That's ALS as in amyotrophic lateral sclerosis, better known as Lou Gehrig's disease, an advanced form of which has afflicted my dad, who's a really good guy. I know he'd appreciate it. So e-mail your bid to me by Oct. 1. I'll announce the top bid in the Oct. 11 issue, and the winning bidder will get the book upon providing me with proof of a contribution to the ALS Association in the amount of the bid. Deal?

Don Tennant



VIRGINIA ROBBINS

Want to Be Valued? Think Small Business

LUNCH WAS FABULOUS. One of the top salesmen at my former company had called to ask me to lunch because he wanted me to meet the CFO at his new company. I was thinking we'd have a couple of salads and, if I was lucky, dessert. Instead, he had brought me to one of the best restaurants in town.

The carrot soup was incredible, the crab awesome. The conversation was even better.

My former colleague is now working for a well-established, privately held and publicly regulated company that's expanding into new markets. The company has about 100 employees in 12 locations, annual revenue of just under $5 million and an IT staff of two.



To support the new market expansion, the company began automating its key processes.

Five major automation projects had been completed in the past 30 months. While some work, such as developing a new Web site and e-commerce functions, had been outsourced, most things were implemented and supported by the two IT staffers. This wasn't a case of a disappearing IT department. This small company had leveraged an extremely useful and focused team to add strategic and tactical value. Every part of the business had changed since the new systems had been implemented, and in the CFO's mind, they had changed for the better. Processing costs were lower, services were improved, old customers were happier, and, in general, the new stuff worked most of the time.

Until that last comment, I was wondering why the salesman had invited me to lunch. I was so impressed with their efficiency, I felt like I should pick

up the tab. But the CFO needed my help. The two IT staffers couldn't keep the systems running reliably; uptime was OK, but not good enough for new customers. The salesman was losing sales.

The CFO knew this, and as we started talking about his team members and their challenges, I could tell that he was still really proud of what they had accomplished. He truly valued their contributions, but he was struggling to avoid the expense of additional staff. The CFO didn't want to spend any more than he absolutely had to. As he talked about what he could expect in the company's next round of regulatory reviews, it was clear he suspected that his team wouldn't receive satisfactory ratings. And we all agreed that the two IT guys had put so much of their lives into launching the new systems that any material findings would make them feel like failures.

So we talked about low-cost ideas that can increase uptime and reduce the support burden on a small IT team. We discussed how to foster and deploy departmental power users, how to launch brown-bag training sessions for staffers and how to increase a small company's influence by volunteering for vendor testing or assisting with user group conferences. We also discussed longer-term strategies, including industry averages for staffing and expense ratios and for capital investments. We ended lunch, and the CFO left thinking of ideas about how to help his team, including possibly adding another staffer.

So while others are talking about disappearing IT departments, whether IT matters or offshore outsourcing, here is a company that is growing and cares about its IT staff. Next time you're looking for a job, think small businesses. You'll need to be ready to work hard, but your contributions will be noticed and, in most cases, deeply valued. **49360**

MICHAEL GARTENBERG

iPaq 6315 Connects in Many Ways

LAST MONTH, I discussed the importance of ubiquitous connectivity in portable devices. Hewlett-Packard delivers on this vision of überconnectivity with the iPaq 6315, currently available from T-Mobile. The 6315 is unique in that it provides no fewer than four methods of connectivity: infrared, Bluetooth, Wi-Fi and GSM/GPRS. No other device currently offers road warriors such a collection of integrated mobile services. From a functional perspective, the 6315 is a primary data device with telephony capabilities that offers maximum flexibility for connectivity. If voice is your only critical function, you might be better served with a small cell phone combined with a Bluetooth-enabled PDA or a separate data-centric device like a BlackBerry or an all-in-one unit like a Treo or Sidekick.



The iPaq 6315 is smaller than it looks in photos and much smaller than other Pocket PC phone devices. It's not as small as the Treo 600 but has a much more usable display. Voice reception is excellent. I was able to get a signal even in the basement of my home.

But the key to this unit isn't telephony; it's everything else combined. Using Bluetooth, I was able to mitigate the fact that the unit is more of a PDA than a phone by using a Bluetooth headset, and I was also able to ditch the connectivity cradle by syncing wirelessly with my laptop.

On the road, I used a Navman Bluetooth GPS unit linked to the 6315 to keep me on course, and a full-size, collapsible Bluetooth keyboard from Think Outside for writing lengthy e-mails and report drafts.

With Wi-Fi, I could connect at fast speeds when near a hot spot and then use the slower GPRS data connection for e-mail, the Web and instant messaging when I wasn't near a hot spot. The unit automatically detects the fastest connection and uses that. As a bonus, I could also use Wi-Fi to make calls via a soft-phone application tied to a voice-over-IP account and make and receive them anytime I was within reach of a Wi-Fi signal.

It's this level of communications flexibility that makes the 6315 shine. Add in push e-mail from T-Mobile (or the ability to tie in with corporate Exchange systems) and the inclusion of instant messaging clients for all the major services, and you have the most flexible communications platform on the market.

The Pocket PC operating system from Microsoft is both a plus and a minus. The multitasking flexibility, which isn't currently available on the Palm OS platform, meant I could be writing a weblog posting while simultaneously downloading RSS feeds, updating e-mail and keeping a VoIP application running in the background. That also means it's a more complex device, and there were times when one of the wireless subsystems shut down, necessitating a warm reboot. There were a few other small glitches: The unit claims to support the Bluetooth HandsFree profile, but I couldn't get it to work with the Bluetooth built into my car. I also couldn't sync over Wi-Fi (although others claim success in doing so).

The 6315 is a breakthrough, thanks to seamless connectivity and clever engineering. I suspect that by the end of the year, there will be some contenders against the 6315 from a variety of vendors. At the moment, the ability to have multitasking functionality, seamless network switching, great coverage and four different connectivity solutions in one device is *very* compelling, and the 6315 has this market all to itself. **49317**

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READERS' LETTERS

Damage Control

THE ARTICLE "A CIO Syllabus" [QuickLink 47888] contained inaccurate information regarding The Bank of New York's backup capabilities for critical operations. Our company is often cited as a leader in business continuity planning. In fact, in reviewing our pre-9/11 plans, IBM concluded that we were able "conduct one of the most extensive, successful business recoveries ever undertaken." Our success at the time was the result of detailed disaster plans that were carefully followed.

Since 9/11, we have built new facilities and expanded existing operations centers and fully configured hot sites in multiple states. Our geographic diversification now provides immediate backup capability for critical operations through a number of key facilities spanning 1,000 miles.

Our data centers are separated from business operations and dedicated solely to processing functions. All critical equipment components are redundant. We use remote real-time mirroring of programs and data. Our philosophy calls for "zero data loss" and continuity of communications and business operations in our recovery processes. We have diversity in our telecommunications circuits for continuous connectivity to our clients. We also have dual diverse Internet connections at our major data centers and access to alternative telecommunications providers.

Jeffrey Kuhn
Senior vice president, business continuity planning, The Bank of New York Co.

BI Believer

I DON'T MAKE A HABIT of congratulating people for a job well done, but Mark Hall provided amazing insight into the business intelligence world in his column "Doubtful BI" [QuickLink 46902]. I would go so far as saying that if people can read only one article about BI, this should be it.

Saqib Masood
BI manager, Esurance, San Francisco

Hands Off

THE STORY "User Interfaces: The Next Generation" [QuickLink 48484] brings to mind a passage from Douglas Adams' book *The Hitchhiker's Guide to the Galaxy*. In it, he describes how the "user interface" for the radio had progressed far beyond the "old-fashioned" buttons and levers. Now all you had to do was wave your hand in the direction of the radio to change channels. The result was that you had to sit infuriatingly still if you wanted to continue to listen to one station. I would hope the folks working on new computer interfaces keep that in mind. A gesture-controlled ATM could easily result in unintended actions. Even better, who is going to be first to patent a hand gesture? You don't want one gesture to set off two or more home appliances or applications.

Kent Wick
Unix system administrator, Austin

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TAKING STOCK OF E-paper

"The technology is just beginning to gain ground for applications such as e-books and in-store signage, but broader uses have yet to appear."

FOR YEARS, ANALYSTS have been predicting that electronic paper, or e-paper, would set the stage for the paperless office. Until recently, however, developing a paper substitute was not an easy proposition. And even today, business applications of the technology remain limited.

E-paper is a thin, flexible polymer sheet with the look of paper. But e-paper is a bit thicker than regular paper and weighs more because it contains microscopic electronic ink particles sandwiched between two polymer sheets that display as either white or black in response to an electrical charge.

E-paper is reflective, like real paper, so it can be read in any light. It uses no backlighting, as LCDs do, nor does it use an emissive light source, as with a CRT monitor, says Tom Ashley, director of Pivotal Resources USA, a Lexington, Ky.-based research firm that follows the digital printing market.

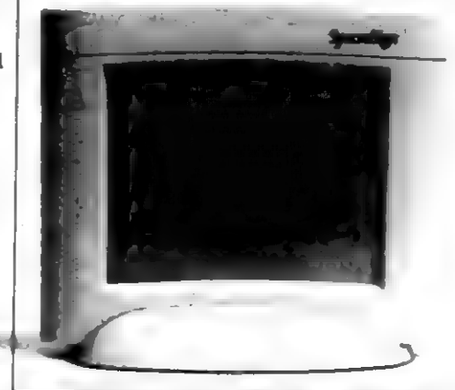
E-paper is also bi-stable, which means that the display uses power only to change the content. Once the image is created, it stays there, even when the power is turned off, Ashley says.

"Those two main characteristics are what give a paperlike display its good qualities — it's comfortable to read because it's reflective, and the bi-stable aspect allows you to have low power and lightweight batteries so the whole device could be extremely thin and lightweight," Ashley says.

Several companies are developing commercial applications of e-paper technology. SmartPaper, an e-paper technology from Ann Arbor, Mich.-based Gyricon LLC, first appeared in an e-paper pricing-sign system for retail stores in May. The sign is controlled by software that links it wirelessly to in-store pricing databases, says Robert Sprague, chief technology officer at Gyricon, a wholly owned subsidiary of Xerox Corp.

"We'll replace the paper pricing signs on each retail rack in retail stores with an electronic paper sign, which is wirelessly networked to the store's central computer so the price on the sign can be updated instantly. And it's always the same as the price in the point-of-sale database," Sprague says.

"This gives IT departments a way to control a lot of signage and information around an entire building or campus from one centralized comput-



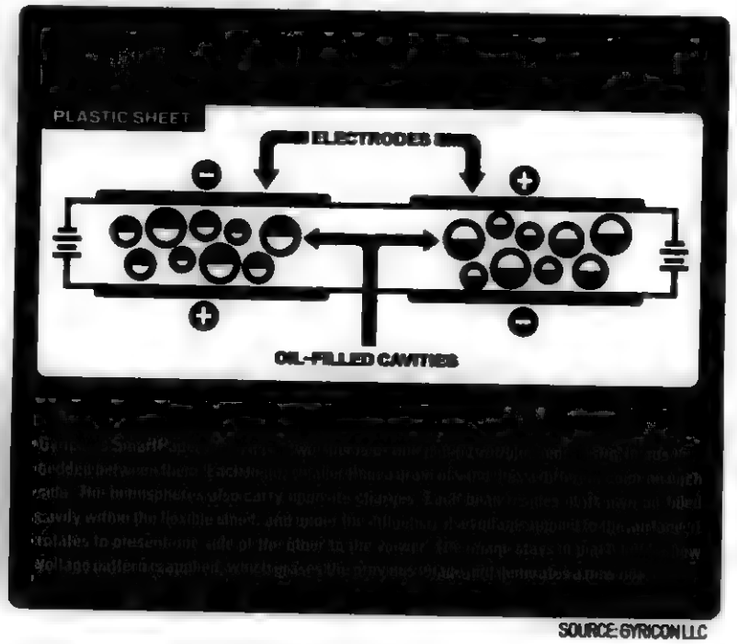
Gyricon's e-paper price signs receive updated pricing information wirelessly for display on retail store shelves.

Inside E-paper

Electronic paper is a thin, flexible sheet with the look and feel of paper. It contains microscopic particles that display as either white or black in response to electrical charges. E Ink and Gyricon both offer products. The basic technology the vendors use is the same, but each takes a slightly different approach.



SOURCE: E INK CORP.



SOURCE: GYRICON LLC

ing point," Sprague adds.

Gyricon also offers SmartPaper in a line of dynamic message boards, which it sells to hotels, conference centers and large campuses, he says. The message boards sell for $1,295 each.

The E-book

In April, Cambridge, Mass.-based E Ink Corp., Amsterdam-based Royal Philips Electronics and Tokyo-based Sony Corp. together launched their first-generation e-ink display in Sony's e-book reader, the Librie, in Japan. The e-book incorporates the e-ink technology used in e-paper into a traditional display.

E Ink's electronic ink is a proprietary material that is processed into a film for integration into electronic displays.

"For the Librie product, we make our e-ink as a film, a sheet of plastic that gets sold to Philips Electronics. Philips makes the display, and then the display is sold to Sony and put into an electronic reader," says Darren Bischoff, E Ink's marketing manager. "We're part of an enabling component for making that a paperlike reading experience."

Currently, users can download and store 500 books of about 250 pages each to the Librie e-book reader, which



GYRICON LLC

is similar in size and design to a paperback. The cost of the device is approximately $370, but Sony has no plans to release it outside of Japan.

Both E Ink and Gyricon have developed electronic shelf labels that can change prices automatically. E Ink's labels are wirelessly tied into the store's pricing system, Bischoff says.

E Ink's ultimate vision is to develop a next-generation smart paper, which E Ink calls RadioPaper, in the next several years. "Now we can make something that visually looks like paper, but we want something that feels like paper as well," Bischoff says.

E Ink's current e-paper looks like paper in terms of high contrast and a reflective surface that can be read at any angle, he says.

"The majority of the development to create something that is closer to the feel of paper has to happen with materials and developments other than the electronic ink component," Bischoff says.

To that end, E Ink is working with Philips' research department to create thin, flexible, rollable e-paper.

E Ink predicts that displays made with its e-ink technology will eventually appear on electronic devices ranging from handheld computers to cellular phones, calculators, digital watches and car dashboards.

Fujitsu Laboratories Ltd. in Kanagawa, Japan, is developing a paperlike display that it says could be used with a terminal for reading business documents downloaded from a PC, says spokesman Isao Hirano. The paper should be in production by 2006, and Fujitsu is bullish on its prospects. "We expect that this invention would pave the way to a paperless office and reduce paper consumption," Hirano says.

Although e-paper technology is progressing, there are some downsides. One is that e-paper lacks color, says Pivotal's Ashley. And while e-ink has been incorporated into displays such as the Librie, the bi-stable e-paper technology can't support full-motion video because updating or rewriting a page takes too long, according to Kenneth Werner, editor of *Information Display Magazine*, published by the San Jose-based Society for Information Display.

Today, e-paper is still looking for a killer application. While a few retailers are experimenting with e-paper pricing labels, the technology has yet to catch on. But that could change.

"In three to five years, we'll see second-generation technologies from the companies that are launching products now that will probably have better characteristics, reduce costs and add flexibility to the mix," Ashley says. **49387**

THE PROBLEM WITH E-PAPER

The technology is still striving to find a viable business application.

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BRIEFS

IBM Offers Power5 Server for Linux

IBM last week released a Power5 server specifically developed for Linux that can support either Novell Inc.'s SUSE or Red Hat Inc.'s Linux operating systems. The system will be available in a four-way rack or tower option. IBM said it will introduce a two-way system in the first half of 2005. Pricing will start at $5,000.

ThingMagic Unveils RFID Tag Reader

Cambridge, Mass.-based ThingMagic LLC last week released Mercury4e, an embedded RFID reader designed to be used in label printers, print and apply machines, and other systems that read and write RFID tags at high speed. Mercury4e can read any tag, and its architecture allows upgrades for new protocols, including EPC Class 1 Generation 2.

Vendors Integrate .Net Dev Tools

LogicLibrary Inc. in Pittsburgh and Serena Software Inc. in San Mateo, Calif., last week announced the integration of Serena Dimensions for .Net change management software with Logidex for .Net, a software development asset discovery and mapping engine for Microsoft Corp.'s .Net environment. Developers will be able to manage applications without leaving the Visual Studio .Net environment, said the companies.

Veritas Releases Storage Foundation

Veritas Software Corp. in Mountain View, Calif., last week announced that its Storage Foundation Suite is available for Microsoft Virtual Server 2005 customers, who can use the suite to consolidate backup of physical servers across widely dispersed IT environments. Pricing starts at $3,995 per node. Veritas supports up to 32 nodes.

KEITH SPITZ

Lessons Learned by A CRM Veteran

I HAVE SPENT much of the past eight years working with CRM systems and have a lot of faith in the promise of the technology. But realizing that promise requires a commitment that many companies aren't prepared to make.



At a previous employer, a software development company, I was actively involved as a software engineer in three different CRM implementations, although all three used the same product.

When the need for a CRM system became clear, we selected a product that had been effectively implemented by another company with a similar business model.

Our first project, which took six months, included only the sales department. Later releases, staggered over the next year, integrated technical support, product distribution, finance and — to a lesser degree — marketing.

But after a couple of years of working with this system, we realized we had a model that was flawed in two key areas.

First, it focused on serving individuals as customers, rather than companies as customers. This became a problem as our business strategy changed and we entered into larger deals selling software to development companies rather than to individual developers. Second, the overall implementation was built piecemeal, focusing on the needs of each department. The resulting system didn't allow us to smoothly move work among departments. So we tried again.

For the second implementation, my company invested significant resources to design a system with the complete involvement of all current and potential client groups.

We completed a design that met the requirements of marketing, sales, technical support, professional services, software development, product distribution and finance. And it met the needs of our U.S., European and Asian operations.

But it didn't take long to realize that we hadn't built the ultimate system we had envisioned. The overall complexity of the product introduced some significant process issues, and it wasn't amenable to the rapid changes the company wanted. So we tried yet again.

For the third implementation, we tried software that was as "out of the box" as possible. We focused the system design on sales, where we had experienced most of the pain with the existing system. We upgraded to the latest version of the software, which significantly improved the user interface. We also vowed to adapt our processes to the product to minimize customization.

A third-party process consultant with significant CRM experience was brought in to help us design a workflow that met the specific needs of sales and would fit well with the strengths and weaknesses of our CRM product.

Still no success. The new software, though more user-friendly, was relatively immature; the sales process, carefully designed though it was, wasn't consistently followed. And the out-of-the-box vendor solution simply wasn't robust enough for an implementation of our size and complexity.

So three tries, three failures. What went wrong? I have identified the following:

Workstyle differences. And our efforts were further complicated because the people involved in the project were spread around the world.

Lack of adequate off-line and integration tools. Although this is due in large part to the limitations of our CRM product, it is, I believe, a problem commonly faced by most CRM implementers.

The process resistance of sales teams. I don't want to offend my sales colleagues — I see the roots of this behavior in the nonprocedural and independent nature of their work.

The rate of desired change typically exceeding our ability to implement it. Eventually, this led to an environment in which IT resisted, rather than embraced, change.

Poor data quality control. My company didn't pay nearly enough attention to entering data into the system correctly and maintaining its integrity.

The failure of consensus design. Our "design by representation" ended up being built by representatives without sufficient authority and influence to effectively champion the proposed design.

Failure of policy enforcement. A CRM system will work well only if it's used consistently.

Despite all these flaws, it's possible to implement an effective CRM system, but only under the following conditions:

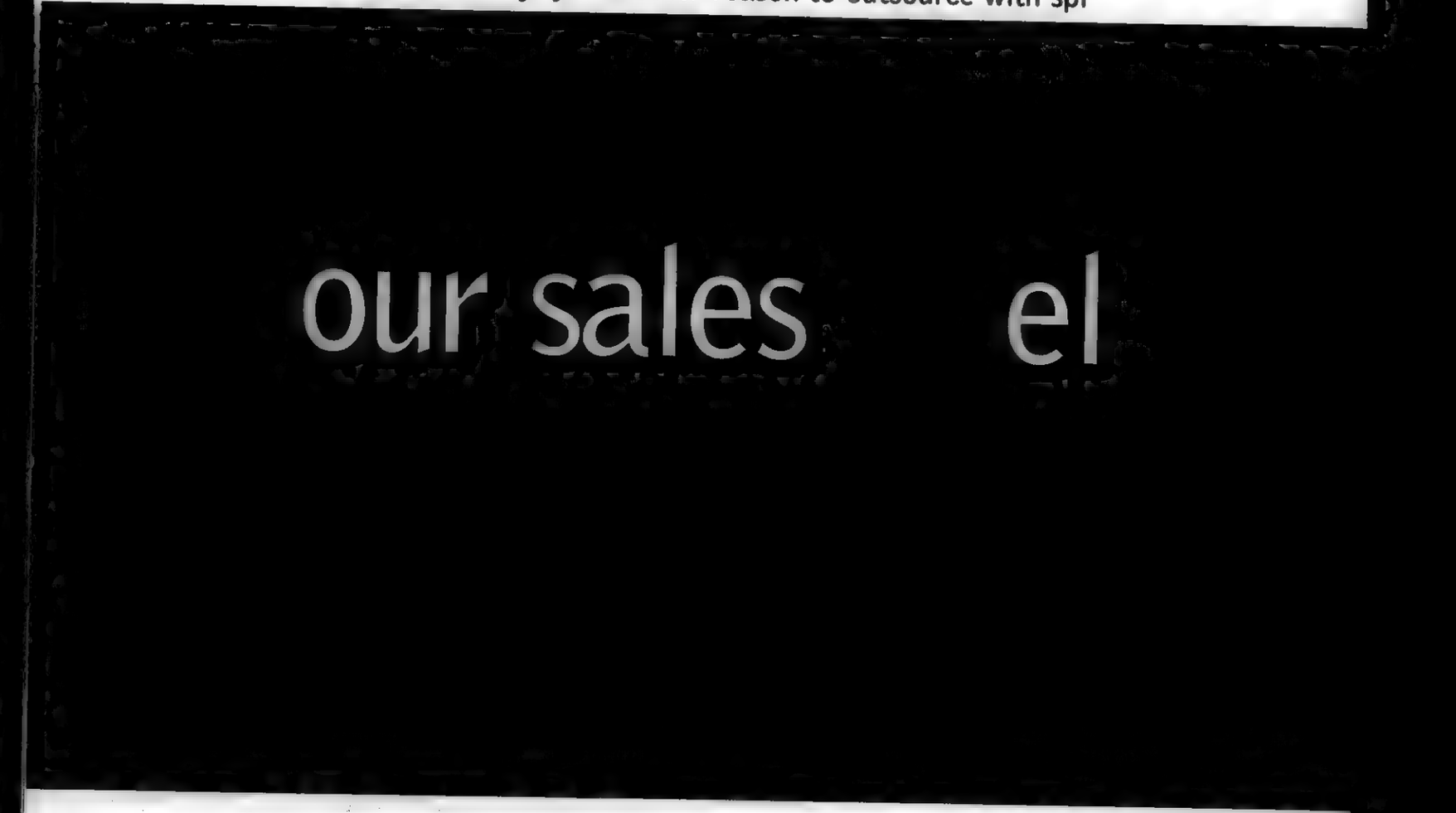
- The benefits expected from the CRM must be clearly identified.
- Consistent processes must be defined (even if their granularity is coarse) and enforced.
- Sufficient attention must be dedicated to data quality control. This is one of the most critical — and most easily overlooked — keys to success.
- Process and tool "rough spots" must be recognized and resolved quickly.
- Customization must be minimized. Just remember that there is an ongoing maintenance obligation created by each line of customization you add.

No two CRM implementations will be the same. But many aspects of CRM design and implementation will remain the same across products and industries. Success depends much more on your ability to think broadly and speak persuasively than on the features of the CRM system you select and the technical skills of your team. 40421

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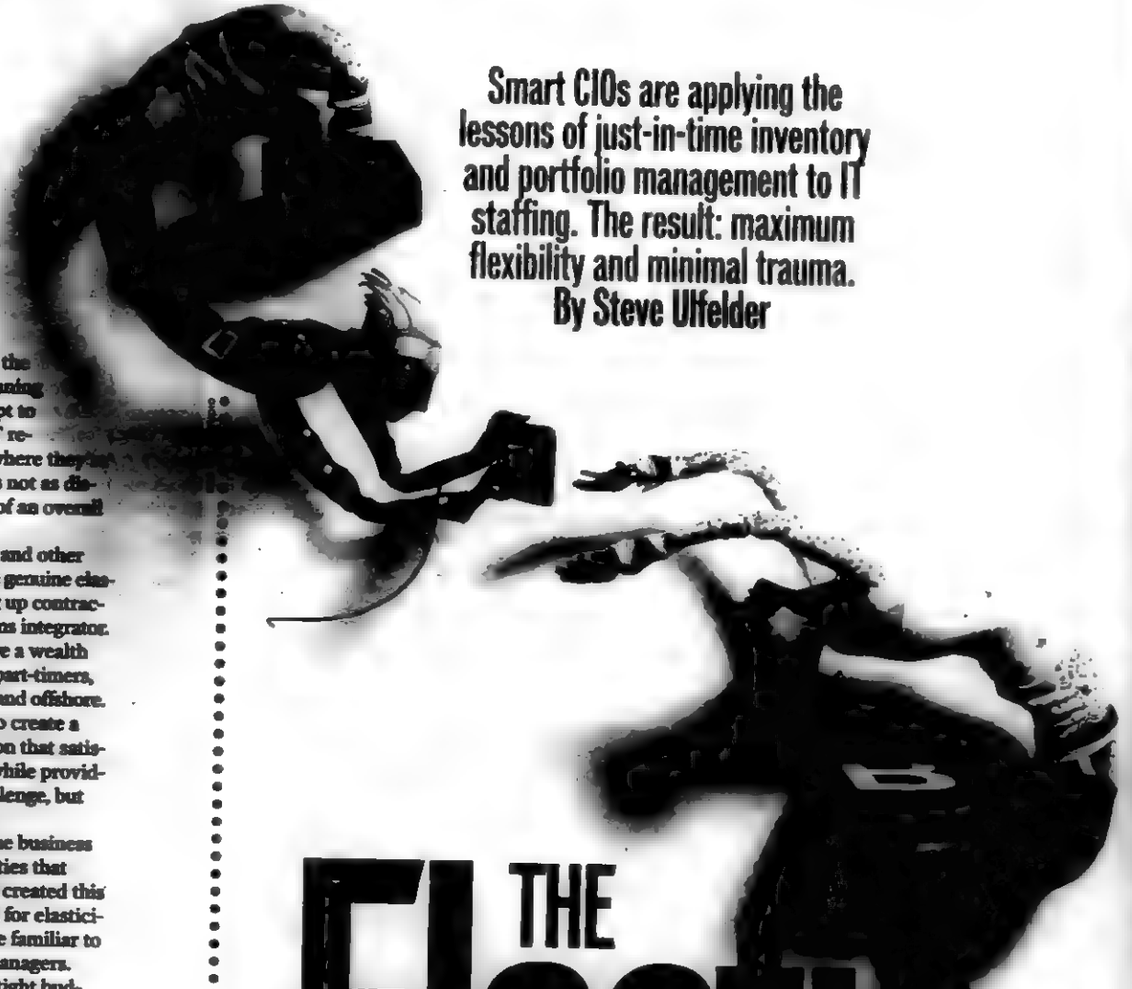
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THE Elastic IT Staff

Smart CIOs are applying the lessons of just-in-time inventory and portfolio management to IT staffing. The result: maximum flexibility and minimal trauma.

By Steve Ulfelder



ELASTICITY has become a much-sought-after trait for IT organizations. With technology priorities driven more than ever by business demands, a CIO must be able to direct resources — including employees — wherever they are needed. This has to happen quickly and smoothly, with staff feather-ruffling kept to a minimum.

The elastic IT organization combines the ideas behind just-in-time inventory planning and portfolio management. CIOs attempt to have just the right quantity of human IT resources, deployed precisely when and where they're needed most. And they treat IT projects not as discrete efforts, but rather as components of an overall service-delivery organization.

According to pioneering IT managers and other experts, it's these factors that differentiate genuine elasticity from the age-old tactic of rounding up contractors or inking an agreement with a systems integrator.

The good news is that CIOs today have a wealth of staffing options: full-time employees, part-timers, contractors and outsourcers — both on- and offshore. The trick is to leverage these elements to create a sort of human on-demand IT organization that satisfies business and budget requirements while providing career growth for workers. It's a challenge, but one that smart IT leaders are meeting.

> What I'm hearing from hiring managers is, 'We want options.'
>
> KATHERINE SPENCER LEE, EXECUTIVE DIRECTOR, ROBERT HALF TECHNOLOGY

The business realities that have created this need for elasticity are familiar to IT managers. The tight budgets that have prevailed for several years pared down IT staffs and increased the demand for less-expensive alternatives such as contract help and offshoring. Meanwhile, day-to-day business operations and IT have grown so tightly intertwined that they must be treated as one and the same.

"What I'm hearing from hiring managers is, 'We want options,' " says Katherine Spencer Lee, an executive director at Robert Half Technology. She says that CIOs and IT managers who come to the staffing firm, a division of Menlo Park, Calif.-based Robert Half International Inc., seek to maintain a bedrock staff of full-timers, contractors who can "flex strategically" from project to project and an offshore outsourcing company for a small number of commodity projects.

There are many ways to meet the need for flexibil-

The Keepers

One aspect of elasticity is knowing which IT functions you can outsource and which to keep in-house. According to analyst Marc Cecere at Forrester Research Inc., these are the strategic staff functions you can't afford to lose:

1. **PROJECT MANAGEMENT:** Even for outsourced projects, project managers provide oversight, rein in scope creep and serve as a consistent contact for IT customers.
2. **ARCHITECTURE:** In-house, architects set standards. For outsourced functions, they oversee decisions and technology direction and resolve disputes.
3. **PLANNING:** Planners align IT with the business, set technology direction and prioritize investments.
4. **VENDOR MANAGEMENT:** It's essential to have someone who can track and manage contracts – including outsourcing contracts.
5. **SECURITY POLICY:** You need in-house employees who can define policies regarding access to resources. (But you can outsource administration and maintenance of security.)
6. **BUSINESS ANALYSIS:** Business analysts formally manage the relationship between IT and the business and maintain continuity.
7. **PROJECT OWNERSHIP:** Only someone with specific business knowledge and personal commitment can ride herd on projects.

– *Kathleen Melymuka*

ity in staffing. Harrah's Entertainment Inc., for example, created a sort of IT SWAT team that rotates quickly from project to project, depending on what the Las Vegas–based gambling and entertainment company needs to accomplish.

In a 2002 reorganization, Harrah's divided its IT organization into groups devoted to application development, operations and support. A fourth group — the "solutions management group" — serves as a liaison between IT and business. This setup made IT more nimble and responsive to user and line-of-business needs, says Heath Daughtrey, Harrah's vice president of IT services. However, he adds, "we realized a key component was missing: flexibility. We needed the ability to scale [various IT groups] depending on business and markets."

In response, Harrah's pulled 30 full-time programmer/analysts from the four groups and created a flexible pool devoted to what the company calls "rapid-cycle rotation" — intensive, high-priority projects that last no more than six months. According to Daughtrey, the team has been successful as a "rapid resource delivery model," allowing Harrah's other four IT groups "to operate as lean as they can."

The program hasn't been without speed bumps, though. "We've seen over time that there are individuals who don't necessarily thrive in a fluid environment," Daughtrey says. Partly as a result, the original team of 30 has been pared to about half that number.

Bruce Goodman, CIO and chief services officer at Humana Inc., is a noted proponent of elasticity in IT. Humana's efforts to make its technology staff more flexible were born of near desperation, Goodman jokes. "A few years back, we overhauled IT so we could better support the business," he says, "and once we got [business] people all excited about technology, it occurred to us that it'd be nice to be able to deliver what we'd promised."

Before the IT makeover, the Louisville, Ky.-based health benefits company spent 30% of its resources, including workers' time, on application development and 70% on maintenance. That ratio has since been reversed and then some: Goodman says 80% of resources now go to development and only 20% to maintenance.

> "You're managing a portfolio of projects and finding the correct, cost-effective approach to each one."
>
> BRUCE GOODMAN, CIO, HUMANA INC.

Humana's rallying cry became "Partner before buy; buy before build," he says, and this motto applied not only to applications but also to human resources. For starters, the company began moving mainframe legacy operations and maintenance to an outsourcing firm in India.

To create a particularly strategic application — which it hopes to not only use in-house but also sell to other health care companies — Humana turned to Electronic Data Systems Corp., because that firm had consultants whose specialized skills were key but won't be needed once the development is complete.

Robert Half's Lee says this approach makes sense. "When a company needs specific expertise that they lack on staff, they'll bring in contractors for six to 18 months just to get that project done," she says. "We see that a lot with things like SAP upgrades that are challenging and demand hard-to-find skills but aren't 'forever' projects. Contractors give you that elasticity."

What's New?

But outsourcing to India and working with EDS aren't exactly revolutionary practices. What is it that separates a truly flexible or "elastic" IT group from those that just outsource or hire systems integrators?

Goodman says the difference is that elasticity demands a sweeping, big-picture approach to the entire range of IT tasks, projects and services. Elasticity assumes that "you look across the board," he says. "You're managing a portfolio of projects and finding the correct cost-effective approach to each one, all within typical [budgetary and service delivery] constraints." Goodman is describing IT portfolio management — a practice lifted from the financial investment arena — which involves managing the suite of corporate IT projects as if it were a financial portfolio, balancing riskier projects with safer ones and monitoring the portfolio to ensure an acceptable risk/reward ratio.

It's clear that while its components, such as offshoring or hiring temps or contractors, tend to be tactical and reactive, true elasticity is strategic and anticipatory.

The People Part

If strategic thinking is one pillar of IT elasticity, the other is true commitment to the backbone of the organization: full-time employees. "If I were a CIO wanting more elasticity, I'd look carefully at employee development programs," says Rick Poppell, an analyst at People^3 Inc., a Gartner Inc. research firm in Bridgewater, N.J. He says the best elastic IT groups are broadening staffers' skills to move them from back-end processes, such as coding and maintenance, to front-end roles, which include project management and business analysis — high-visibility, high-value jobs that reflect the symbiotic relationship between technology and business.

That has been the model at Harrah's, where solutions management group participants develop a broader-than-usual range of skills, according to Daughtrey. "Rather than predominantly supporting one [proprietary application] such as casino management, they work on a variety of projects: e-business, lodging, casino, etc.," he says.

Humana also keeps a close eye on IT staffers' career paths. "Despite our partnerships and outsourcing, we make it clear we have plenty of career opportunities [for full-timers]," Goodman says. He believes the key to retention is to offer employees challenging, high-value-add development assignments in hot areas such as data mining, wireless and Humana's intranet.

Tim Ramsay agrees. An associate vice president at the University of Miami in Coral Gables, Fla., he advocates elastic IT staffing, which he says is relatively easy in a university environment, where undergrads eagerly tackle thankless jobs. "The core IT staff is happy to let students do some of the tedious stuff, leaving them more challenging work," he says.

In the end, Poppell says, truly elastic IT organizations are easy to distinguish from those that are merely plugging holes. "The companies that are doing better understand the business drivers behind IT," he says. They have a formal IT plan supported by an infrastructure plan that looks ahead three years. This, he says, allows businesses to create a "formal IT workforce plan that asks, 'Do we have the capability to complete our various projects?' "

If your IT group lacks such strategic planning, you're probably not yet really elastic. That means you're most likely paying a premium for skills you could have developed in-house, and the only things stretching are your budget and your employees' patience. **48894**

Ulfelder is a Computerworld *contributing writer in Southboro, Mass. Contact him at sulfelder@charter.net.*

EXEC TRACK

West Named CIO At H&R Block

H&R Block Inc. in Kansas City, Mo., named **MARC WEST** senior vice president and CIO. West previously served as global CIO at Electronic Arts Inc., where he provided high-volume systems and Internet capabilities for EA.com.

MBI Chooses Steltz To Be Tech Chief

IRVIN STELTZ has been appointed chief technology officer at Med+Bank Inc., a Waltham, Mass.-based maker of real-time payment software supporting employee benefits programs. Previously, Steltz led application development efforts at Thompson Financial, First Data Corp. and The Dun & Bradstreet Corp.

Flynn Named CIO At Furniture Brands

Furniture Brands International Inc. appointed **AMES B. FLYNN** to the newly created position of vice president of logistics and CIO. Flynn was formerly CIO at Thomasville Furniture Industries Inc., a subsidiary of St. Louis-based Furniture Brands International. Prior to joining Thomasville in 1996, Ames worked in systems services and business process re-engineering at Food Lion LLC.

Stecher to Lead IT At Conseco Unit

STEVEN M. STECHER has joined **Conseco Inc.** in Carmel, Ind., as executive vice president of operations and IT for Conseco's insurance group. For the past two years, Stecher served as senior vice president and CIO at Orix Financial Services Inc. His insurance industry experience includes seven years at AXA Equitable Life Insurance Co., where he held management positions in marketing, agency operations and brokerage sales management.

BARBARA GOMOLSKI

Budget 2005: Win Some; Lose Some

BUDGETING IS AN EXERCISE that many IT managers dread. Because IT has an unpredictable economic model, budgeting accurately can be difficult. After several years of cost cutting, *modest* IT budget growth returned in 2004 and is expected to continue into 2005. But the pressure to reduce IT costs is not going away.



Here's a look at the major areas of IT spending and my predictions for how these categories will be treated in 2005 IT budgets.

Hardware costs, which typically represent about 20% of the IT budget, include depreciation on hardware assets, leases, expensed hardware purchases and maintenance contracts. Although unit costs of hardware have dropped in recent years, hardware expense as a percentage of total IT budget will remain static. This is because companies are buying more hardware than they did in the past, largely as a result of increased data storage requirements. In 2005, many organizations will make hardware purchases that had been postponed during the recession. Consequently, despite the drop in unit costs, I expect that most organizations will budget about the same for hardware as they did in 2004.

Software costs have increased from 9% of the IT budget in 1998 to about 20% today. The upward trend in software spending won't continue, however. Companies are buying fewer licenses and dropping nice-to-have but unessential support agreements. Also, software vendors have become a bit more flexible on pricing. Purchasing models, such as application hosting, are allowing companies to reduce the acquisition and ongoing costs of software. As a result of these factors, I believe that most companies won't increase their 2005 investments in software.

IT staff costs, which include the cost of internal employees as well as contractors, have declined during the past few years. There are several reasons for this. First, the wide availability of IT labor has meant fewer bonuses and raises for IT professionals. Simply put, it's still a buyer's market when it comes to IT skills. Second, many organizations reduced the number of contractors they use in order to cut costs during the recession. Third, increased reliance on outsourcers has resulted in smaller staff budgets for many companies.

In 2005, I expect IT organizations to budget only marginally more for internal staff and contractors. IT hiring has picked up only slightly. Even if demand for IT talent increases in the coming months, companies will stay cautious about expanding head count.

Telecommunications costs, which include voice and data, are often seen as the low-hanging fruit for organizations that must reduce their IT budgets. It's true that most organizations can save money by auditing telecommunications bills and instituting better contract management procedures. For example, one way to save money is to bring together all telecommunications contracts with the same provider under a single overall contract for total spending recognition and more efficient administration.

Telecommunications costs have gone down slightly in the past few years, and I expect that trend to continue. Tight competition in the telecommunications marketplace and a growing interest in voice over IP will enable firms to continue to drive these costs down.

There is one exception worth mentioning: wireless. In many organizations, wireless is still a rogue expense that isn't centrally managed. As a result, corporate costs for wireless are often disproportionately high in comparison with those for fixed-line services. Over time, more organizations will centralize wireless services under the IT budget, however, and IT managers can expect to "inherit" the wireless problem, if they haven't already.

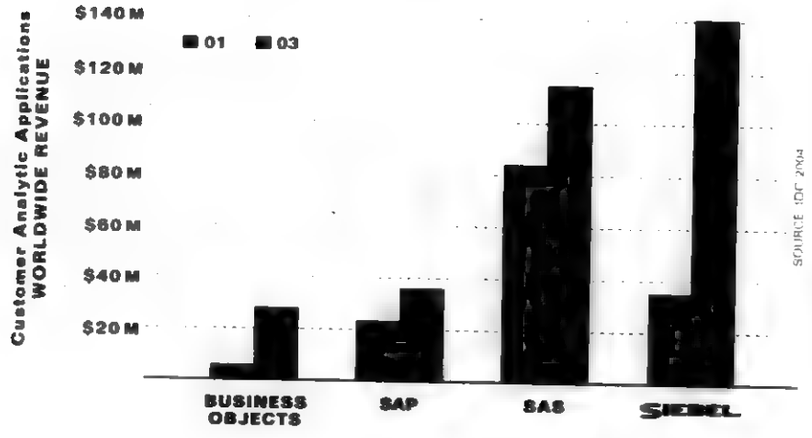
External service providers include all nonstaff IT labor, except contractors. There has been a lot of industry hype about outsourcing, particularly offshore outsourcing, but hype aside, dependence on external service providers is growing. As a result, I expect most IT organizations to spend more on them in 2005 than they did in 2004. In particular, there appears to be growing interest in application development and integration services.

The pressure to reduce IT costs is not going away. Even as they allocate slightly more money for hardware purchases and external service providers, organizations are looking for ways to reduce "baseline" or ongoing IT costs. **49156**

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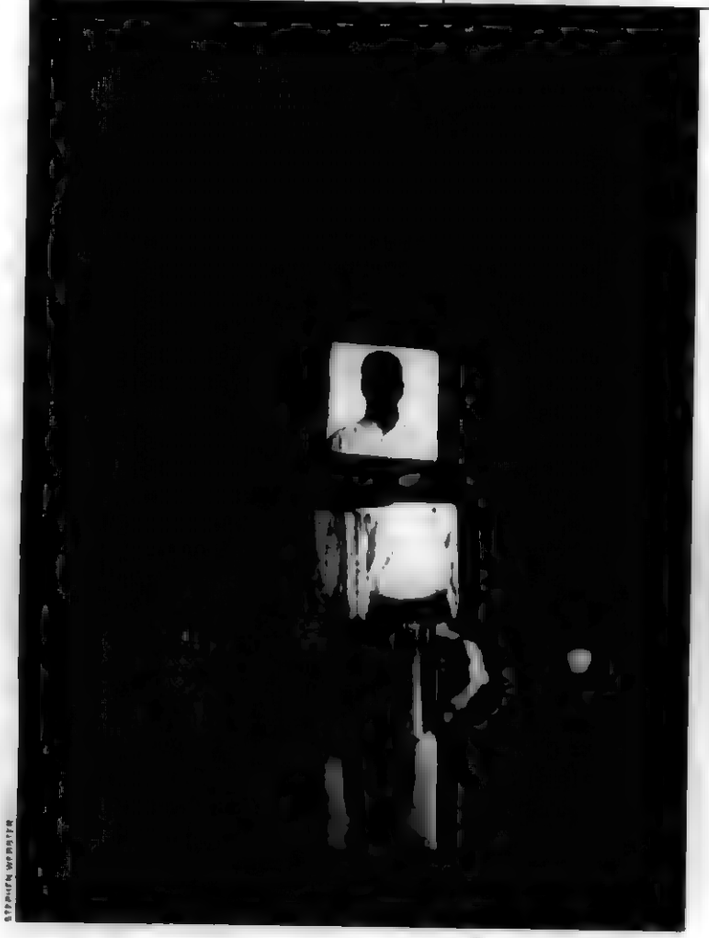
Bridging the Data Divide
The adversarial relationship between automakers and new-car dealerships creates a reluctance to share information. CRM software for this market was designed with this unusual sales channel in mind. PAGE 34



Turning Data Into Dollars
Retailers are using call center and data-gathering CRM software to manage millions of customer relationships and make more sales. PAGE 36



Personalize Your Job
CRM and personalization applications are becoming so simple that marketers don't need much help from IT. That makes columnist Mark Hall wonder, What can you do to save your job? PAGE 42



CRM Goes Vertical

SPECIAL REPORT We profile seven industries and their different CRM needs.

EDITOR'S NOTE

WELCOME to the "verticalization" of customer relationship management. Some CRM vendors offer as many as 20 different versions of their products, each geared to a different industry. Plus there are niche software vendors in various sectors, as well as systems integrators that are willing to do as much industry-specific tailoring as you can afford.

Is this a good thing? Mostly. It's certainly true that CRM for manufacturing is dramatically different from CRM for financial services or health care. The big advantage of an industry-specific CRM package is that it saves companies from that first layer of customization and provides functionality that the business can recognize and use immediately. The ROI should come a bit sooner, too.

Companies will still need to tweak even these vertical CRM packages to match their actual business. "No CRM on the planet doesn't need customization," says Kathleen Kennedy, vice president of customer development at Office Depot.

This special report examines the unique CRM needs of seven key industries. But a few words of warning: Beware of vendors that slap some industry lingo on the software labels and database fields without addressing the underlying industry processes. And don't be seduced into thinking that a vertical CRM package is a panacea right out of the box. CRM is mostly a nontechnology issue, requiring a clear business strategy, user buy-in and a level of maturity that many companies just don't have. That's why so many are on their second or third attempts to get CRM right.

Mitch Betts is Computerworld's *executive editor. Contact him at mitch_betts@computerworld.com.*

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Bridging the Data Divide

Automotive CRM helps break down walls between manufacturers and dealers. By Steve Ulfelder

INTRODUCED IN 2003, Honda's so-ugly-it's-almost-cute Element was intended to attract young, hip consumers. In its first full year of production, the Element found more than 67,400 buyers, exceeding expectations. But alas, the SUV has gone over like a lead surfboard with the coveted Gen Y crowd; R.L. Polk & Co. shows that buyers are more likely to have attended Woodstock than the X Games.

That Honda Motor Co. could whiff so badly in such an important market segment proves that automotive industry CRM has miles to go.

One reason is that automakers don't own their most important customer-contact points — new-car dealerships. Indeed, the relationship between automakers and dealerships is frequently adversarial. This unusual sales channel has strongly influenced the design of CRM software for the industry.

"In your business rules and data structure, you need to pay a great deal of attention to hierarchies and visibility rules," says Patrik Riese, director of CRM at Saab Cars USA Inc. That's because while dealerships are happy to accept leads and prospect information that parent company Saab (a division of General Motors Corp.) takes in through its Web site and other media, they are notoriously reluctant to share any information they glean themselves.

Tight-Lipped

"When I worked [in CRM at] Nissan, anytime we talked with a dealer about CRM, they would simply shut down if there was to be a sharing of information with the manufacturer," says Douglas Turk, who is now an analyst at consultancy Inforte Corp. and co-author of the book *CRM Unplugged* (Wiley, 2004).

Riese says this odd one-way information flow is now designed into the Siebel Systems Inc. CRM automotive software that Saab uses. However, in 2000, when the carmaker first used the Siebel application, he says, "we were one of the first automotive customers and had to do a lot of customization."

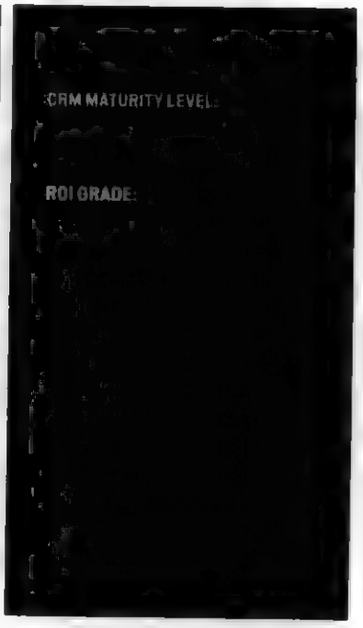
Like Siebel, SAP AG offers CRM tools tailored for the industry. The automotive version of MySAP CRM lets manufacturers track both customers and vehicles throughout their life cycles. It includes tools for online configuration and pricing, automatic warranty processing, and vehicle financing.

Another fact of automotive industry life that CRM vendors must pay attention to is ease of use. The turnover rate among dealership salespeople can be as high as 150% annually, so systems must be easy to learn. Moreover, many dealers are technology-averse mom-and-pop stores in which even the Rolodex is deemed newfangled.

"Only 10%, maybe 20% of all dealerships 'get' technology," says Shaun Knissin, director of Internet sales at Byers Automotive in Columbus, Ohio.

A Template for Every Task

The easily strained relationship between manufacturers and dealerships has given rise to another niche — CRM specifically tailored for dealers. The leader here is The Reynolds and Reynolds Co. in Dayton, Ohio. According to Turk, where general enterprise CRM tends to be focused on "the funnel" — the process by which a contact becomes a prospect and possibly a customer — software from Reynolds and Reynolds is more likely to stress postsales information intended to attract lucrative service business. For



example, Reynolds and Reynolds' library of follow-up letters includes a mind-boggling 3,322 templates.

The vendor also offers a feature that allows dealers to quickly calculate a half-dozen or more payment options. Traditionally, sales reps have time to run only one or two possible payment plans for prospects, fearing that customers may grow antsy if they take any more time. Byers Automotive is a Reynolds and Reynolds customer, and Knissin says the payment-options feature improved the dealership's percentage of closed sales.

There are other CRM benefits awaiting manufacturers and dealers alike, experts say. "The big concern in the industry is to get away from incentives," says Turk. Studies show that consumers have grown so accustomed to rebates, financing deals and other incentives that they won't shop for most brands unless such ticklers are offered. "That tends to mean they're not sure who their real consumers are," Turk adds. "Now they need to grasp their competitive differentiation."

On the dealership side, Knissin says the big benefit lies simply in treating consumers the way they're treated by other retailers. "When you come in, I know what you've bought from us, when you need service, when you might be considering your next purchase — it's basic stuff, but so many dealers don't know this." 48880

Ulfelder is a Computerworld contributing writer. Contact him at sulfelder@charter.net.



Bridging the Data Divide

Automotive CRM helps break down walls between manufacturers and dealers. By Steve Ulfelder

IN ITS DEBUT YEAR, 2003, Honda's so-ugly-it's-almost-cute Element was intended to attract young, hip consumers. In its first full year of production, the Element found more than 67,400 buyers, exceeding expectations. But alas, the SUV has gone over like a lead surfboard with the coveted Gen Y crowd; R.L. Polk & Co. shows that buyers are more likely to have attended Woodstock than the X Games.

That Honda Motor Co. could whiff so badly in such an important market segment proves that automotive industry CRM has miles to go.

One reason is that automakers don't own their most important customer-contact points — new-car dealerships. Indeed, the relationship between automakers and dealerships is frequently adversarial. This unusual sales channel has strongly influenced the design of CRM software for the industry.

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Automotive

CRM MATURITY LEVEL: Medium

Maturity rating by Barton Goldenberg, ISM Inc., Bethesda, Md.

ROI GRADE: C

Grade based on positive ROI in case studies analyzed by Nucleus Research Inc., Wellesley, Mass.

SPECIAL CHARACTERISTICS: Carmakers have focused on key profit centers such as service and warranties, but they haven't spent a lot of time targeting consumer awareness. Automotive industry CRM software places more emphasis on postsale follow-up, which improves repeat business and service visits. Visibility and data-protection features allow dealerships to shield prospect and customer information.

KEY VENDORS: PeopleSoft Inc., Reynolds and Reynolds, SAP, Siebel

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Every year the prestigious American Society of Business Publication Editors (ASBPE) selects one publication with 80,000 or more subscribers to receive this top honor. The award can go to any business publication in any industry category, and we won! We are proud that our ongoing commitment to editorial integrity, audience focus and in-depth coverage has been recognized by this auspicious award.



COMPUTERWORLD

THE VOICE OF IT MANAGEMENT

Turning Data Into Dollars

Retail CRM finds the payoff in reams of consumer data.

By Stacy Collett

A CUSTOMER AT electronics store Best Buy might not recall purchasing Shania Twain's hit CD *Come on Over* back in 1997, but the $25 billion retailer certainly does.

In fact, since 1996, Richfield, Minn.-based Best Buy Co. has been collecting data on nearly every transaction made, rain check issued and call center problem resolved for 75 million customers. Now, with a robust, homegrown database of customer information, Best Buy's next challenge is to leverage the data into competitive advantage.

That's the challenge facing most large retailers today, according to industry analysts. The retail sector, unlike other industries, is managing relationships with millions of consumers, compared with perhaps dozens of clients in business-to-business sectors.

Most retailers have implemented call center and data-gathering CRM software and are beginning to wade into analytics and customer segmentation, which may someday channel special offers and incentives to individuals based on their buying habits.

"Retailers are trying to get to where they were in 1903," explains Cathy Hotka, principal at retail consulting firm Cathy Hotka & Associates in Washington. "In 1903, the person who runs the store knows the customers, can put things on credit, knows what will sell and when, and knows what not to buy. When they went to mass markets, that granularity was lost. Regaining that intimacy with the audience is very difficult."

Retail

CRM MATURITY LEVEL: High

Maturity rating by Benton Goldenberg, ISM Inc.

ROI GRADE: C

Grade based on positive ROI in case studies analyzed by Nucleus Research Inc.

SPECIAL CHARACTERISTICS: With thousands, sometimes millions, of customers, retailers need scalable software to handle data with granular detail. In the future, the retail industry hopes to leverage specialized marketing and incentives based on customer buying habits. For now, retailers are using multichannel functionality, campaign management, segmentation and customer analytics capabilities.

KEY VENDORS: Blue Martini Software, Business Objects, Cognos, E.piphany, Hyperion Solutions, SAS Institute, Siebel Systems, Teradata, Unica

MARKET WATCH: Worldwide CRM license revenue is predicted to grow from $59M in 2003 to $146M by 2008.

Gartner Dataquest, March 2004

A Quantum Leap

The process of moving from quarterly business intelligence reports to real-time customer segmentation is difficult because large retailers are collecting highly complex and granular information on their customers that can vary greatly from business to business. That requires customized applications, even when using specialized retail CRM packages.

When Best Buy began building its CRM capability in 1998, packaged applications weren't an option. "We needed to customize the core capability ourselves. Nobody knew the customer data as well as we did," explains Tim Anglum, Best Buy's director of CRM from 1998 to April 2004.



At Office Depot Inc., customers range from household buyers to large corporations through its stores and $3 billion online delivery business. Its CRM database holds records on a half-billion transactions conducted each year. The Delray Beach, Fla.-based office supplier installed software from Teradata in 1999 for its scalability, but it still required customization.

"No CRM on the planet doesn't need customization," says Kathleen Kennedy, vice president of customer development at Office Depot. But the core database technology of Teradata, a division of NCR Corp. in Dayton, Ohio, fit the bill. Today, Kennedy's team is developing a customer-centric data warehouse that will allow the retailer to automatically trigger marketing offers to individuals based on buying patterns.

"That will be one of the key competitive advantages in 2006 — to move quickly and respond quickly to customers," Kennedy adds.

Though marketing to individuals is years away, retailers are closer to putting customers into several general categories. "Chances are good they'll dump you into a hopper of people like you — male, female, age, neighborhood," Hotka says.

Retailers RadioShack Corp. and Toys R Us Inc. have been stocking their databases with customer information for years, she says, but "they weren't doing anything with it. They're trying to get some glimmers of insight into customer behavior. But

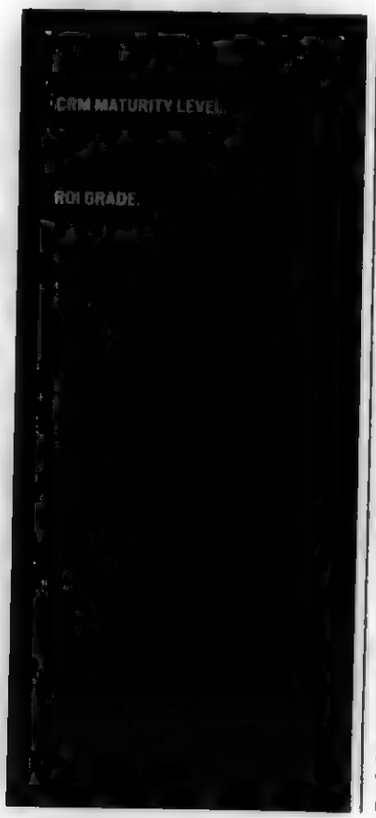
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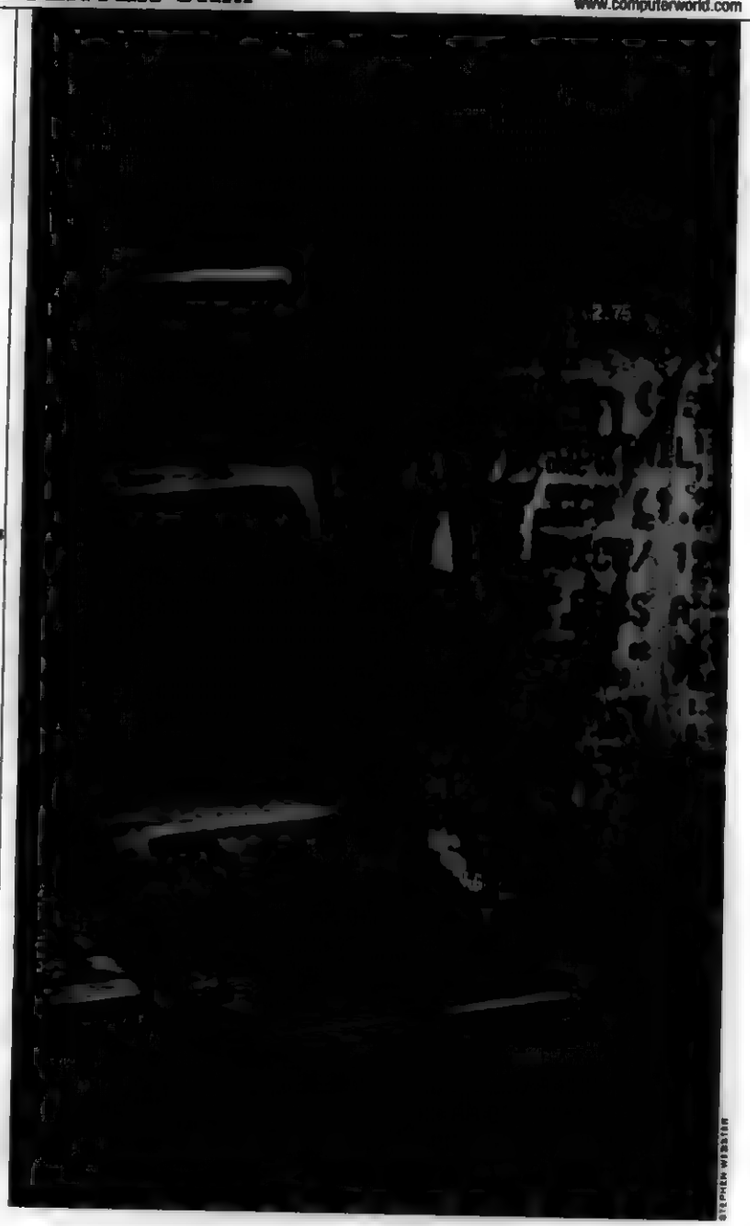
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it still doesn't have a thing to do with individuals."

Though the number of packaged applications is at an all-time high, that doesn't mean monster-size mainframes are going away. Instead, IT departments are tying in new databases and plugging in campaign management systems, e-mail marketing capabilities and analytical software that wasn't available before.

For business intelligence applications, for instance, retailers most often look at software from Cognos Inc., Hyperion Solutions Corp., SAS Institute Inc. and Business Objects SA, according to Robert Garf, an analyst at AMR Research Inc. in Boston.

For real-time, segmentation and "customer clustering" software, which offers advanced analytics, retailers are looking at Unica Corp., SAS, Teradata, E.piphany Inc., Blue Martini Software Inc. and Siebel Systems Inc., which recently purchased nQuire Software Inc., a maker of Internet-based business analytics software.

"The important piece is you might use separate software to do this but feed that info into operational systems, like the loyalty system, point-of-sale and marketing systems," Garf notes.

Future Capabilities

What CRM capabilities are in retailers' immediate future? "Anything that looks like optimization," Hotka says. "The use of statistics and algorithms to glean information from data on who might buy a given product. They'll use it to determine how to merchandise and price a new item, or how far to mark down an item that won't sell. They're finally getting to a point where they'll know to mark down slow sellers by 50%, not just 25%."

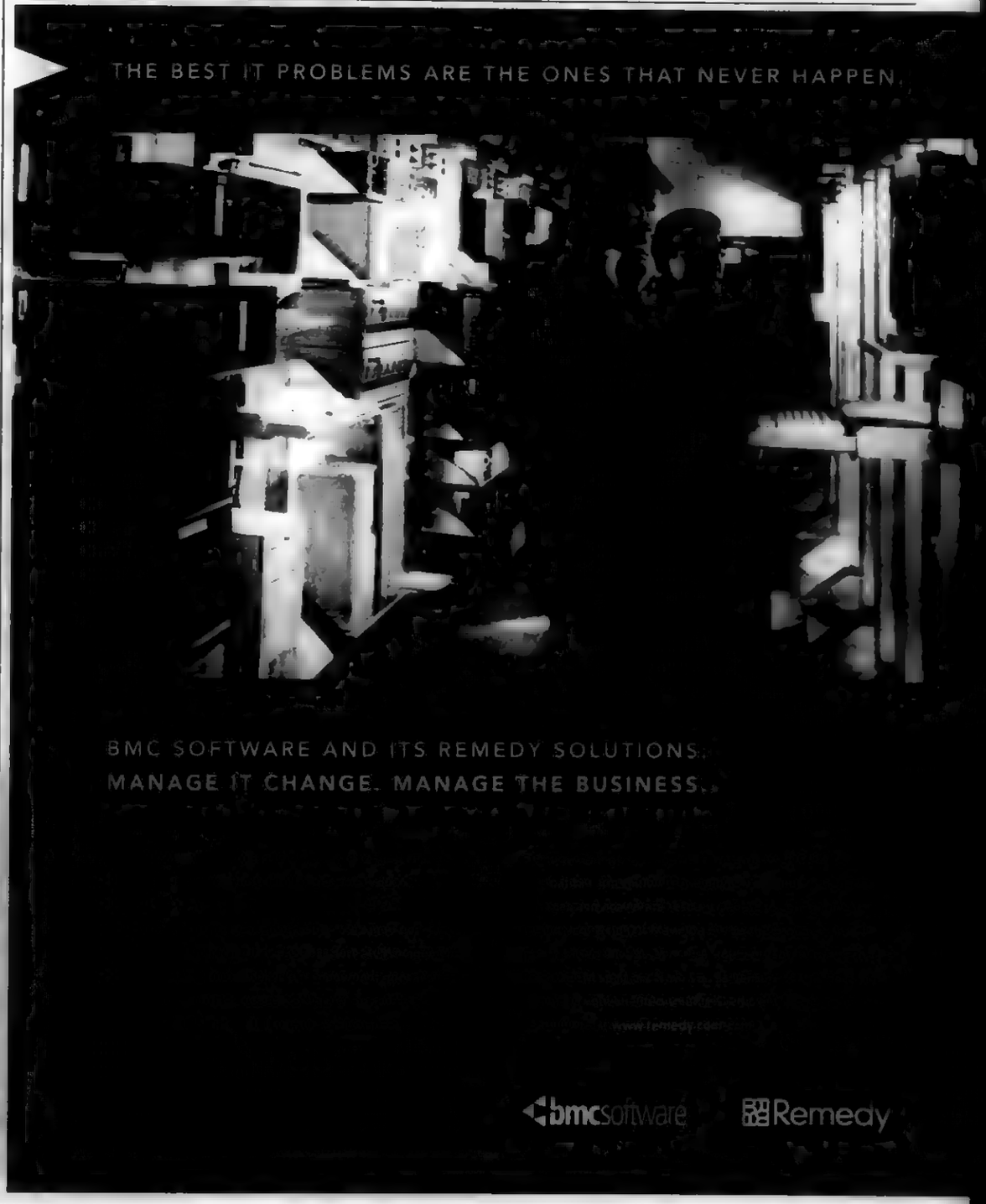
But although IT budgets have increased in the retail sector this year and interest in CRM is high, most retailers won't jump on new CRM applications quickly, predicts Adam Sarner, an analyst at Gartner Inc. "They're very cheap, and sometimes you're talking about razor-thin margins," he says.

But retailers should also be looking over their shoulders.

"Do very profitable and innovative retailers wait? No. They have gone crazy on tech spending because they've seen return. They get it," says Hotka. "You don't want to assume your competitor is waiting to enhance CRM capabilities." ID 40016

Collett is a freelance writer in Chicago. Contact her at stcollett@aol.com.

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> CATHY HOTKA



Creating Brand Awareness



Consumer goods CRM tests campaign effectiveness. By Marc L. Songini

CONSUMER GOODS manufacturers face unique challenges when rolling out CRM applications, compared with other industries such as insurance or finance.

For one thing, they don't typically focus on supporting call centers or remote sales force automation processes, but rather on building better marketing and sales campaigns. And they generally don't have direct contact with the end consumer, but rather deal exclusively with a middleman retailer or product distributor.

This complex sales process means consumer goods manufacturers tend to focus on product branding rather than on direct sales. As a result, one of the industry's biggest problems is getting advanced analytical CRM tools that can decipher just how well each branding campaign is working at each outlet.

CRM products for trade promotion and rudimentary customer analysis have been around for years, says Doug Turk, an analyst at Inforte Corp., a high-tech consultancy in Chicago. But now, he says, the major CRM vendors, such as SAP AG and San Mateo, Calif.-based Siebel Systems Inc., are starting to sell specific CRM add-ons for consumer goods manufacturers to help set prices for marketing campaigns and brand management, for example.

Who's Buying What

H.J. Heinz Co. wants to analyze its product promotions in greater detail using a more systematic approach, says George Chappelle, CIO at the Pittsburgh-based food products maker. The company's sales, finance and marketing specialists already use Siebel 7.5 to run trade promotion campaigns. The analytical module in the suite takes feeds from ERP and supply chain applications, allowing users to slice and dice the returns and expenses.

Soon, Heinz would like to break down each marketing campaign to determine profitability by each retail customer. Toward that end, Heinz last year launched a project to help it more precisely allocate, measure and account for all money spent during a campaign.

Chappelle says the upgrade will create tighter integration between the supply chain management system and Siebel applications that will enable the exchange of relevant forecasting information and deliver improved service and inventory management.

The upgraded system will also integrate various pieces of customer-related data to determine profitability, factoring in variables such as discounts, says Chappelle.

Besides the lack of advanced analytical capabilities, there are cultural problems that can prevent a smooth flow of CRM information back and forth through the supply chain. Manufacturers have to rely on the retailers to collect, record and send them the sales data, something the latter aren't always willing to do, according to Jim Prevo, CIO at Waterbury, Vt.-based Green Mountain Coffee Roasters Inc.

If retailers and suppliers shared more data, they could better determine the right mix of products in the sales channel. However, supermarket chains often either don't bother to gather pertinent sales data or are reluctant to share such information with manufacturers, preferring to sell it to independent research firms.

Green Mountain Coffee Roasters runs PeopleSoft CRM software to handle its monthly e-mail campaigns. The system sends the company's retail customers messages that have been tailored to their specific profiles based on records of previous buying habits, says Prevo. All customer data, including ordering history and other supply chain information, is consolidated in a central database to create an individual profile and then used to power the marketing application.

Access to Common Questions

The situation is different at camera and digital equipment maker Nikon Inc. in Melville, N.Y., which uses a hosted service center application from RightNow Technologies Inc., a CRM vendor in Bozeman, Mont. The application, called E-Service Center, lets both end customers and dealers access the most commonly asked technical questions, according to David Dentry, general manager of technical support at Nikon.

The software tracks inbound service calls and e-mail and offers customers a searchable database to help locate relevant information. Nikon personnel can see which customers are accessing the site, as well as the sorts of information they are viewing, and they can run reports to determine if a given technical article needs to be supplemented or replaced.

Nikon is rolling out the system globally, which will allow, for example, a European technical manager to take content from the U.S. site and immediately duplicate it on his own local site. It has become fairly common for high-tech electronics manufacturers to use CRM software to handle customer support, notes Dentry.

CRM is a key tool.

"I think the foundation of competition is understanding your customers and making purposeful contact with them," says Prevo. "Any tools that help companies accomplish those two objectives are going improve competitiveness." ● 48588

Consumer Goods Manufacturing

CRM MATURITY LEVEL: Medium

Maturity rating by Barton Goldenberg, ISM Inc.

ROI GRADE: B

Grade based on positive ROI in case studies analyzed by Nucleus Research Inc.

SPECIAL CHARACTERISTICS: Consumer goods manufacturers don't sell to the end user, so they have to influence the retailers to carry their products, and the consumers to request them. It's all about branding and consumer marketing. Industry-focused CRM offers complete consumer response capabilities, key account management, brand management, trade management and retail account management.

KEY VENDORS: PeopleSoft, RightNow Technologies, SAP, Siebel Systems

MARKET WATCH: Worldwide CRM license revenue is predicted to grow from $527M in 2003 to $543M by 2008.

Gartner Dataquest, March 2004

Unifying Customer Views

Financial services CRM helps create a complete picture of customers. By Lucas Mearian



ROBERT JOYCE understands complex relationships. A former salesman and now managing director of corporate relationship management at The Bank of New York Co., Joyce completed a CRM deployment in March that gives the firm's 1,650 sales employees in 30 countries a single, consolidated view of each customer's interactions with the bank.

This all-encompassing view is typical of a new trend designed to counteract the effects of two decades of massive consolidation in the financial services industry. A wave of mergers and acquisitions fragmented and compartmentalized customer information, making it difficult to know what each business unit was doing or to track customer interactions.

In the relationship-driven business of financial services, that spells trouble. A narrow view of the client makes interaction impersonal, and when a salesperson doesn't know a customer's buying habits, it's far more difficult to pitch new products that speak to the customer's needs.

Full Customer View

When it comes to CRM software, financial services, unlike manufacturing or retail sales, is a completely information-based industry, according to Mindy Propper, an analyst at McLean, Va.-based BearingPoint Inc. Buying preferences, family needs and retirement plans are among the many bits of information that must be meticulously tracked so financial services firms can tailor products to individual needs.

But despite huge investments in CRM, very few resources have been focused on enhancing the customer experience, according to a recent survey of financial institutions by BearingPoint. In fact, 42% of the 174 companies surveyed still interact with their customers within product silos.

Propper says much of the customer disconnect is the result of developing CRM projects from the inside out and not the outside in — in other words, disregarding what the customer might want in favor of what the business wants.

That was what Bank of New York, a $6.3 billion company, was attempting to overcome with its $10 million CRM project. Over the past decade, the bank has made more than 80 acquisitions, which have resulted in almost as many new product lines, Joyce says.

Bank of New York had 10 sales-tracking systems, the majority of which consisted of rudimentary tools, such as handwritten address books, Lotus Notes programs or Excel spreadsheets.

"We ended up with a slew of disparate sales forces throughout the globe in different product areas. We didn't have one place where we could look to see what we were doing with a client or what the opportunities were with a particular client," Joyce says.

The Bank of New York chose Siebel Systems Inc.'s eFinance software to tie that customer information together. Joyce says the project was a success because he spent an "inordinate" amount of time getting user buy-in. Yet there was still resistance from sales and business managers, who didn't want to give up their customer data or switch to another system for tracking it.

"The important point on how we got around that issue was to use both the carrot and the stick," Joyce says. He also kept the project focused only on the sales force, with no call center or back-office administration tie-ins, in order to avoid scope creep.

Data Overload

Kathleen Khirallah, an analyst at TowerGroup in Needham, Mass., says the financial services industry is ahead of the curve in its use of CRM software, but it also faces far greater challenges than other industries in getting to a single view of the customer across the entire institution.

"I don't think they're providing lip service to the principles of CRM. I really do think banks understand working with customers well is critical to their success," Khirallah says. "It's kind of the blessing and the curse. They're good at it, but there's just so much that they have to coordinate, there are challenges along the way."

Smaller companies might have an internal culture that supports customer service, even without the software to automate those services. Larger financial services firms, however, have to use software to deal with far more information to give the illusion of a personal touch.

"Really large institutions that rely on software and have made those investments sometimes don't have that service culture. So they have other challenges," Khirallah says.

Robert Haggerty, an analyst at TowerGroup, says firms that perform best in financial services are ones that cultivate and manage relationships. Whether it's banking, brokerage, investment management or insurance services, it's critical to understand and retain information about customers, he says.

Haggerty says automation of data life-cycle management is the crucial next step, when customer representatives will be automatically alerted to events in the consumer's life. Once the salespeople have that initial information about a customer, he says, "they'll have a good excuse to call and get a sale out of it." **48975**

Financial Services

CRM MATURITY LEVEL: High

Maturity rating by Barton Goldenberg, ISM Inc.

ROI GRADE: D

Grade based on positive ROI in case studies analyzed by Nucleus Research Inc.

SPECIAL CHARACTERISTICS: Decades of industry consolidation scattered customer information among business units and systems. The goal now is to unify that data, creating a single view of the customer. For example, buying preferences, family needs and retirement plans must be tracked so financial services firms can tailor products to customer needs.

KEY VENDORS: Chordiant Software Inc., Metavante Corp., Onyx Software Corp., Pegasystems Inc., PeopleSoft Inc., Pivotal Corp., S1 Corp., Siebel Systems

MARKET WATCH Worldwide CRM license revenue is predicted to grow from $416M in 2003 to $517M by 2008.

Gartner Dataquest, March 2004

Creating Brand Awareness



STEPHEN GIBSON

Consumer goods CRM tests campaign effectiveness. By Marc L. Songini

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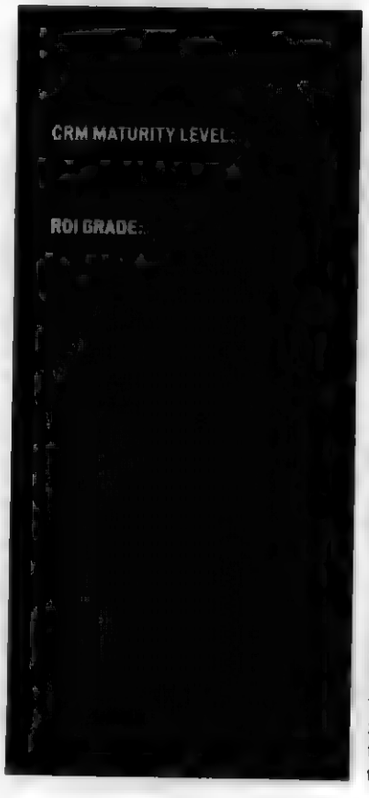
Besides the lack of advanced analytical capabilities, there are cultural problems that can prevent a smooth flow of CRM information back and forth through the supply chain. Manufacturers have to rely on the retailers to collect, record and send them the sales data, something the latter aren't always willing to do, according to Jim Prevo, CIO at Waterbury, Vt.-based Green Mountain Coffee Roasters Inc.

If retailers and suppliers shared more data, they could better determine the right mix of products in the sales channel. However, supermarket chains often either don't bother to gather pertinent sales data or are reluctant to share such information with manufacturers, preferring to sell it to independent research firms.

Green Mountain Coffee Roasters runs PeopleSoft CRM software to handle its monthly e-mail campaigns. The system sends the company's retail customers messages that have been tailored to their specific profiles based on records of previous buying habits, says Prevo. All customer data, including ordering history and other supply chain information, is consolidated in a central database to create an individual profile and then used to power the marketing application.

Access to Common Questions

The situation is different at camera and digital equipment maker Nikon Inc. in Melville, N.Y., which uses a hosted service center application from RightNow Technologies Inc., a CRM vendor in Bozeman, Mont. The application, called E-Service Center, lets both end customers and dealers access the most commonly asked technical questions, according to David Dentry, general manager of technical support at Nikon.



The software tracks inbound service calls and e-mail and offers customers a searchable database to help locate relevant information. Nikon personnel can see which customers are accessing the site, as well as the sorts of information they are viewing, and they can run reports to determine if a given technical article needs to be supplemented or replaced.

Nikon is rolling out the system globally, which will allow, for example, a European technical manager to take content from the U.S. site and immediately duplicate it on his own local site. It has become fairly common for high-tech electronics manufacturers to use CRM software to handle customer support, notes Dentry.

CRM is a key tool.

"I think the foundation of competition is understanding your customers and making purposeful contact with them," says Prevo. "Any tools that help companies accomplish those two objectives are going improve competitiveness." 46588

Unifying Customer Views

Financial services CRM helps create a complete picture of customers. By Lucas Mearian



STEPHEN WEBSTER

ROBERT JOYCE understands complex relationships. A former salesman and now managing director of corporate relationship management at The Bank of New York Co., Joyce completed a CRM deployment in March that gives the firm's 1,650 sales employees in 30 countries a single, consolidated view of each customer's interactions with the bank.

This all-encompassing view is typical of a new trend designed to counteract the effects of two decades of massive consolidation in the financial services industry. A wave of mergers and acquisitions fragmented and compartmentalized customer information, making it difficult to know what each business unit was doing or to track customer interactions.

In the relationship-driven business of financial services, that spells trouble. A narrow view of the client makes interaction impersonal, and when a salesperson doesn't know a customer's buying habits, it's far more difficult to pitch new products that speak to the customer's needs.

Full Customer View

When it comes to CRM software, financial services, unlike manufacturing or retail sales, is a completely information-based industry, according to Mindy Propper, an analyst at McLean, Va.-based BearingPoint Inc. Buying preferences, family needs and retirement plans are among the many bits of information that must be meticulously tracked so financial services firms can tailor products to individual needs.

But despite huge investments in CRM, very few resources have been focused on enhancing the customer experience, according to a recent survey of financial institutions by BearingPoint. In fact, 42% of the 174 companies surveyed still interact with their customers within product silos.

Propper says much of the customer disconnect is the result of developing CRM projects from the inside out and not the outside in — in other words, disregarding what the customer might want in favor of what the business wants.

That was what Bank of New York, a $6.3 billion company, was attempting to overcome with its $10 million CRM project. Over the past decade, the bank has made more than 80 acquisitions, which have resulted in almost as many new product lines, Joyce says.

Bank of New York had 10 sales-tracking systems, the majority of which consisted of rudimentary tools, such as handwritten address books, Lotus Notes programs or Excel spreadsheets.

"We ended up with a slew of disparate sales forces throughout the globe in different product areas. We didn't have one place where we could look to see what we were doing with a client or what the opportunities were with a particular client," Joyce says.

The Bank of New York chose Siebel Systems Inc.'s eFinance software to tie that customer information together. Joyce says the project was a success because he spent an "inordinate" amount of time getting user buy-in. Yet there was still resistance from sales and business managers, who didn't want to give up their customer data or switch to another system for tracking it.

"The important point on how we got around that issue was to use both the carrot and the stick," Joyce says. He also kept the project focused only on the sales force, with no call center or back-office administration tie-ins, in order to avoid scope creep.

Data Overload

Kathleen Khirallah, an analyst at TowerGroup in Needham, Mass., says the financial services industry is ahead of the curve in its use of CRM software, but it also faces far greater challenges than other industries in getting to a single view of the customer across the entire institution.

"I don't think they're providing lip service to the principles of CRM. I really do think banks understand working with customers well is critical to their success," Khirallah says. "It's kind of the blessing and the curse. They're good at it, but there's just so much that they have to coordinate, there are challenges along the way."

Smaller companies might have an internal culture that supports customer service, even without the software to automate those services. Larger financial services firms, however, have to use software to deal with far more information to give the illusion of a personal touch.

"Really large institutions that rely on software and have made those investments sometimes don't have that service culture. So they have other challenges," Khirallah says.

Robert Haggerty, an analyst at TowerGroup, says firms that perform best in financial services are ones that cultivate and manage relationships. Whether it's banking, brokerage, investment management or insurance services, it's critical to understand and retain information about customers, he says.



Haggerty says automation of data life-cycle management is the crucial next step, when customer representatives will be automatically alerted to events in the consumer's life. Once the salespeople have that initial information about a customer, he says, "they'll have a good excuse to call and get a sale out of it." 48075



Gaining Taxpayer Respect

Government CRM has a private-sector goal: customer satisfaction.

By Nancy Ferris

After years of dismissing CRM as a poor fit for the public sector, many government agencies are now enthusiastically embracing the technology.

In fact, some analysts say the government sector is the hottest growth market for CRM. Barton Goldenberg, president of ISM Inc., a consultancy in Bethesda, Md., says he expects government spending on CRM software will grow 30% in 2004, reaching up to $2 billion in sales.

The government, of course, doesn't sell many products or services, and most agencies aren't using CRM to increase revenue. But Goldenberg says several of the other reasons for businesses to use CRM also apply in the public sector: cost reduction, product and service improvement, better customer knowledge and higher employee morale, to name a few. To achieve these benefits, agencies are often using conventional software, call centers and the kinds of online services offered by major retailers. Even though government agencies aren't driven by profit, they do want to serve the public better and become more efficient. In this sector, CRM is closely related to "e-government" — using technology like online services to make it easier for taxpayers to get services.

On the Internal Revenue Service Web site, for example, professional tax preparers can see customers' IRS accounts, file returns and resolve tax problems. Corporations can also file. Because of security and privacy concerns, the agency isn't ready to give taxpayers the same kinds of access. But more than 25,000 tax professionals are using IRS "e-services," says Richard Skorny, the agency's deputy associate CIO for program management.

One Stop for Answers

State and local governments are also jumping on the CRM bandwagon. The Dade County, Fla., government is working with the city of Miami to install a joint call center that will handle all nonemergency service requests beginning in November. Residents will be able to dial 311 whether they want to apply for a business permit or report an abandoned car, a stray cat or a pothole. The center won't merely answer questions; it will fill out work orders for city and county employees, dispatching a building inspector or dogcatcher as needed.

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CRM can also improve coordination among federal agencies, where people don't know whom to call about passports (the State Department), student loans (the Department of Education) or food poisoning (the Food and Drug Administration). If a citizen calls the wrong agency, it can take many more calls and transfers to find the right one. "They often get on that carousel of being shunted around" from office to office, says Theresa Nasif, director of the Federal Citizen Information Center, an office of the General Services Administration.

Nasif's office operates the federal government's central Web site, *www.firstgov.gov*, and the 1-800-FEDINFO call center. Together they will receive more than 230 million customer contacts this year. Nasif also heads a program called USA Services that seeks to improve responses to citizens across all the agencies. "It's an obligation of the government to serve citizens in this manner," she says. "It increases citizens' confidence in their government."

The Miami-Dade Answer Center uses Motorola Inc.'s Customer Service Request system, which is CRM software for the public sector. Motorola's expertise began with 911 emergency call centers and dispatch systems. In many government CRM projects, the vendors are mainstream CRM suppliers. The IRS, for example, uses PeopleSoft CRM for Government.

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ISM's Goldenberg says that many government organizations are reluctant to measure service delivery and track customer interactions because of the public sector's prevailing risk-averse culture, where a relatively minor dip in customer satisfaction can be grist for a heated congressional hearing.

Better Citizen Service

One government that's using CRM as a performance improvement tool is the city of Baltimore, which uses its 311 call center as one source of information for its award-winning CitiStat program. Mayor Martin O'Malley uses complaint rates and many other pieces of data to rigorously track the performance of city departments. Matt Gallagher, CitiStat's director, says Baltimore gets 1 million calls a year from residents. Many of them go to a 311 call center running Motorola's software.

Another difference between public- and private-sector CRM programs stems from citizens' concerns about the government intruding on their lives. For example, federal agencies are generally forbidden to track the online activities of individual visitors to their Web sites. However, Accenture's Sickles says privacy safeguards need not be a show-stopper.

The return on investment is measured differently because CRM is likely to have only an indirect effect on government revenue, if it has any effect at all. But the IRS modernization program is based on the notion that efficient, effective tax collection may help the bottom line.

Goldenberg suggests that taxpayers who have had a good experience in their interactions with the government may be more willing to pay taxes and fees for the services government provides. **48976**

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Government

CRM MATURITY LEVEL: Low

Maturity rating by Barton Goldenberg, ISM Inc.

ROI GRADE: D

Grade based on positive ROI in case studies analyzed by Nucleus Research Inc.

SPECIAL CHARACTERISTICS: CRM's integration challenges are many — stovepiped systems and agencies, security and privacy concerns, and the prevalence of older mainframe-based systems. But agencies are embracing CRM, particularly conventional software for call centers and online services, in an effort to increase citizen satisfaction.

KEY VENDORS: Motorola Inc., Oracle Corp., PeopleSoft Inc., SAP AG, Siebel Systems Inc.

MARKET WATCH: Worldwide CRM license revenue for national and international governments is predicted to grow from $52 million in 2003 to $76 million in 2008. For local governments, CRM revenue is predicted to grow from $47 million to $86 million in the same period.

Gartner Dataquest, March 2004

Preventing a Data Overdose



Pharmaceuticals CRM manages multiple types of customers and regulations.

By Alan R. Earls

ASK BORIS MEYERSON, senior director of information at Bradley Pharmaceuticals Inc., about CRM, and you'll get an earful.

He'll tell you about the Electronic Records and Signatures Act, the Prescription Drug Marketing Act and some of the other federal regulations and industry best practices with which his company must comply.

But like every other business, the Malvern, Pa.-based provider of prescription dermatology products must also make a profit. Meyerson says his firm selected software from StayinFront Inc. that's tailored to the pharmaceutical industry, because in addition to the complexity of regulations, "in the pharma industry, we have three layers of customers," which necessitates a special style of CRM.

In order for a CRM system to work, it must combine input about drug sales from pharmacies with similar data from insurers and hospitals and then map that against advertising efforts and promotional activities with specific physicians, says Meyerson.

Judy Hanover, an analyst at Life Science Insights in Framingham, Mass., says CRM is different in this industry because of the nature of sales and the regulatory requirements.

"In pharmaceuticals, representatives do not write orders; they work with physicians to provide information about their products, referred to as detailing," she says.

"They also may collect and report information about adverse events and/or reimbursement issues, which are often handled by special call centers configured to collect and assist in these transactions," says Hanover.

Pharmaceuticals

CRM MATURITY LEVEL: High

Maturity rating by Barton Goldenberg, ISM Inc.

ROI GRADE: A

Grade based on positive ROI in case studies analyzed by Nucleus Research Inc.

SPECIAL CHARACTERISTICS: The industry requires a combined view of sales, marketing and advertising information from pharmacies and physicians, data about adverse events and reimbursement issues, and regulatory compliance data.

KEY VENDORS: Dendrite International Inc., SAP AG, Siebel Systems Inc., StayinFront

"Pharmaceutical companies have generally been early adopters of CRM," says Dale Hagemeyer, an analyst at Gartner Inc. "They are now mature users with wide adoption across the industry, sometimes in a second- or third-generation implementation." **48978**

Building Patient Loyalty

Health care CRM must address patients', hospitals' and insurers' needs.

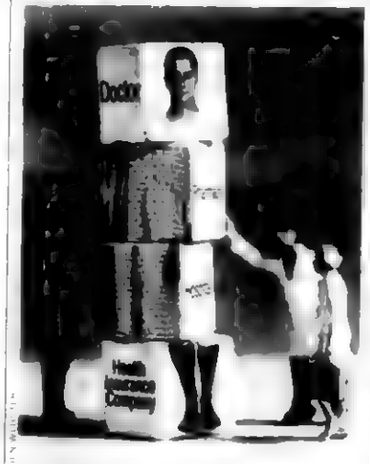
By Alan R. Earls

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Toshiba America, which deals in diagnostic imaging systems for health care providers, uses a custom-built application based on Cognos Inc.'s business intelligence software to track a wide range of factors such as customer satisfaction indices, changes in perception about its products and long-term customer-retention data.

Zimmer's style of CRM may be unique, but the challenges he faces are not uncommon in health care: There is no standard way of doing CRM and no clear leader among the vendors.

Hospitals have been slow to adopt CRM, but experts say the need to contain costs, build loyalty among patients and provide better service has spurred hospitals to look at various aspects of CRM, including call center support and self-service functions.



But the health care industry operates under a heavy dosage of government and industry regulation, and CRM software is often customized to support those requirements, plus reimbursement processes and call centers. And the need to ensure patient privacy means that many of the data-sharing functions of CRM aren't acceptable.

Joanne Galimi, an analyst at Gartner Inc., says neither payer organizations nor health care providers have advanced far down the CRM path; both favor tactical, point solutions. For instance, Galimi says she sees organizations trying to automate sales cycles or improve customer service and support — especially through implementing Web-based customer self-service.

So while the large players still share a big part of the market, niche players are having a field day, Galimi says. "The payers, for example, tend to think the bigger software players are pricey. But that will change as these organizations mature and begin to reconsider the benefits of more of a suite-based approach to CRM," she says. **48977**

Health Care

CRM MATURITY LEVEL: Medium

Maturity rating by Barton Goldenberg, ISM Inc.

ROI GRADE: B

Grade based on positive ROI in case studies analyzed by Nucleus Research Inc.

SPECIAL CHARACTERISTICS: CRM software is often customized for the industry to support regulatory requirements, reimbursement processes and call centers. In this industry, the need to ensure patient privacy is critical.

KEY VENDORS: IBM, Oracle Corp., PeopleSoft Inc., SAP AG, Siebel Systems Inc.

MARKET WATCH: Worldwide CRM license revenue for the health care provider industry is predicted to grow from $712 million in 2003 to $150 million by 2008.

Gartner Dataquest, March 2004

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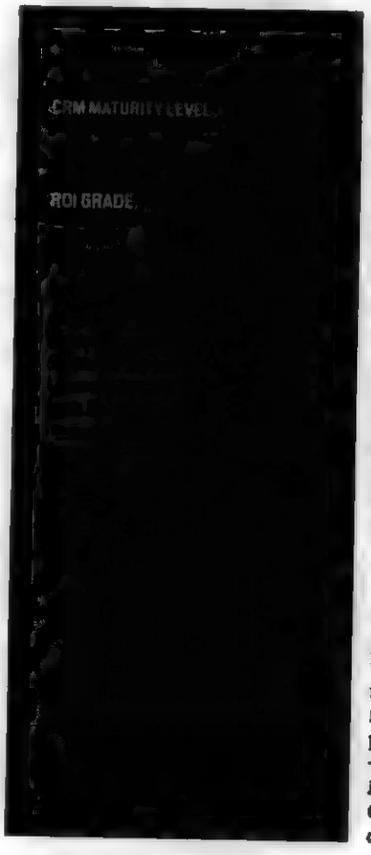
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Preventing a Data Overdose


STEPHEN WEBSTER

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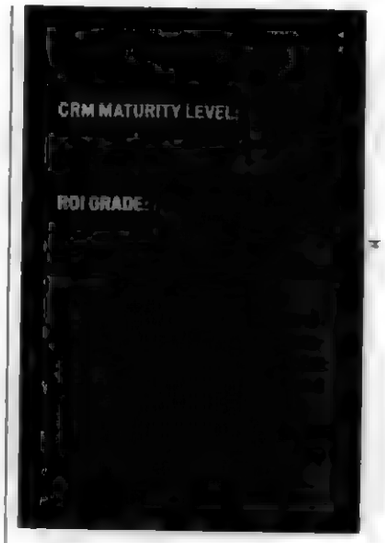
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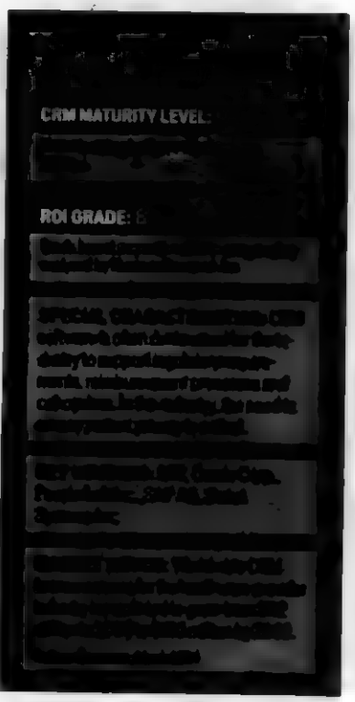
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SNAPSHOTS

CRM: Buy or Build?

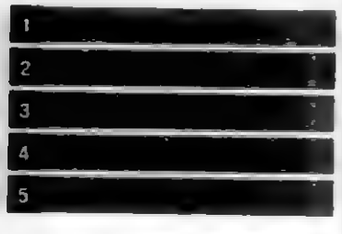
If you've evaluated CRM technology, did you ultimately implement a CRM system?



Base: 960 sales managers who evaluated CRM

CRM Headaches

What are the toughest challenges you've encountered in your CRM initiative?



Base: 501 sales managers who implemented CRM

CRM's Impact

What results have your CRM implementation efforts generated to date?



Base: 501 sales managers who implemented CRM

SOURCE FOR ALL: CSO INSIGHTS, BOULDER, COLO., JANUARY 2004

MARK HALL

Personalize Your Job

Career opportunities in corporate IT are under siege. What with threats from offshore outsourcers, infrastructure service providers, marketing departments. . . . Marketing? You bet. The same men and women who eschew pocket protectors and think client/server is where they itemize a tip to a waiter on an expense account after a customer lunch. Yep, they're after your job, especially if you've built your career on deploying CRM or personalization applications.

It's not that marketing folks are vicious, career-obsessed, money-hungry evildoers (well, OK, some of them are); it's just that an IT team's contribution to the value of how a company reaches customers and then maintains those relationships is diminishing. Technology isn't the problem, so you're not the solution.

Last month, I was chatting with Del Rose, director of global e-commerce at InterContinental Hotels Group, at the company's U.S. headquarters in Atlanta. He was telling me about the personalization technology underpinning Priority Club, the online service for frequent guests of IHG's 3,500 hotels worldwide. He explained that the overall system is complex. It uses a personalization engine from Art Technology Group (ATG) in Cambridge, Mass., and links it to 11 back-end systems to serve customers in six languages.



So, when IHG recently rolled out a service that permits a business traveler's assistant to access a Priority Club member's account to change travel plans, a whole new role had to be created, one with unique authentication rights and privileges. In effect, IHG had to create a personalized profile for a user who never traveled. What's more, the new account had to be flexible enough to suit the preferences of individual customers for how they want their assistants to access and use their private accounts, not for how IHG defines those rights.

Sounds like a daunting, time-consuming IT project, but that didn't turn out to be the case.

"What's most costly and time-consuming is thinking through the problem," Rose observes.

IHG's marketers figured out everything they wanted to do and then went to IT with the idea. They understood the complexity of the systems, but that didn't slow them down for a minute.

"The good news," says Rose, "is that technology is rarely the limiting factor."

Good news for whom? Not you. Not if you're hung up on the details of establishing solid connections between an Oracle database, a Siebel system and ATG's personalization engine. That's been done hundreds, even thousands of times.

Certainly, it will need to be done again and again. But how important is that to your company? Scott Todaro, director of commerce and retail product marketing at ATG, argues that "IT will always be involved in a personalization project because of the back-end systems and will have some control mapping it out, but [the project] will be led by marketing or customer service."

You will no longer tell others what can be done; you will be told what will be done.

"Technology is not the hard part," says Rose. "The hard part is thinking through the requirements process."

In other words, if you're not involved in the requirements process, you may be relegated to becoming a simple order-taker. And that's not much of a career.

Luckily, that's not inevitable. Getting involved in requirements planning is simply a matter of volunteering. Yes, it means more meetings, but it's also a way to see how marketing thinks and to help shape your company's thought process.

Or you can help refine the requirements process. For example, IHG conducts extensive usability studies before implementing significant changes to customer-facing services on Priority Club. The company tests proposed updates to personalization features. IHG's IT team gets involved to ensure that customers have the best experience possible.

That's because this is where IT's hands-on technology skills can shine. You know what a system is capable of and how it can be leveraged to be more intuitive for users so the company can achieve its goals.

Let's face it, when the marketing department can call Salesforce.com and order instant CRM for hundreds, even thousands of users, the days of IT being the center of the automation universe are numbered. But the need for revenue-generating application requirements never ends. For that, you can be as effective as anyone in a suit. And maybe make one or two marketers nervous about their jobs. **40277**

Transparency – the New Engine of Growth and Greatness

Critical reading for IT professionals and managers. Succeed by learning how the Internet and open IT architectures enable companies to become open enterprises – in turn competing and performing better.

Reaction from business leaders

"Don Tapscott and David Ticoll hit the bulls-eye with *The Naked Corporation*. The demand for openness and candor has never been greater. *The Naked Corporation* is a leadership toolkit for turning the relentless demand for transparency from threat to advantage."
— A.G. Lafley, Chairman, President and Chief Executive, Procter & Gamble

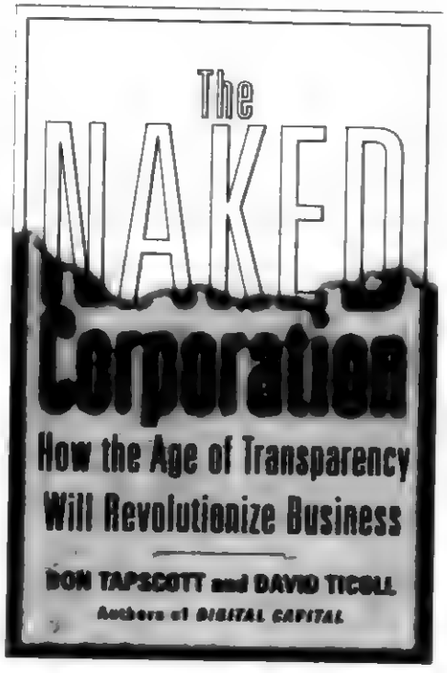
"They've done it again. Tapscott and Ticoll's capacity to combine a fresh and authentic perspective with real world data has once again opened the aperture on our emerging networked economy. A brilliant work."
— Dr. Eric Schmidt, Chairman and CEO, Google, Inc.

"A rare thing these days – a business book with a profound and important new idea. *The Naked Corporation* explains how a new force is changing the corporation and competitiveness. There are relevant, sometimes jarring insights in every chapter. And what a great read."
— Indra Nooyi, President and CFO of PepsiCo, Inc.

"Tapscott and Ticoll are ahead of the wave. The era of transparency and all its implications are about to crash down on corporations everywhere. *The Naked Corporation* is the first survival guide."
— Paul Taaffe, Chief Executive Officer, Hill & Knowlton

"A well-researched and timely book. The authors show how trust – powered by broad corporate transparency – isn't just about ethics, it is about success."
— John Chambers, President and CEO, Cisco Systems

"We need a corporate philosophy for the 21st century. Tapscott and Ticoll's book *The Naked Corporation* provides this – not only the rationale for a transparent corporation but also the principles of leadership in an open world."
— Klaus Schwab, Founder and President, World Economic Forum



"*The Naked Corporation* argues, beautifully and persuasively, that there is no contradiction between good business and the values of honesty and openness. This book belongs in the briefcase of every right-thinking manager in the country."
—Malcolm Gladwell, author of *The Tipping Point*

Media Reaction

"This is a fresh and compelling thesis, backed up by some persuasive evidence."
– BusinessWeek

(This) "big idea coherently and most convincingly, combines an analysis of the recent crisis of corporate America with a celebration of the technological revolution...a wake up call."
– The Economist

"Tapscott and Ticoll produce compelling evidence that transparency is an inevitable social phenomenon and that such transparency is good."
– Fast Company

Join the discussion on harnessing transparency's power with Don Tapscott at www.AgeofTransparency.com

Software Development Engineer wanted to contribute to the functional & tech spec. of a Virtual Plant Demo Model (VPDM) used to design, analyze, test & visualize advanced chemical & power generation plant concepts being developed as part of the Department of Energy (DOE) Vision 21 program. test the VPDM; plan & execute the verification phase which involves the use of the VPDM for mech. base simulations of conventional steam & combined cycle plants; refine, extend & upgrade the design & implementation of an existing Vision 21 Controller framework, employed to integrate disparate software simulation components; investigate, develop & demonstrate the applicability of reduced-order math models for expediting Computational Fluid Dynamics (CFD) simulations in an automated fashion; participate in all phases of product development, incl. reqts gathering, software design, coding, documentation & testing; engineer software used in all aspects of advanced power generation plant concepts, which involves creating & developing the software to be integrated into the VPDM for simulation of different parts, processes & aspects of industrial plants; combine the aforementioned computer programs into a seamless process-modeling software component using COM/DCOM & CORBA middleware technologies. Must have Masters deg in Mech Eng., Comp Sci or related field & 2 yrs exper in CFD research or commercial CFD software development incl. at least 1 yr. exper developing commercial applications using C/C++ programming language & object oriented analysis & design, & proficiency with COM/DCOM & CORBA middleware technologies. (All exper. can be concurrent) Salary $74,340/yr. Send 2 resumes to Job Order #2004-913, P.O. Box 989, Concord, NH 03302-0989

COMPUTER

PricewaterhouseCoopers LLP's Tax practice has opportunities available for experienced professionals in the area of computer systems development and administration. Position requires a Bachelor's degree in CS, MIS or Electronics Eng (master's preferred) & 3-5 yrs related exp. Additional qualifications needed include software development life cycle (SDLC) & project management processes experience; knowledge of quality assurance processes & automation tools & experience in software development for tax planning & financial applications. Job site/location: Washington, DC. Interested candidates please reference job code 4Q7PWZ & fax resume to GTT Recruiting/MS at 813-348-7980. No phone calls please. Employer will only consider applicants authorized to work for any employer in the U.S. Local

Software Engineer sought by information technology company in Denver, CO to work in Piscataway, NJ and other unanticipated job sites in the U.S. As a senior level engage in full life cycle design and development of n-tier software applications. Use Visual C++, COM/DCOM, XML, BizTalk Server and .NET in the development process. Requires bachelor's or foreign equivalent in computer science or related field including business administration, 2 yrs exp designing and developing computer software applications that incorporate n-tier architecture using Visual C++ and COM/DCOM, working knowledge of XML, BizTalk Server and .NET. M-F; 8am-5pm; $85,600/yr. Respond by resume to Employment Programs, PO Box 46847, Denver, CO 80202 and respond to JOB CO0991136

Software Engineers needed. Duties: Implement ERP systems; Provide system analysis, design, development, testing, quality assurance, implementation, integration, maintenance & support of large volume on-line complex integrated business, financial and other commercial application systems in a multi-hardware/multi-software environment using centralized or distributed DB systems using Oracle Relational Database Management Systems (RDBMS) & related software; Design large application systems & databases in Co-operative Development Environment (CDE). Analyze, design & develop applications using CASE (Computer Aided Software Engineering) tools. Research, analyze & evaluate user software requirements; Document, code, test & debug software apps & procedures; Coordinate & install softwares. Travel to set up systems, interact w/ clients & train users at various locations for different short & long term projects. Work w/ Oracle, SQL, PL/SQL, Unix, Shell Script, Oracle Designer, Crystal Reports & Oracle Developer. Req: BS or equiv. in Comp Sci, Engg, Math or related & 5 yrs in the job offered or 5 yrs as a comp prof. Experience must include 3 yrs working w/ Oracle & Unix & 1 yr working w/ Oracle Designer & Oracle Developer. Experience can be simultaneous. Sev Pos. avail. Sal. $80,000/yr, 40 hrs/wk, 8:00AM-5:00PM. Send resume to: PA CareerLink/Job Service Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler PA 16001-5699. Reference Job Order No. 452315.

Software Engineers (mng Mast Degrees or Bach Degree w/5 yrs exp), and Programmer Analysts w/exp needed by IT Co. Exp must include combinations of Java, Custom Portal implementation using J2EE and Hibernate, Business process re-engineering, ATG architect/manager for custom J2EE based personalization websites/portals,EJB, Servlets, JSP, C++ C, COM, DCOM, SAS Programming, Cardiff, Smalltalk, Reporting services, Net, ASP.NET, VB.NET, C#, ADO.NET, Web Services, Remoting, Informix, Sybase, TIBCO, Linux, Netscape Application Server, SAP Basis for SAP R/3 & My SAP Components, BEA Web Logic, Cognos ReportNet on IBM Websphere. We are also looking for Networking Consultants for with exp in global office connectivity,branch connectivity using BGP routing protocol,design,develop,test&implement network solutions.Must have BS and 3+yrs of relevant exp. To apply send resume to to HRD Affiliates, 477 Congress Street, 5th Fl. Portland, ME 04101

SYSTEMS ANALYST in Miami, FL Anal customer req., serv., proc.& probl to automate proc. & impr. comp. syst. Config. & oper sat. modems, router equip. for internet conn. Anal install of new sites for sat. recap. Upgrade syst. & correct err. to maint. syst. after implem. Inst. & maint. new syst.for data/voice traffic ctrl. after., remote ctrl of equip. & data re-routing for alt. backup. Adm. local netwk. (Windows NT). Maint. & upgrade adm. & billing after. for VoIP servs. & equip. according to cx. requirements. Utilize Visual Basic, C++, SQL Server, and UNIX programs. Comput. salary. 40 hrs/wk (M-F 10-6), OT as needed, salaried. Req. Bach. or equiv. based on ed./exp. in Computer System Analysis + 2 yrs exp. in position or in Syst. Devel. or Programming. Fluent in Spanish.Verif. req. Send resume to N. Dolinsky, 16555 NW 13th Ave., Miami, FL 33169

PROG. ANALYST - VISUAL C++/C# APPLNS

Dvlp real time, multi-threaded customized client server applns. with Component Object Model (COM) & Distributed Component Object Model (DCOM) programming in C++ & C# Build customized Maximo screens. Must have 3 yrs of exp. in position offered or as a Software Engineer - Visual C++/C# Applns. Exp. must be in C#, C++, multi-threading, COM, DCOM & Maximo. High mobility preferred. 40 hrs/wk, OT as reqd, 8 am - 5 pm, $66,730/yr. Submit resume to: Armstrong County CareerLink, Attn: CL Program Supervisor, 1270 North Water Street, P.O. Box 759, Kittanning, PA 16201-0759. Please refer to Job Order No. WEB 449268.

IT Professionals needed for IT development and consulting firm headquartered in the Atlanta region but with offices and projects for clients located throughout the U.S. Multiple positions open. The positions open are for client server and web-based developers. Some of the skill sets needed immediately include:

- ETL, data warehousing, Visio, Erwin, Business Objects, TOAD, Brio App.
- J2EE, Javascript, XML, Oracle, Web Services
- Visual Basic, Oracle, PL/SQL, Developer 2000

All positions require a B.S. degree in computer science, math, engineering, or business. Competitive salary is offered. Experience required varies from 1-5 yrs. exp. in skills identified above. If interested, send resume to: adjobs@MDIcareers.com

INTERFACE SOFTWARE DEVELOPER. Develop interfaces, tools, e-mail apps & websites util e-commerce product suites based on HTML, ASP, & JAVA prog lang on UNIX, Netfinity & Windows 2000. Integrate with DB2, Oracle & SQL server & Legacy System apps with emph on SAP R/3, ABAP/4 lang, Peoplesoft & BAAN. Bch. Bus. Science or Eng & 1 yr exp req. Salary comm w/exp. 8AM-5PM. Resume: Tsuputomation Inc. 2300 Glades Rd, #402W, Boca Raton, FL 33431

Systems and Operations Specialist. Strategic Sourcing sought by Novartis Pharmaceuticals Corporation for East Hanover, NJ office. Must possess Master's degree in Business Administration/E-Business including experience in Ariba Buyer, SAP R/3 (Material Management), SAP Business Warehouse, Emptoris (e-Sourcing), JDEdward (Procurement Module). Respond to: Arlene O'Rourke, Human Resources Dept., Requisition #028, One Health Plaza, B105/PL0886, East Hanover, NJ 07936. Novartis is an EOE Employer

Software System Engineer. Analyze & design database system. Design customized software systems required by the company business. Req M.S. in Info. System or Comp. Sci. or Civil Engineering or Related Field & 1 yr. of exp in job or 1 yr exp as a Sr. Software System Engineer. Send Resume: Mark Kang, CNS Motors, Inc., 201 N. Harbor Blvd., Santa Ana, CA 92703. (Jobsite)

Data Recovery Engineer for computer data recovery and engineering company in Norcross, GA. Requires minimum two years experience diagnosing, repairing and recovering damaged data in Windows, Mac and UNIX environments including diagnosing and repairing system areas on hard drives, recovering data from damaged magnetic and optical media, file and mail systems, performing software and hardware reverse engineering and using C++ to develop software for data recovery procedures. The position is located primarily in Norcross, GA with 5% domestic travel. Send resume to David Foster, ActionFront Data Recovery Inc., 2 Sun Court, Suite 375, Norcross, GA 30092

COMPUTERS - SENIOR SYSTEMS ADMINISTRATOR - Financial Management firm seeks Senior Systems Administrator to manage, maintain and upgrade Solaris/Unix-based network's central backup system, including STK L6000 library with STK 9940B tape drives. Duties include: installation/maintenance of the batch system PBS and of Solaris/Linux systems; central LDAP service; internal company webservice; central CUPS-based print service; user support and security. Master's degree in Computer Science or Computer Studies and 2 years exp. in job duties required. Will accept candidates with 2 years experience as Systems Administrator of high speed networks in UNIX environment. Mail resume to RTC, 600 Route 25A, East Setauket, NY 11733. Attn: JR.

PROGRAMMER ANALYSTS req'd for Naperville,IL office. Design & Develop software applications using C, C++, VB, Delphi, ASP, XML, UML, Coolgen, Interwoven, Oracle, PL/SQL, Developer 2000 & Designer 2000. Bachelors or Equivalent req'd in Computers, Engineering, Math or related field of study +2 yrs of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Sapphire Technology Solutions, Inc.,184 Shuman Blvd Ste. 143, Naperville, IL 60563.s

McKesson, the largest supply management & healthcare information technology company seeks qualified professionals for the following positions at our operations in Alpharetta, GA. Sr SW Eng - MS + 1 yr exp, Sr SW Eng Advisor - BS +5, Product Eng - MS + 2. Interested applicants, please forward your resume referencing job code AVON to Dale Lineberry, 5995 Windward Parkway, Alpharetta, GA 30005. No calls. EOE.

Computers-Seeking qualified candidates for senior level IT professional positions including: Programmer Analysts & Network Engineers. Qualified candidates must possess BS or equiv. and/or rel. work exp. Duties include: Work with 3 of the following: JDA-MMS, CL/400, RPG on AS/400, UNIX, MYSQL, Negios & Visio. Fwd resume & references to: Cabelas, Inc., Attn HR, One Cabela Drive, Sidney, NE 69160.

Luceo, Inc. seeks Programmer based out of our Naperville, IL loc. Analyze, review, document user req./specs. Develop Web Apps using Java, JSP, XML, EJB, RDBMS, CORBA, WSAD, Eclipse, JAXB, JMS, SQL & relational databases on windows & linux platforms. Maintain code & fix bugs. Write functional & technical specs. For Web Apps. Evaluate effectiveness & develop new systems. Prepare prog. development documentation. Some travel required. Must have Bachelor Engineering or related + 2 yrs relevent exp. Resume to Luceo, Inc., 1431 Kallien Avenue, Naperville, IL 60540

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Seeking qualified applicants for the following positions in Orlando, FL: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with C, Sybase and Unix Shell Scripting also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Carl Wilhelm, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Corporate Computer Services (CCS) has multiple openings for System/Programmer Analysts, S/W Engineers, both entry & experienced levels (minimum BS). Use skills C/C++, VB, Oracle, etc. We are small but we do not play all. Attractive wage w/ benefits. Apply HR@ccsusa.net. EOE.

ShellSoft seeks IT professionals (programmer/system analysts, software engineers), project engineers using Oracle, SAP, SQL, Java, C/C++. Minimum requirement is MS/BS with IT experience. Some positions require travel. Please send resume to jobs@shellsoftinc.com. EOE.

Sr. Software Consultants (Multi. pos.) Research, analyze, dsgn, dvlp & implmt Intranet, Internet, client server & e-commerce applics w/exp in one of the following skills or in a combo thereof: J2EE, Java, Servlets, Struts, JOBC, PL/SQL, EJB, JSP, UML, Java Beans, XML, XSLT, Java Script, HTML, Tomcat, IBM WebSphere on Windows, Sun Solaris & UNIX operating systms w/database Oracle, MS-SQL Server, DB2, IMS. BS in Comp Sci, Eng, or related field w/3 yrs exp. Applicants must be willing to relocate/travel to various unanticipated locs throughout US. Resume to: Corporate America Business Solutions, Inc., 721 E. 16th St., Ste W-10, Colonial East Bldg, Cheyenne, WY 82001 or email resume to kamal@cabsinc.com

OH Hospital seeks Software Analyst to assist in analyze/design/enhance and provide functional and user support for clinical information systems (Infrastructure/Portal); maintain and support existing apps and systems, high-level building, maintenance, implementation, training, and documenting new apps; conduct overall management of new projects. Oracle Database Administration; performs on-going Database maintenance and administration; UNIX administration. Min req Bachelor's in Computer Information Science and 3 mon in-job/job related exp, including exp w/ Oracle PL/SQL, Oracle Forms, Java, Javascript, HTML, VB-Script, SQL, C/C++, Visual Basic, ASP, JSP, IBM AIX, Windows NT, and SQL*Loader. Resumes (no calls) to Melissa A. Clum, 401 North Ewing St., Lancaster, OH 43130. EOE

BCC USA Inc - South Portland, ME needs experienced Network Engineers having a Bachelor's degree with minimum two years of progressive work experience in Enterprise Data center WAN Design/Implementation experience With High end Cisco Router/Layer 3 Switches, VOATM with Nortel Passport 7480, RSTA, BGP, OSPF, OC-48, 6513, MSFC, GPRS network design with SGSN and GGSN, MMS, SMS, ALTEON load balancer/Firewall, VOIP ,Cisco Call Manager, Unity 4.0, IPSEC,GRE and other Security technologies. M-F, 40 hrs/week. Please mail you resume to BCC USA Inc., 650 Main Street, Suite # 201, South Portland ME 04106.

Stamford Technology Partners, Inc. is an IT consulting company with its clients across the USA. We seek a PeopleSoft EPM Functional Consultant. Duties include reporting tool selection; identifying legacy system reporting & architecture; conceptualizing of hardware configurations for PeopleSoft reporting tools; creating conceptual design docs; assisting staff on docs; identifying gaps in source system, present EPM module to mgmt and team members for review and implantation. Job is located in Tallassee, Florida or unanticipated locations throughout the USA. If interested, please send resume to: STPI, 289 Boston Tpke #9, Shrewsbury, MA 01545 e-mail: marcella@stpinow.com

Programmer Analysts to analyze, design & maintain web apps using Java, J2EE, XML, C, C++, SAP, ABAP, Servlets, EJB, JSP, Weblogic, etc under Windows, Unix; design and customize user interfaces, develop reports, work with JDK to write Classes and Methods; document, code, troubleshoot and test projects. Require: B.S or foreign equiv in CS/Engg (any branch) with 2 yrs exp in IT. Competitive salary. F/T. Travel involved. Apply with resume to HR, Opalsoft, Inc., 3150 Almaden Expwy Ste 265, San Jose, CA 95118.

Computer Professionals
(Multiple Openings)

Programmer Analyst/Software Engineer/Systems Analyst/Database Administrator

Must have Bachelors degree or Equivalent experience in some of the following skills: C/C++, Java, Microsoft Technologies (Visual Basic, ASP, net), Data Ware Housing Tools (Abinitio, Business Objects, Micro Strategy), ERP (SAP, Oracle Apps), Mainframe (Cobol, CICS, VSAM), AS400; Databases (SQL Server / Oracle / DB2), QA (Win Runner, Load Runner, Silk, Quickpro, Manual Testing), Windows (95/98/NT/ 2000/XP), UNIX (Sun Solaris, HP, AIX), Linux.

Mail your resumes to jobs@sigmausa.com

Or

Human Resource Director, Sigma Associates, Inc 480 Congress St1st floor, Suite # 609 Portland, ME 04101

BCC USA Inc - South Portland, ME needs experienced Programmer Analysts having a Bachelor's degree with minimum two years of progressive work experience in Visual Basic 6.0, JavaScript, ASP, ActiveX, Perl, SQL Server DTS, Trans SQL, Oracle, PL/SQL, Pro*C, Java, EJB, Windows, Unix, Unix shell script and MS DOS Batch files. Competitive salary and benefits. M-F, 40 hrs/week. Please mail you resume to BCC USA Inc., 650 Main Street, Suite # 201, South Portland ME 04106.

Systems Analysts to analyze, design, implement business processes using SAP, Java, VB, C, C++, Oracle, PL/SQL, etc under Windows/UNIX OS, perform reqs gathering and gap analysis; prepare functional, technical specifications; develop training material for end users and coordinate system/user acceptance testing. Require BS or foreign equiv in CS/Engg (any branch) with 2 yrs exp in above skills, or MS or foreign equiv in one of the above fields. Competitive salary, fit position. Travel involved. Resumes to HR, Smartsoft International, Inc., 3985 Johns Creek Court, Suwanee, GA 30024.

Programmer or system analysts or software engineers wanted by RS Systems Company to develop IT applications. Ideal applicants should have BS/MS with experience. Competitive wage. Travel maybe required. Send resume with wage request to rsinc@rssystems.com. EOE

ObjectWin is looking for Programmer/System Analyst or other IT professionals. Applicants must have BS/MS or equivalent. Skills in ASP.Net, B2B, VB, Java, HTML, VB.Net, XSL, CSS, MS CMS, SSL & MS certified preferred. Competitive wage. Apply at sivarao@objectwin.com. EOE. No calls.

Software System Engineer. Analyze & design database system. Design customized software systems required by the company business. Req M.S. in Info. System or Comp. Sci. or Civil Engineering or Related Field & 1 yr. of exp in job or 1 yr exp as a Sr. Software System Engineer. Send Resume: Mark Kang, CNS Motors, Inc., 201 N. Harbor Blvd., Santa Ana, CA 92703. (Jobsite)

IT PROFESSIONALS

Senior Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.) Serve on cross-functional business enterprise solution system implementation projects from conception to final delivery in the area of strategy and operations as well supply chain optimization and business process transformation assignments in the Healthcare Energy and Manufacturing industries. Synthesize overall implementation strategies and coordinate implementation of JDE Financial, Ariba Buyer/Catalog Management, and Peoplesoft HR business enterprise solution systems. Specific responsibilities include implementing respective system enhancements and modules to meet specific client needs, assisting in system problem solving and report writing, assisting in preparation of training courses/material and providing system training throughout the company. Utilize functional JDE Financial, Ariba Buyer/Catalog Management and Peoplesoft HR expertise to present operations and business process improvement opportunities. Assess complex business and technology risks, clarify internal control improvements to mitigate risks, and participate in the reengineering of client's business processes utilizing MS Visio. Responsible for detailed benefits and cost analysis and complex financial modeling in MS Excel to support strategic and process improvements recommendations. Perform the role of a moderator between technology and business teams to ensure system rollouts meet client expectations. Coordinate overall implementation efforts by leveraging MS Project planning tools and track financial metrics in MS Access.

The wage offered is $79 000 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree in Business, Information Systems, Finance, Computer Science or Engineering (any) + 2 years of experience in the job offered or 2 years of experience as a Business Analyst, Associate Consultant, Consultant or Senior Consultant. Related experience must include at least 2 years of Ariba Buyer/Catalog Management, Peoplesoft Human Resource (HR) and J.D. Edwards (JDE) Financial experience.

Please send your resume, referencing Job Order Number WEB4528330 to the PA CareerLink, FLC Unit, 235 West Chelten Avenue, Philadelphia, PA 19144. EOE.

IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations throughout the U.S.) Under the supervision of Senior Consultants, Managers, and Senior Managers, assist in SAP integrated enterprise software analysis, design & implementation, primarily focusing in the mySAP.com Sales and Distribution (SD) module, and Customer Relationship Module (CRM) module. Will contribute in the design and implementation in mySAP.com R/3 Materials Management (MM) module. Will build awareness of technology enablers that apply to selected business processes. Document current information technology projects and production support activities. Document existing processes, organization structures and architectures. Develop test scripts and coordinate test data creation utilizing proprietary testing tool and methodology. Perform development and execute cutover plans for simple client process. Develop elements of new business processes and application design within a sub-module. Identifies high-level gaps in primary functional areas. Will create designs for technical requirements such as gap analyses, infrastructure, interfaces, reports, enhancements and/or conversions. Will also develop programs from complex design specifications. Contribute to the development and the enhancement of solutions. Under guidance and direction, will prepare deliverables on engagements within a variety of industries including Media and Entertainment and Consumer Business industries.

Salary is $57,040 per year. The work schedule is Mon-Fri, 9:00 am to 5:00 pm. The position requires Bachelor's degree in Computer Science, Math, Business Administration, Engineering (Any type), Mgmt Info Sys plus 2 years of experience in the job offered or 2 years of experience as a Systems Analyst or Consultant. Related experience must include a minimum of 1 year experience with mySAP.com: Sales and Distribution (SD), Customer Relationship (CRM), Materials Management (MM), Master Product Master and 1 year of experience in the following industries: Consumer Business and Media/Entertainment.

Please send your resume, referencing Job Order Number WEB4528840 to the PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

Analyst/Programmer. Research, design, and develop software applications and tools in support of the Kelley Direct Online Programs. Function as part of a team to build solutions for distance learning server side application and collaboration application. Design software modules within a n-tier architecture. Specific responsibilities include software architecture design, software requirement analyses, object oriented design, database design, and programming. B.S. in Computer Science and 2 years of experience in the job offered or 2 years of experience in database design/ programming is required. Experience must include object oriented programming language, database, message system, across platform component integration, and design pattern. Must have current authorization to be permanently employed in the U.S. 40 hrs/week (8am-5pm). Send resume to Richard Maggiulli, Indiana University-Purdue University Indianapolis, Kelley School of Business, Graduate & Executive Education Center, 1275 E. Tenth St., Ste 3070, Bloomington, IN 47403.

Technical Director for computer printer technology company located in Chantilly, Virginia. Minimum four years experience directing & managing sales engineers and technical staff in developing, servicing and selling computer printer technologies & products including researching and identifying new requirements and specifications for products, defining electronic, software and mechanical design implementation procedures, analyzing customer specifications and preparing functional solutions, overseeing sales engineering team in developing new products & technologies, overseeing new product design reviews, training sales engineers & technical staff in applications, integration, LAN administration and peripheral repair and serving as technical liaison with subsidiaries & customers to ensure common standards. The position is located in Chantilly, Virginia with 30% domestic/international travel. Send resume to Human Resources, TallyGenicom, LP, 1 Solutions Way, Waynesboro, Virginia 22980.



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COMPUTER SYSTEMS MANAGER

Description: A large organization seeks a Computer Systems Manager. Will manage staff performing functions, relative to a mainframe customer information system and browser based applications, including building and debugging JCL and managing FTP interfaces in production and development environments; diagnosing and resolving operating systems factors affecting batch and on-line system performance and throughput; monitoring DASD utilization and project MIPs and DASD needs; coordinating the installation, testing and maintenance of third party software; and administering RACF security. In addition, will create work plans, assign staff resources to assignments, monitor project status and implement actions to ensure that products are delivered on schedule.

Qualification: 1. A master's degree in computer science from an accredited college with 3 years of full-time professional experience using mainframe, mini-or micro-computer technology in computer applications programming, systems programming, computer systems development, data telecommunications, data base administration, or planning of data processing, at least 18 months of this experience must have been in an executive, administrative, managerial or a supervisory capacity; 2. A baccalaureate degree and four years of professional experience as described in "1" above; or 3. A high school diploma or its equivalent and six years of experience as described in "1", or 4. A combination of education and experience, however all candidates must possess at least three years of experience including the 18 months of executive, managerial, administrative or supervisory experience. Salary is commensurate with experience.

All interested candidates must send 3 copies of their resume and salary history to: **Recruitment Coordinator, P.O. Box 32640, Brooklyn, NY 11202-2640.**

Organization is an Equal Opportunity Employer

Software Eng., Applis. Job location. Indianapolis, IN. Duties: Enhance Enterprise Progs & Product Data Mgmt for higher efficiency & integration. Develop, customize & perform tech. analysis of Oracle appls. Design & develop customized reports for mfg. & financial modules incl. inventory, order, purchase, supply, invoice, A/P & trial balance funcs. using Oracle pkgs, triggers, OI, & Unix Shell Scripts. Develop tech. design docs & On-Line docs for Oracle customizations. Requires: B.S. (or foreign equiv.) in Comp. Sci., Eng. or related field & 4 yrs. exp. in the job offered or 4 yrs. exp. as a Software Eng., Analyst/Prog. or Analyst. Concurrent exp. must incl: 4 yrs. exp. developing, customizing & analyzing Oracle appls. Mail resume (no calls) to: Tom Lehman, CTG, Inc., 5875 Castle Creek Pkwy., Indianapolis, IN 46250-4328.

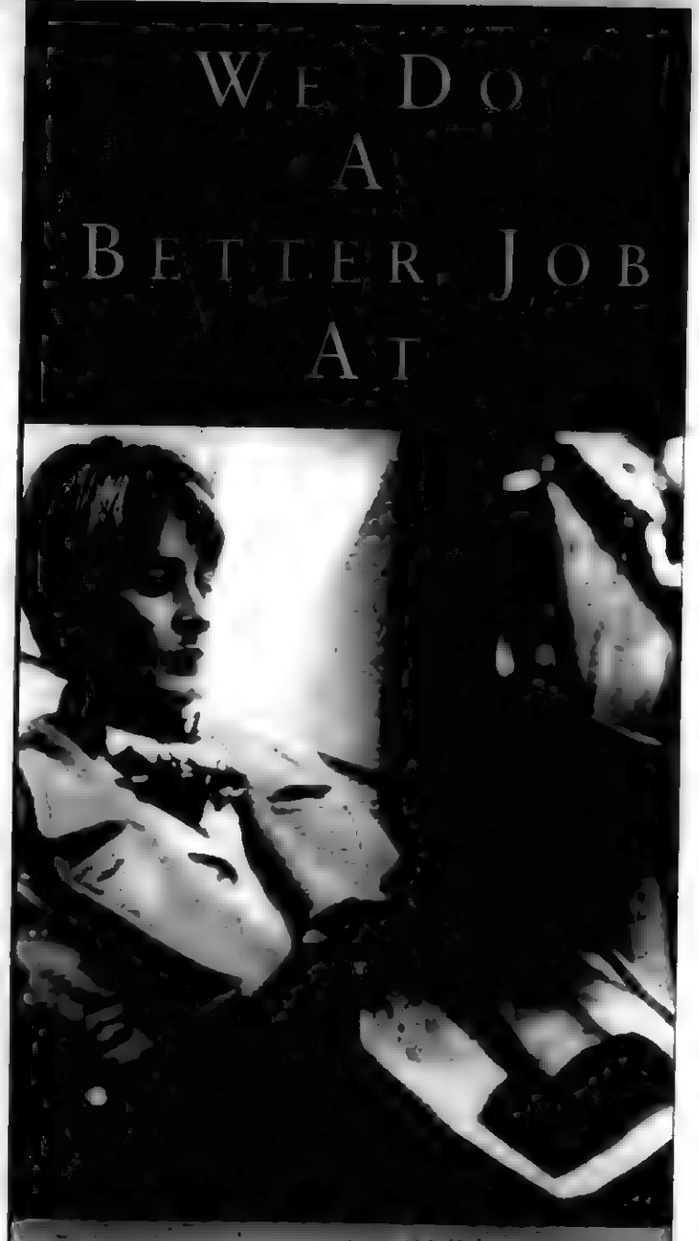
Database Administrator, Ft. Lauderdale, FL: Define & administer database organizations, standards & procedures using RDB, VMS, SQL Server, Java, J2EE, WebSphere, XML, Visual Basic, Cold Fusion, DHTML, & Rational. Must have Bachelor's Degree in Computer Science & 3 yrs. exp. in job offered or with all phases of software development life cycle. Mail resume to ref #220, HR-Program, Sphenon Corporation, 2050 Spectrum Blvd., Ft. Lauderdale, FL 33309.

Pegasus Consulting Group, Inc. a software consulting company in NJ has openings for Computer Professionals including Programmer/Systems Analysts, Software Engineers/Consultants, Program/Project Managers in various levels. Duties will include but not be limited to developing/designing s/w systems using various h/w, operating system tools, software packages, developing web technology, client/server, ERP CRM applications using various software applications and systems. Relevant degree required or equiv. of degree by way of exp. also considered. Exp. candidates preferred. Send resumes to Attn: Dan Pacelli, Pegasus Consulting Group, Inc. 100 Matawan Road Suite 410 Matawan, NJ 07747.

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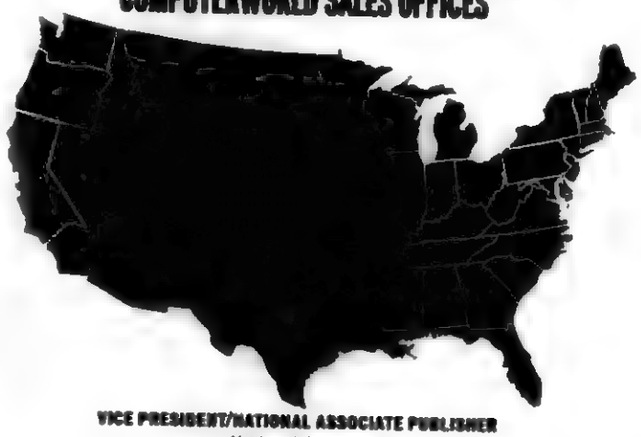
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Servers

"It was not a painful process," Glazier said, noting that "there's a ton of low-hanging fruit" in potential server cost savings. But there were some downsides, he added. The biggest was that many software products lack the ability to use all the application processes on servers simultaneously. Glazier also said tools for monitoring servers that run multiple applications "are still not sophisticated enough . . . and need to grow up."

Kelly Quinn, an IDC analyst who spoke at the event, said that a significant majority of Windows, Unix and Linux servers still support only one application and that their utilization rates can be far below those of traditional mainframes. Quinn and several other users and analysts said it isn't unusual for servers to be running at less than 20% of their processing capacity.



Says Air Force users had to be convinced to trade control for greater systems efficiency.

In one case study presented at the conference, Dennis Callahan, CIO at The Guardian Life Insurance Company of America in New York, said that the insurer's server utilization rate has shot up from just 4% in some cases to an average of nearly 50% over the past 18 months.

The improvement was accomplished by stacking as many as four or five applications on each server as new systems came online, Bob Mathers, second vice president of IT operations at Guardian, said in an interview after Callahan's presentation.

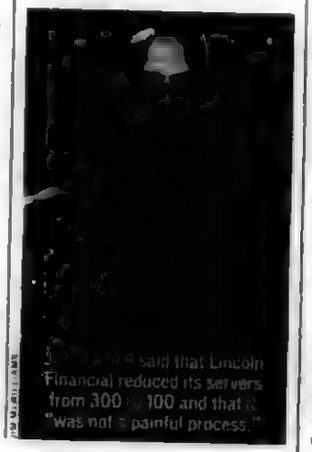
Guardian has installed new blade servers from IBM, and it recently signed a $1 million contract to buy 12 of the vendor's eServer p5 570 Unix systems to support further consolidation moves. Thus far, the insurer has reduced the total number of its servers from 1,100 to 900, Mathers said. He estimated that Guardian is saving "millions of dollars a year" in IT costs, although he has yet to perform a formal financial analysis.

Seeking Acceptance

Mathers said it wasn't difficult to manage the cultural shift involved in having several workgroups share a single server. But other attendees warned that user acceptance can be a significant problem because workgroups and other business units often want to keep their own application servers.

Brig. Gen. Brad Butler, deputy CIO of the U.S. Air Force, said that some "social engineering" has taken place there over the past three years to convince users to agree to turn off their servers in the spirit of greater IT efficiency.

Butler said 4,000 systems were eliminated as part of a consolidation project, resulting in annual maintenance savings of about $100 million. Air Force IT managers now find that despite some initial resistance, users realize "they didn't give up control as much as they gained efficiency," he added.



Said that Lincoln Financial reduced its servers from 300 to 100 and that it "was not a painful process."

Greg Jackson, CIO for the state of Ohio, said his IT managers are consolidating 469 e-mail servers that are currently supported by 44 systems administrators. The initiative is aimed partly at saving on the cost of paying the administrators, Jackson said.

He added that the state has begun a program to retrain the e-mail systems administrators and other IT workers who have been displaced from their jobs so they can work in new areas, such as application development.

The University of Pennsylvania in Philadelphia is testing four Linux-based servers for possible use in consolidating systems in its data center, said Raymond Davis, the school's executive director of systems engineering and operations. "The cost savings could be terrific for us," Davis said.

Henry Holcombe, senior vice president and chief technology officer at New York-based hosting services provider Globix Corp., said server consolidation can spawn other problems, such as increases in power and cooling requirements inside data centers.

"Everybody wants to go to blade servers to get more functions in less space, but I've found they require two times as much power" as conventional servers, Holcombe said, adding that blades also can generate more heat than expected. **49440**

Vendors Push SMASH Protocol for Managing Servers

PHILADELPHIA

Data center managers got their first real taste of an emerging server management protocol at Enterprise Management World. And judging by their initial impressions, Systems Management Architecture for Server Hardware was a smash hit.

SMASH is a proposed command-line protocol that is built on top of the Distributed Management Task Force's Common Information Model and backed by the DMTF and major server vendors. A draft version of the protocol was announced last December and supports a variety of functions, including the use of a common language for technologies and processes related to server management operations.

For example, some server makers refer to the chips inside their hardware as CPUs, while others call them processors. SMASH can be used to develop a set of agreed-upon terms, according to DMTF officials.

It can also be used to set up a common interface for managing servers in branch offices and other remote locations where IT personnel may not be present.

In addition, SMASH enables IT managers to remotely power on or shut down servers that are connected to their corporate networks.

> **"[SMASH] is a great thing for distributed computing."**
>
> JOHN HUMPHREYS, ENTERPRISE COMPUTING ANALYST, IDC

James Nawa, manager of IT infrastructure at Carpenter Technology Corp. in Reading, Pa., said products based on the protocol would be a welcome addition at his company's 30 global locations. Sometimes the only person available to turn servers on or off in some of the facilities is a secretary or a sales manager. "We have a need for it," Nawa said, referring to SMASH.

Management Functions

Systems administrators will be able to use SMASH to write scripts that provide basic management functions across servers from different vendors, said John Humphreys, an enterprise computing analyst at IDC. "It's a great thing for distributed computing," he said.

Hewlett-Packard Co., Intel Corp. and Dell Inc. all demonstrated working versions of the protocol for conference attendees. Lee Johns, director of software for the global business unit at HP, predicted a "rapid adoption" by vendors.

Winston Bumpus, president of the Portland, Ore.-based DMTF, said vendors are "firmly behind" SMASH. The protocol should become especially useful to IT managers as they implement emerging technologies such as grid and utility computing systems, he added.

Vendors wouldn't comment on when SMASH-based management tools are likely to hit the market. But a DMTF spokeswoman said the protocol is expected to be ratified within a year.

– Matt Hamblen

MORE ONLINE

In the IT trenches: Conference attendees share their data center war stories.
QuickLink 49439

From our archives: Read about the heat problems caused by some blade servers.
QuickLink 41586
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RFID Adventure

HERE'S THE STATE OF THE ART for RFID tagging: "At a case-by-case basis, as I go down through our process, I validate that case. A tag is on it. I encode the tag and then I immediately validate that, and I capture those statistics. If it doesn't read, I can pull that out and put another tag on until we get it read."

That's what Ray Hagedorn, an IT executive at Sara Lee Foods, told *Computerworld* reporter Carol Sliwa recently [QuickLink 49245]. And it's not just that the tags are unreliable, Hagedorn says. The middleware is half-baked, the consultants aren't much help, and a real return on investment is nowhere in sight.

See? It's not just you. *Everybody's* RFID project is like that.

The technology really *doesn't* work the way it should. You really *can't* point an RFID reader at a pallet and be sure of getting a response from the tags on each carton. All those dreams of RFID visionaries may come true someday, but not in time for your project. RFID just doesn't work yet. This stuff really isn't ready.

So if you're facing an RFID mandate from Wal-Mart or the Defense Department or some other big customer, that means you have to make a choice.

You can look at your RFID project either as a death march — or as an adventure.

This is no ordinary IT project. One in five RFID tags dies. The signals are blocked by metal in products, by shiny packaging, even by thick liquids. If you expect RFID to work as advertised, your project will be a long, horrible waking nightmare. And it will fail. And everyone connected with it will want to kill you for putting them through it.

But you've still got to meet that mandate. What can you do? You can forget about this as a conventional IT project and treat it like what it is: an expedition into the unknown.

So don't pick a team of perfectionists. Pick spit-and-bailing-wire tinkerers and shade-tree mechanics. Warn them in advance that the hardware is unreliable and that the problems are intermittent. The ones for whom failure isn't an option will run away screaming.

The ones who are left will see it as a challenge. Failure will be their daily companion — right up until it turns into success.



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

You know these people. For them, this won't be an endless nightmare. It'll be a challenge.

The tags don't work reliably? These people will test 'em as they go and keep testing until they can sniff out the bad ones early. They'll add checksums and redundant data to the tags' contents and put the smarts to verify and do error correction into the software. It may not be a pretty solution, but they'll get it working.

The signals can't make it all the way through a palletload of cartons? They'll work around it, maybe by scanning each carton as it's added to the pallet, then linking all that RFID information in the database. That way, once that pallet is wrapped and strapped, if they can successfully scan even one tag, they can identify everything on the skid.

The middleware isn't up to the job? The database is wrong for the task? Here's where you'll probably have to rein in their urge to kludge. Eventually RFID technology *will* work, and when that happens, you'll need a database that scales up and middleware that hasn't been hacked to a fare-thee-well.

But for everything else, give your RFID people plenty of room to experiment. Their brainstorming ideas may sound off-the-wall. But let them try. If they discover some oddball trick that works, you've got a competitive advantage. If they don't, well, you already know that a conventional approach to RFID is doomed to grim failure.

You don't need another death march, not now. Don't let your RFID project turn into one.

Make it an adventure. 49441

What a Concept!

Users at this hospital each get a directory on a file server, mapped to the I: drive. When this IT pilot fish notices during a routine audit that one user's I: drive has gotten very big, he investigates and finds it contains several hundred megabytes of games – a major no-no. User's explanation? "I just got this computer a few months ago, and the games were on it when I got it!" Sighs fish, "She's still having trouble grasping the concept of a network drive."

SHARK TANK

Aha!

This European organization installs a U.S. vendor's software suite, using the vendor's local rep as its integrator. But one component seems to be missing. "The local rep can't remember whether he installed it," says a pilot fish on the scene. "After three weeks, the rep finally confirms that the program seems to be installed but is not working properly." Why not? asks the project manager. The rep replies, "As this was not a requirement, we did not test it."

Slow but Happy

It's the 1970s, and this pilot fish writes the first online application for his company's mainframe. It's blazingly fast, but boss tells fish, "Put a loop in that does nothing 10,000 times before displaying the response screen." Why slow it down? fish asks. "Because as more applications go online, response time will get longer and longer, and the users will get more and more irritated," his boss tells him. "This way, we can just decrease the number of times the empty loop executes, keep response time constant and keep the users happy."

The Hard Way

This new Web application tests out fine until existing customer data is imported without any validation. Then errors show up everywhere, says programmer pilot fish. But how are they dealt with? "Whenever an entry blew up, a bug report was logged," grumbles fish. "This made it easy to track each 'bug' and fix it – by fixing the data on a record-by-record basis!"

What's in A Name?

After the IT department migrates this designer pilot fish's projects to a new server, one project vanishes. "The folder named 'Core' was gone," fish says, "and IT said they had no backups of this folder and don't believe it ever existed." Turns out "core" is the name automatically given to large files called core dumps used for troubleshooting, and the backup program filters out anything with that name. "Poof goes the project," sighs fish. "Now we're trying to recover data from anywhere we can find it."

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FRANK HAYES ■ FRANKLY SPEAKING

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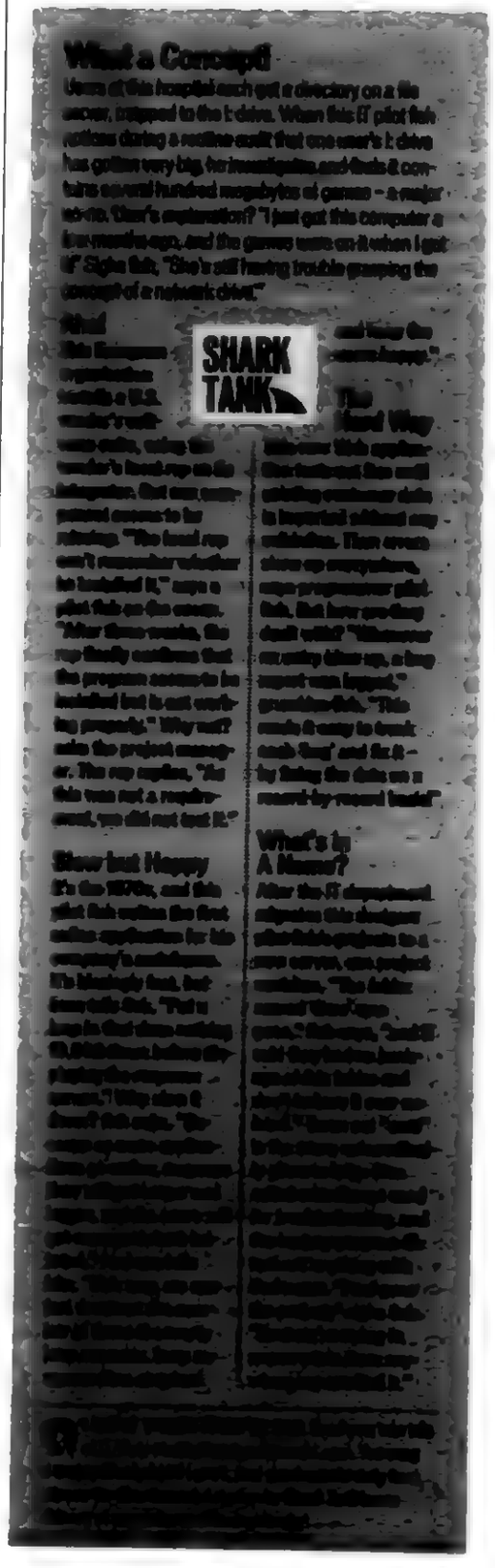
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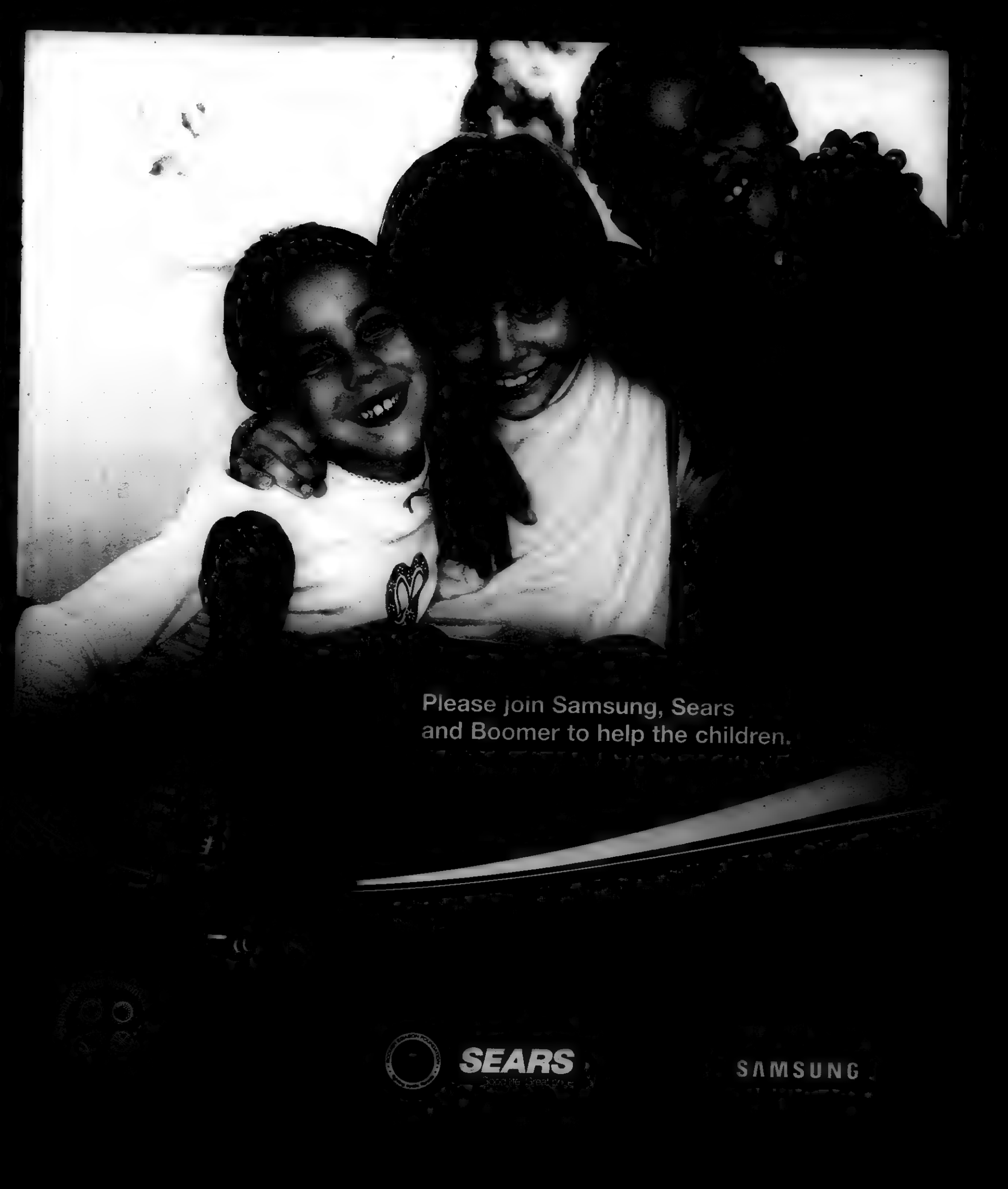
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Make it an adventure. 49441




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2004

Sun calls out Linux vendors and looks to run with the bulls — and the bears — on Wall Street.
HP CIO Gilles Bouchard discusses the causes of the company's flawed SAP system migration.

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Woolworths Deploys .Net App in J2EE

Uses Mainsoft tool to mask lack of Java skills

BY CAROL SLIWA

Before the start of the upcoming holiday season, Woolworths Holdings Ltd. wanted to improve the capabilities of the Java-based data-monitoring and alerting system it had hired an outside contractor to build. But the Cape Town-based retailer had a problem.

The company didn't want to spend more money contracting Java developers, who are hard to find and expensive to hire in South Africa, according to Marius Roets, system manager of integration solutions at Woolworths. And the retailer's own developers were skilled in Microsoft Corp.'s development tools, not Java 2 Enterprise Edition technology.

So Roets turned to a new tool from Mainsoft Corp. that promised to allow the developers to work in their familiar Visual Studio .Net environment yet deploy the application on Woolworths' J2EE application and enterprise portal server software from Sybase Inc.

Woolworths, page 16

E-biz Sites Hit With Targeted Attacks, Extortion Threats

Hackers are shifting strategy, taking aim at specific companies

BY JAIKUMAR VIJAYAN

A distributed denial-of-service attack that disrupted Web-based systems at credit card payment processing firm Authorize.Net Corp. last week is indicative of a sharp increase in the number of cyberattacks being targeted at specific companies and driven by profit motives.

The DDoS attack against Authorize.Net coincided with the release of a report by IT security software vendor Symantec Corp., which said its analysis of network attacks in the first six months of this year shows that malicious hackers appear to be moving away from mass attacks to more focused ones aimed at e-commerce sites.

Other security vendors and analysts painted a similar picture.

"We're seeing a big escalation of attacks targeted at e-commerce companies," said

Attacks, page 61

MORE INSIDE

U.K. police arrest a 26-year-old man in connection with the theft of source code from Cisco Systems.

CA Tries to Avoid Fallout After Kumar's Indictment

Users remain in company's camp as it signs deal with DOJ; former CEO pleads not guilty

BY MATT HAMBLEN



Last week's federal grand jury indictment of former Computer Associates International Inc. CEO Sanjay Kumar for allegedly orchestrating widespread accounting fraud at CA left some users concerned but undeterred about continuing to use the company's software.

"Obviously, we'll watch what happens, but I don't feel the indictments and related news will have any effect on our use of CA software or our confidence about the vendor," said Alain Paquette, manager of distributed servers at Bombardier Aerospace in Dorval, Quebec. The aerospace division of Bombardier Inc. uses a variety of desktop, network and server management tools from CA, as well as its help desk software.

Kumar's indictment was announced on the same day that CA agreed to pay $225 million to reimburse shareholders for the alleged fraud and to work with the government to help recoup compensation from accused former executives. In return, the U.S. Department of Justice said it won't prosecute CA as long as the company abides by the terms of the cooperation

Kumar, page 16



E*Trade's chief technology and administrative officer says a Linux/Intel server is so cheap that "when it fails, we throw it away."

In a fierce battle with other online stock brokerages, E*Trade guarantees to execute trades in two seconds or less. Gary H. Anthes reports on the open-source systems, and the obsession with speed, that make it possible. **Page 27**

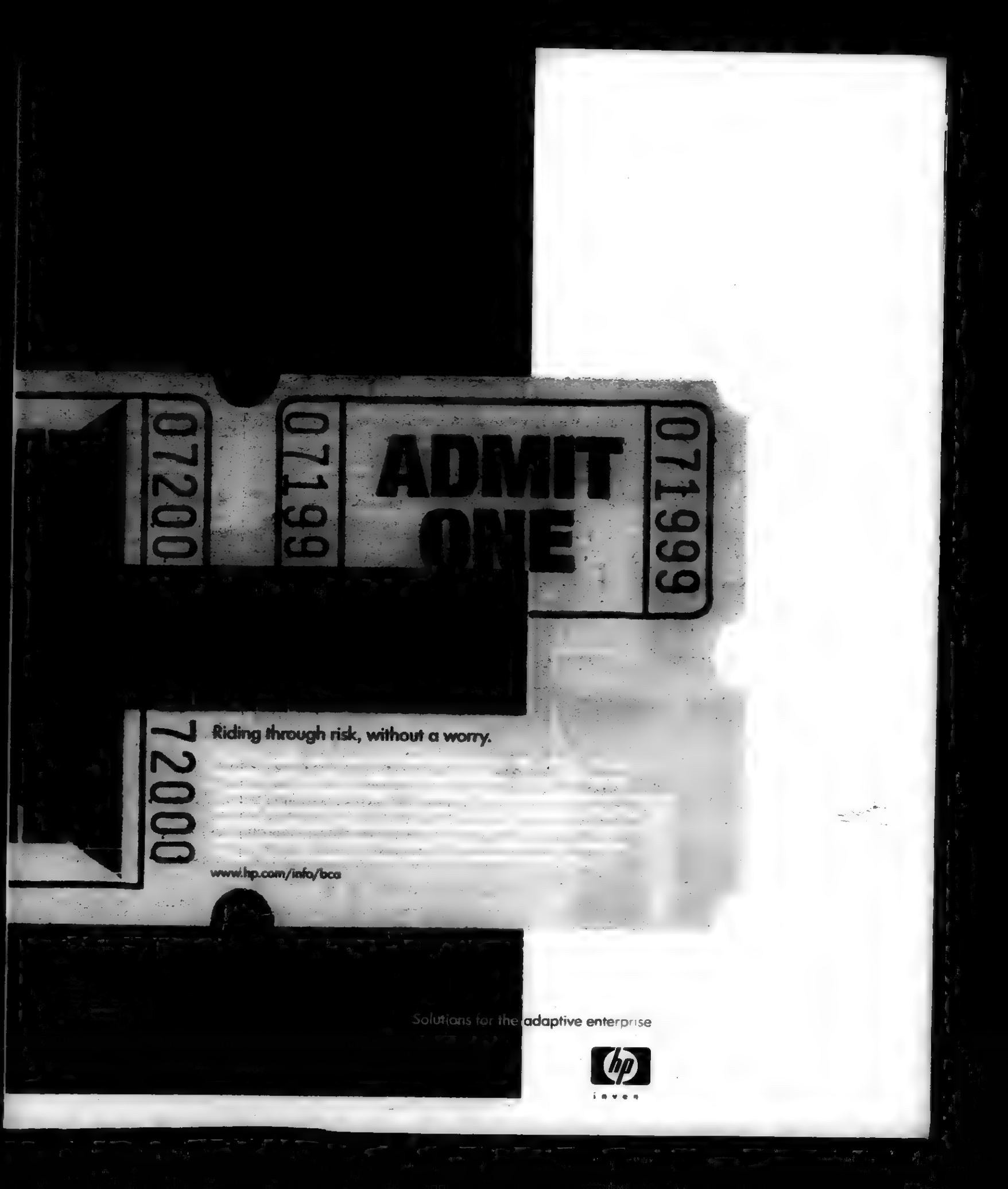
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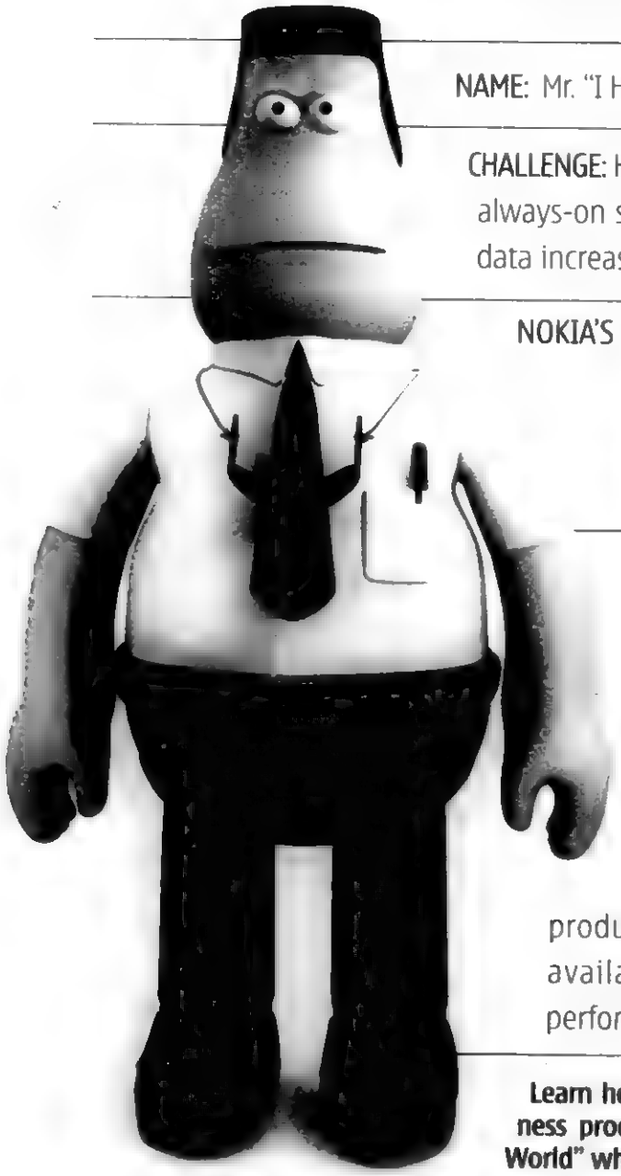
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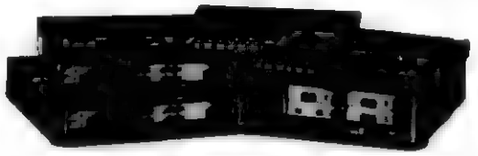
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In the Management section: A complex web of special IT systems helps the National Interagency Fire Center position front-line crews and resources before a forest fire breaks out. **Page 41**

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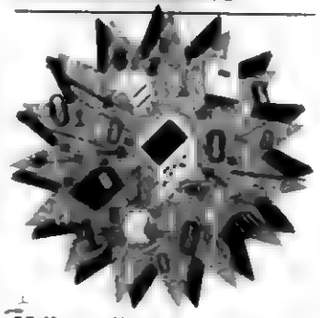
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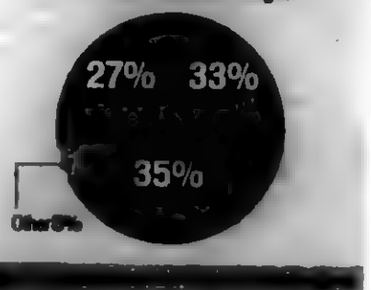
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For IT managers, the greatest concern about outsourcing is:



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Infosecurity Career Basics

SECURITY: Aspiring information security experts first need mainstream experience and credibility if they want to be effective in their field, writes columnist Peter H. Gregory. QuickLink 48298

New Approach to Applications

DEVELOPMENT: Consultant Jonathan Sapir sees a shift in the way we build software, to an emphasis on meeting the demands of a changing, dynamic business environment. QuickLink 49606

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AT DEADLINE

Fiorina Dismisses IT Spending Jump

Speaking at an investment conference in San Francisco, Hewlett-Packard Co. CEO Carly Fiorina dismissed the idea that corporate budget surpluses will drive an increase in IT spending in this year's fourth quarter. Fiorina added that IT buyers have become more discriminating about purchasing and now realize that spending on new technology can sometimes be "a bad thing."

Oracle Extends PeopleSoft Offer

Oracle Corp. again extended its $7.7 billion hostile takeover bid for PeopleSoft Inc., saying that shareholders now have until Oct. 8 to accept its purchase offer. The all-cash offer was due to expire last Friday. Oracle said that about 6.5% of PeopleSoft's shares had been tendered as of Friday, down from 7.2% two weeks earlier, when a federal judge ruled that Oracle could proceed with its bid. (See related story at right.)

Bankruptcy Nears For Commerce One

Commerce One Inc. laid off 56 of its remaining 92 workers and said it expects to file for bankruptcy protection. The San Francisco-based company added that it was down to its last $300,000 in operating funds and that attempts to find new financing have been unsuccessful. Commerce One was one of the business-to-business software vendors that were waylaid by the dot-com collapse.

Short Takes

SAS INSTITUTE INC. today plans to announce an automated forecasting tool built on top of its SAS 9 business intelligence software. . . . The LOS ALAMOS NATIONAL LABORATORY fired four workers for their roles in recent security incidents, including the disappearance of two computer disks.

PeopleSoft Seeks Sales Boost Via Upgrade Deals

Offers apps users free IT services, $100,000 credits

BY MARC L. SONGINI
SAN FRANCISCO

PEOPLESOFT INC. is offering users of its applications a series of sweeteners to entice them to upgrade their systems, a strategy designed to help the embattled vendor close more sales and boost its ability to fight off Oracle Corp.'s takeover bid.

Dubbed PeopleSoft Now, the upgrade initiative was one of the new offerings that PeopleSoft announced at its Connect 2004 user conference here last week.

The company also detailed an expanded sales and development partnership with IBM. Under that agreement PeopleSoft will optimize its applications for use with IBM's WebSphere middleware and development tools and resell the IBM technology.

The Now program, offered through PeopleSoft's Global Services arm, will provide users with free upgrade work, application management services and access to online training. PeopleSoft also said it will give customers $100,000 credits on some new software purchases. The program applies to all three of its business application product lines and is due to expire Dec. 31.

David Scott, vice president of marketing and strategy at PeopleSoft Global Services, said Now is designed to help the company save money by reducing the need to maintain older versions of its applications. PeopleSoft also hopes to sell add-ons to users who decide to do upgrades, he added.

The upgrade offer will enable IT managers to exploit the ease-of-use features now being embedded in application releases as part of PeopleSoft's Total Ownership Experience initiative, Scott said. "Some of our reasons are selfish, and some are selfless," he noted.

Conference attendee Dominick Sabatino said he expects his company, the North Shore-Long Island Jewish Health System in Great Neck, N.Y., to take advantage of the upgrade offer. The health care provider runs PeopleSoft's supply chain, human resources and financial applications but is several versions behind on each one.

"We had planned to upgrade in 2005," said Sabatino, the health care system's assistant vice president of corporate human resources. "This gives us an incentive to get there sooner."

"Free is always good," said Todd Inlander, CIO at Fleetwood Enterprises Inc., a Riverside, Calif.-based maker of recreational vehicles that uses PeopleSoft EnterpriseOne software. Fleetwood plans to upgrade early next year from EnterpriseOne 7.3 to 8.10, which should provide improved usability features, Inlander said. But he added that the Now program will require due diligence before the company signs on.

The U.S. Navy might be interested in using Now to help fuel an upgrade of aging payroll applications and other software from PeopleSoft, said Capt. Valerie Carpenter, joint program manager for the Pentagon's Defense Integrated Military Human Resources System (DIMHRS) project [QuickLink 41815].

The payroll system is based on PeopleSoft Enterprise 8.3, and Carpenter said an upgrade to Version 8.8 would offer more stability and enable the system to be seamlessly integrated with DIMHRS, which is due to be rolled out across all branches of the military starting in 2006.

PeopleSoft fell short of its second-quarter revenue target, a result it blamed on the difficulty of closing deals amid the uncertainty created by Oracle's 15-month-old takeover bid. That uncertainty grew earlier this month when a federal judge rejected the U.S. Department of Justice's attempt to block Oracle on antitrust grounds. 49850

Stacy Cowley of the IDG News Service contributed to this story.



MORE NEWS ONLINE

PeopleSoft's new deal with IBM is aimed at shoring up its middleware position.

QuickLink 49579
www.computerworld.com

PeopleSoft Not Perfect on J.D. Edwards Deal, CEO Says

SAN FRANCISCO

PeopleSoft CEO Craig Conway last week touted the hundreds of enhancements made in the past year to the World and EnterpriseOne applications that the company inherited when it bought J.D. Edwards & Co. But he also acknowledged that PeopleSoft's handling of the acquisition wasn't free of glitches.

During his keynote speech at Connect 2004, Conway said that PeopleSoft made well-intentioned errors while trying to implement some of its licensing and software enhancement policies with the J.D. Edwards user base. For example, he noted that some J.D. Edwards customers were erroneously convinced that they would be forced to abandon their named-user licenses in favor of PeopleSoft's revenue-based model and would end up paying more than they had previously.

Concerns about PeopleSoft's licensing policies were a major bone of contention among J.D. Edwards users who attended the independent Quest International User Group's global conference in June [QuickLink 47778].

The pricing issue hit home with Dave Hyzy, director of IT at Benderson Development Co., a Buffalo, N.Y.-based real estate developer that runs the World green-screen applications.

"I was definitely concerned about licensing when I heard about the new model," Hyzy said. He added that though it was unclear whether PeopleSoft originally intended to let both pricing models coexist or changed its tack after seeing the negative reactions, the company fixed the problem by letting customers choose either approach.

Conway also said that the sheer volume of new software functionality offered by PeopleSoft left some J.D. Edwards users baffled about what they were getting. Because there was a fear that PeopleSoft would do away with the J.D. Edwards applications, the company made an extra effort to boost development and unleashed "a flood of enhancements," he said. However, he added that PeopleSoft did prove its point about keeping the applications alive.

– Marc L. Songini

Sun Pushes Solaris 10 as Linux Alternative

Acknowledges that it 'dropped the ball' on low-cost servers

BY PATRICK THIBODEAU

For years, Sun Microsystems Inc. ignored Linux or dismissed it as just another Unix variant. But company officials are now talking bluntly about their failure to recognize the corporate IT push to low-cost commodity systems, which Linux has helped foster.

Sun "dropped the ball" while customers rushed to Linux/Intel computing, said John Loiacono, executive vice president of Sun's software group. But with its Solaris 10 upgrade due by year's end, Sun is hoping to change that perception by adding a list of new features and adopting an open-source model that's as good as or better than the models used for Apache, Mozilla Linux and others, Loiacono said.

Last week, Sun made a slew of announcements in hopes of luring users in the financial services industry back to its camp (see story at right). Moreover, the company is working with Advanced Micro Devices Inc. to build low-cost Opteron-based servers; a four-way box was released in the summer, and an eight-way system is expected next year.

Sticking With Solaris

Although Sun is supporting Red Hat Inc.'s version of Linux and Novell Inc.'s SUSE Linux, its preferred operating system is still Solaris. And some early users said they like the changes in Solaris 10.

Beta tester Eric Greenwade, chief IT architect at the Idaho National Engineering and Environmental Laboratory, said the new version's use of containers, or zones — a provisioning capability that isolates users and applications on a server — is a major improvement. "I don't have to buy a box for every single group that believes they have a need for their own box," he said.

Because Solaris 10 is "lighter weight," meaning it's less intrusive on applications, performance has improved, Greenwade said. He also cited Sun's new TCP/IP stack as a plus.



[illegible] says his exchange's options-trading capacity rose with Solaris 10

The Solaris improvements are enough to eliminate cost as a deciding factor between Solaris or Linux, Greenwade said. He argued that Linux isn't necessarily inexpensive, because it often requires the addition of third-party tools to match functionality that's built into Solaris.

But the issue is complicated. The national lab in Idaho Falls also uses Linux systems. "Linux is in a lot of people's hands," Greenwade said, and all the users of the open-source operating system provide "a depth and breadth of feedback that you can't get in almost any other software testing program." As a result, features are added to Linux more quickly, he said.

Bill Morgan, CIO at Philadelphia Stock Exchange Inc., has a new electronic options-trading system that runs on Solaris 10, which he said has improved trading capacity by 36%. Like Greenwade, he credited performance improvements to the TCP/IP stack, as well as improved multithreading support and a new feature called DTrace (for Dynamic Tracing) that tunes application performance.

Thanks to Solaris, the stock exchange expects to reduce the amount of new hardware it needs to buy in order to scale up the trading system. "You can in effect scale within the same machine, as opposed to adding servers," Morgan said.

But Sun may still have work to do on cost issues that are important to some users.

Gary Westaway, data center operations manager at Sears Canada Inc. in Toronto, manages more than 750 servers in a mixed environment. He called Sun's technology proprietary and its licensing terms costly. For instance, Westaway said Sun informed him that his Sun server warranty would be voided if he installed the servers in anything other than a Sun rack, which he called "the most expensive rack on the face of this planet."

However, Sun officials said that isn't true for its x86-based systems. They said servers can be mounted in third-party racks, provided that the racks meet certain design requirements, and Sun will honor the warranty. **48641**

Robert McMillan of the IDG News Service contributed to this story.

MORE ON LINUX AND UNIX

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QuickLink 48500
www.computerworld.com

Vendor Tries to Regain Footing on Wall Street

NEW YORK

Sun Microsystems last week fired off a barrage of product promotions, upgrades and service announcements here in an attempt to retake its traditional stronghold in the financial community.

At a banquet hall full of financial services executives, Sun President Jonathan Schwartz made the case that Solaris offers better computing performance and systems management for less money than comparable Linux operating systems.

Schwartz acknowledged that Sun failed to offer the low-cost servers that Wall Street users sought in the past few years. "We didn't have much to deliver," he said. "Now, our shelves are full."

"There's no question that Sun was tremendously successful in the financial community when it was less price-sensitive, but they then lost ground to Linux," said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H., who attended the event.

In an effort to take back customers that Sun lost to Linux, Schwartz announced a 50% discount on Solaris right-to-use licenses for customers upgrading from Linux. Promotions geared toward financial companies include a trade-in program offering cash credits to users switching from servers based on Intel's Xeon processors to Sun Fire systems with AMD's Opteron chips. Sun also is offering a free trial of a Sun Fire V20z server and Solaris 10 to select customers.

Test Case

Many of the product announcements weren't really new, Haff said, adding that last week's event was an effort by Sun officials to show that "they have completely changed the company's strategy. This is a test case for the future. They need to succeed here on Wall Street."

Schwartz has affectionately referred to the financial services industry as "the swamp from which we spawned." But with the economic downturn that began in 2000, Sun's cozy relationship with the industry cooled, and the company found itself on the losing end of a price/performance war against Linux running on Intel-based systems.



[illegible] says Sun's "shelves are full" of low-cost systems for Wall Street users

Sun will have its work cut out for it when it comes to convincing the financial industry that it can be a low-cost server provider, said Dan Stivers, CEO of 7ticks IT Consulting Inc. in Chicago. "The financial industry as a whole is not buying the fact that there is a better cost return by paying fees to Microsoft or Sun," he said.

For some users, though, pricing isn't the whole story.

"We have to look at the whole value proposition, though of course price itself is important," said Steve Rubinow, chief technology officer at Chicago-based Archipelago Holdings Inc., which operates an electronic stock exchange. "If I can manage an environment of [just] Sun servers and avoid support headaches, running Sun offers an advantage."

Rubinow said that Archipelago had been eyeing Linux systems but that new technologies such as Solaris 10 were a major factor in keeping the company in the Sun camp.

The Philadelphia Stock Exchange is evaluating Linux, but it's sticking with Solaris in order to get a new electronic options-trading system up and running in a hurry. "We already had an installed base of Sparc and Solaris, so the thing that would enable us to get to market fastest was to build upon what we had," said CIO Bill Morgan.

– Marc Ferranti and Robert McMillan, IDG News Service

BRIEFS

SAP, Kimberly-Clark Team Up on Apps

SAP AG and Dallas-based Kimberly-Clark Corp. said they're jointly developing a set of marketing applications for makers of consumer goods. The "marketing resource management" software will expand upon SAP's CRM applications and further automate tasks such as planning, budgeting and measuring the results of marketing campaigns, the two companies said. Shipments are due within the next 12 months.

Exploit Code Posted For Microsoft Flaw

At least three programs that seek to exploit a JPEG-related security hole in many of Microsoft Corp.'s products have been posted on the Internet. Attackers could use two of the exploit programs to run malicious code on unpatched systems, security researchers said. Microsoft again urged users to install a patch that it released two weeks ago or implement a set of work-arounds that it also detailed.

Microsoft CFO Says Purchases May Rise

Microsoft and SAP decided earlier this year not to pursue a merger. But John Connors, Microsoft's chief financial officer, said during a speech last week that the number of large acquisitions made by the software vendor is likely to increase. "There are not many SAPs out there, but there is the potential that we could do a few big ones," Connors told an audience in Palo Alto, Calif.

Short Takes

IBM and THE BOEING CO. said they're teaming up to compete for government systems contracts involving homeland security, military communications and intelligence operations. . . . MICROSOFT released a permanent fix for a virtual private networking flaw in its Windows XP Service Pack 2.

ON THE MARK

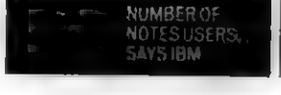
HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW ARCHER

IBM to Seduce, Not Compel, Notes Users...

. . . to adopt DB2 as the primary data store in Domino/Notes 7 when it's released in next year's second quarter. Ken Bisconti, vice president of Lotus and software portal products at IBM, acknowledges that the document-centric object store built into Domino and Notes "has not been readily compatible with relational databases." That's putting it mildly, according to some Notes experts [QuickLink 49313]. Getting Notes information into a relational database has been something of a pain, but Bisconti says that pain goes away with Release 7. An optional DB2 data store can be fully integrated with Notes, including e-mail and calendaring applications. Bisconti emphasizes, though, that no user is going to be force-marched to DB2 land. "The additional capability is an option, not a requirement," he states — repeatedly. But you can almost hear the wooing in Bisconti's voice when he touts the advantages that Domino and Notes users will get from a fully integrated database. It's easier for DBAs to administer a single-data-store architecture, he says. Plus, you can perform Notes replication functions on your DB2 database. And you'll get the cool things a real database offers, such as stored procedures, relational joins and improved performance on ad hoc queries. Bisconti acknowledges that Release 7's DB2 integration will lack some of the responsiveness and storage capacity of a Notes data store because IBM is focusing on getting the integration right. Release 8 will address those shortcomings, when it ships in 2007 or so, he says.



"You say 'tomato' . . .



. . . I say 'a spherical red fruit loaded with small seeds.' " With apologies to Fred Astaire, you can't call off the need for a complex naming system, especially if you're running an online catalog that takes product descriptions from hundreds of health care suppliers and presents the ordering data to 1,700 not-for-profit hospitals nationwide. That's the dilemma Premier Inc. CIO Joseph Pleasant confronted earlier this year when he loaded into his "item master" 1.5 million product descriptions that needed to be understandable to suppliers as well as potential buyers. "They're not always speaking the same language," observes Pleasant from Premier's Charlotte, N.C., headquarters. "Suppliers use unique branding terms that they need to refer to, yet it must make sense for hospital buyers, too." To bridge the definition chasm, Pleasant uses Perfect Product Suite from FullTilt Solutions Inc. in Wayne, Pa. With it, he can put data into a standard format, cleanse it and automatically present the information to various constituencies. He says the FullTilt tool has saved Premier's hospitals oodles of money and has significantly improved the ordering and delivery process. Early next month, FullTilt will release Version 5, which will add a business process engine and a set of visual process-design tools, among other features. The improved automation will likely be appreciated by Pleasant, especially since he plans to more than double the number of product descriptions in his item master list by the end of 2005.



Get the lowdown on who's using . . .

. . . which IT assets when and for how long. That's the promise from Evident Software Inc. in Bloomfield, N.J. The company's Evident Enterprise software can track group or individual usage of disk capacity, network bandwidth, application resources, CPU cycles and other data that can be computed into chargeback schemes or used to buttress application consolidation or deployment project plans. Evident Enterprise 5 is set to ship in mid-October and adds relational database support, visualization tools and 70 predefined reports of various usage patterns. It will also add Linux as a supported operating system, joining Solaris and Windows. A typical installation runs about $350,000.

Breadth of monitoring ideal for catching . . .

. . . interdependencies among systems. Depth isn't as necessary. Al Eisaian, CEO of Pasadena, Calif.-based Integrien Corp., makes that argument to network managers who feel the deployment of large-scale management frameworks, such as Tivoli and Unicenter, "are overkill." He says, "Scope is much more important than depth." That's because you can more readily detect how problems in one infrastructure area can affect other parts of your network. Alive 4.0, which ships today, uses agent-free technology to monitor everything from network switches and routers to the operating system layer (though not if you run Mac OS X) and all IP-based applications. The upgrade adds two views of the state of your network and application environment: a transaction view, which gives you end-to-end monitoring of IT processes, and a profile view, which defines the domains of systems administrators. A license is $650 per IP device, and a subscription to a service is $75 per monitored node. **49801**



"For midsized and large organizations, a significant Linux deployment will neither be free nor easily accomplished. In fact, respondents at large organizations reported that a wholesale switch to Linux from Windows® or Unix would significantly increase TCO for the forseeable future."

–Laura DiDio, The Yankee Group, April 2004
Linux, Unix, and Windows TCO Comparison

The Yankee Group, a global research and consulting firm, concluded that a significant switch to Linux from Windows or Unix could cost three to four times as much without delivering tangibly better performance or business value. These findings are based on a non-sponsored worldwide survey of 1,000 IT administrators and C-level executives in midsized and large enterprises.

To get the full study, visit **microsoft.com/getthefacts**

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Storage Managers Seek Better Backup Methods

Disk-to-disk backup tools, virtual tape libraries top list

BY LUCAS MEARIAN

Faced with shrinking backup windows and continued data growth, IT managers said at a conference last week that they're trying to cope by consolidating storage-area networks (SAN), getting a better view of their storage infrastructures and increasing the amount of online disk storage at their disposal.

Virtual tape libraries (VTL) and disk-to-disk backup systems topped the list of technologies that users at the Storage Decisions 2004 conference here said they're rolling out in order to speed up their data backup and recovery procedures.

We keep getting more pressure to [illegible] data. [illegible] Storage Networking World, said Nick Allen, a vice president at Nashua, N.H.-based Media Recovery Inc. in New York, Stevenson expects the company to install VTLs from Storage Technology Corp., as well as disk-to-disk backup technology.

"Disk-to-disk backup gives you better performance across the whole organization," he said. "Our struggle right now is when you get these 20TB to 30TB database warehouses. You don't want to have to recover [the data] from tape."

Manny Pinzo Jr., a senior associate in SAN operations at Discover Financial Services Inc. in Riverwoods, Ill., said he's looking at VTLs — disk arrays that appear to be tape libraries to application servers — to help him address "a concern that our backup window is not being met" in all cases.

Microsoft Corp. became the latest vendor to promise support for disk-based backups, announcing at the conference that it plans to release software called Data Protection Server [illegible] (see next story, right).

Dennis Moore, director of enterprise architecture at Retail Ventures Inc. in Columbus, Ohio, has three data centers and is working to replicate information among them for business continuity and disaster recovery.

Moore said he's testing VTL technology as a way to help Retail Ventures migrate from digital linear tape drives to linear tape open products. VTLs would make it possible to copy data from the DLT drives to disks before moving the information to LTO-based tape libraries, he said.

IT managers also need to have access to sufficient information about their storage systems, Moore said. "If you're not getting reports on data storage systems every day, you've got data at risk," he said, adding that an audit is being conducted within his company to validate the chain of custody for data among end users.

Michael Salins, a senior systems engineer at The Interpublic Group of Companies Inc. in New York, said he chose storage management tools from CommVault Systems Inc. because the built-in reporting capabilities were "leaps and bounds" above other products. **49598**

Microsoft Enters Data Backup Arena

CHICAGO

Microsoft's announcement of a disk-to-disk backup application designed to consolidate data backups on Windows servers positions the company to compete against storage management stalwarts such as Veritas Software Corp. and EMC Corp.'s Legato Software division.

At last week's conference, Microsoft said its Data Protection Server software is due for beta testing in the first quarter of 2005 and general availability in the second half of next year.

"About 70% of backup cost is labor. That's what we're addressing," said Jeff Price, senior director of Microsoft's Windows Server division. By setting policies to automate backups, storage administrators will no longer have to manually start the procedures. The software will also enable end users to back up their own files "without involving IT," he said.

Some attendees said they would consider buying Data Protection Server because of the ease with which it could be integrated with Windows.

Jim Grisham, a chief IT architect at Northrop Grumman Corp. in Los Angeles, said the company's IT staffers have to meet strict data recovery deadlines and must be able to recover all of the data at any given time – standards that tape can't currently meet.

Northrop Grumman plans to install disk-to-disk software, but Grisham said he would like to buy an application that requires the least amount of training for Northrop Grumman's systems administrators. "Sometimes, if a product makes their lives easier, it's worth it," he noted.

But John Blackman, a systems architect at a West Coast-based bank that he asked not be named, said proven data backup vendors offer far more mature products than Data Protection Server. Something new, even from Microsoft, would be a hard sell inside his company, Blackman said.

Data Protection Server is built on top of Windows Storage Server 2003 and Microsoft's Active Directory, which works with the backup tool to automatically identify file servers and install software agents that kick off backups based on preset policies.

– *Lucas Mearian*

GAO Says Offshoring Could Stymie Tech Job Growth

But agency warns that data is lacking

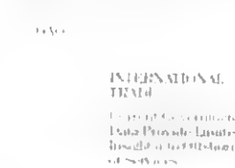
BY PATRICK THIBODEAU

A new government report indicates that offshore outsourcing could hurt IT employment growth over the next decade. But the study, released last week by the U.S. Government Accountability Office, is sprinkled with caveats and qualifiers because of what the GAO said is a lack of sufficient data.

The GAO acknowledged in the report, which was requested by Democrats in the House of Representatives, that the government's existing data can't provide a complete picture of the impact of offshore labor on the U.S. economy. At best, the available data provides only "some clues" to the extent of offshoring activity, the GAO said. Further efforts will be needed to understand the "small but growing trend," it added.

Government projections indicate that IT-related occupations are expected to grow faster than most occupations through 2012, according to the GAO. Indeed, seven of the 30 fastest-growing occupations are related to IT. But the projected rate of growth for those occupations for the period from 2002 to 2012 is significantly lower than the rate projected for 2000 to 2010, the GAO reported.

The report doesn't say with certainty that offshoring is to blame for the projected change in IT labor growth. It cites the recession earlier in this decade, the bursting of the dot-com bubble of the late 1990s and increases in productivity as potential contributors to the revised job forecast.



The GAO report said existing data doesn't provide the complete picture.

In terms of offshoring's effect on U.S. workers, the GAO said the U.S. Department of Labor's survey on mass layoffs shows that layoffs attributable to the shift of jobs to other countries have increased since 1999 but still represent a small fraction of job cuts. Of the 1.5 million layoffs reported in 2003, just 0.9% were the result of overseas relocation — and most of those layoffs were in the manufacturing sector. But the GAO said the survey has shortcomings because it covers only large companies and those that laid off at least 50 people in a five-week period.

In a statement, Rep. Jay Inslee (D-Wash.) called the report "a welcome first step" in understanding the offshoring trend. But, he said, "I remain concerned that this report is conspicuously incomplete." Inslee added that if needed data is indeed lacking, "then it is imperative that we push further studies that will fill the gap between raw numbers and public policy."

Marcus Courtney, president of the Seattle-based Washington Alliance of Technology Workers, said the GAO study clearly points to a need for better data. "For the GAO to give Congress policy recommendations, they need better information," said Courtney, who called on Congress to compel companies to provide data so the government can "get a handle on the trend." **49643**

Storage Managers Seek Better Backup Methods

Disk-to-disk backup tools, virtual tape libraries top list

BY LUCAS MEARIAN
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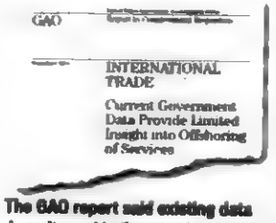
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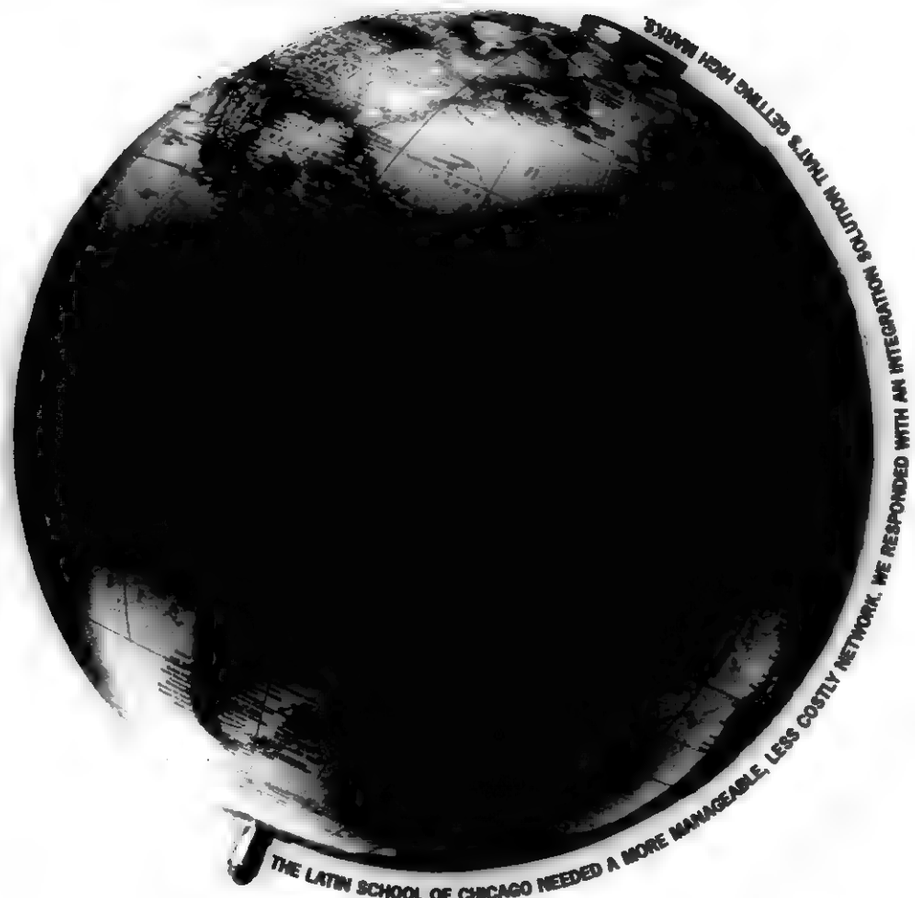


The GAO report said existing data doesn't provide the complete picture.

In terms of offshoring's effect on U.S. workers, the GAO said the U.S. Department of Labor's survey on mass layoffs shows that layoffs attributable to the shift of jobs to other countries have increased since 1999 but still represent a small fraction of job cuts. Of the 1.5 million layoffs reported in 2003, just 0.9% were the result of overseas relocation — and most of those layoffs were in the manufacturing sector. But the GAO said the survey has shortcomings because it covers only large companies and those that laid off at least 50 people in a five-week period.

In a statement, Rep. Jay Inslee (D-Wash.) called the report "a welcome first step" in understanding the offshoring trend. But, he said, "I remain concerned that this report is conspicuously incomplete." Inslee added that if needed data is indeed lacking, "then it is imperative that we push further studies that will fill the gap between raw numbers and public policy."

Marcus Courtney, president of the Seattle-based Washington Alliance of Technology Workers, said the GAO study clearly points to a need for better data. "For the GAO to give Congress policy recommendations, they need better information," said Courtney, who called on Congress to compel companies to provide data so the government can "get a handle on the trend." 49643





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BRIEFS

Oracle to Support Unstructured Data

Oracle Corp. confirmed that it plans to upgrade its Collaboration Suite software with content management capabilities supporting the use of unstructured data, but it declined to provide any details about the new technology. London-based consulting firm Ovum Ltd. said in a report issued this month that the upgrade is code-named Tsunami and due to be announced in the fourth quarter.

SAP Brings Back Europe Conference

SAP AG said it plans to revive the European version of its Sapphire user conference next April. Sapphire Europe was dropped after the 2002 event in favor of smaller, more localized conferences. But an SAP spokesman said users told the software vendor that they "missed the opportunity to interact at a European level." The company plans to hold the conference in Copenhagen.

Ford Signs Deal For IP Telephony

SBC Communications Inc. said it will design, install and manage an IP telephony system for more than 50,000 users at Ford Motor Co. The system will be rolled out over the next three years, using networking equipment and IP phones from Cisco Systems Inc. The companies didn't disclose the projected cost of the rollout, which also will converge Ford's voice, data and video networks.

Short Takes

MICROSOFT CORP. said it will offer government users access to the source code for Office System 2003 under its shared-source license program. . . . SIEMENS AG said it's migrating about 350,000 end users in more than 100 business units from Version 5.5 of Microsoft's Exchange messaging software to Exchange 2003 [QuickLink 40590].

Users Bemoan Software Price Increases for Dual-Core CPUs

Development of servers with two processors leads to rise in license fees

BY THOMAS HOFFMAN
ORLANDO

THE ADVENT OF dual-core processors with two CPUs on a single chip is causing many IT managers to wring their hands over the hefty increases in licensing fees sought by major software vendors.

Users and analysts at Gartner Inc.'s IT & Software Asset Management Summits here last week said companies that have installed servers based on dual-core chips or that have made plans to do so are being hit by vendors such as IBM and Oracle Corp. with software licensing fees that are twice what they were paying.

Vendors are trying to justify the increases on the grounds that the application and database servers on which their software runs will contain twice as many processors when they're using dual-core devices, conference attendees added. Some said the price increases may be a starting point for negotiations, but they reluctantly acknowledged that their companies will likely have to pay more for software in the long term.

"We started negotiating with Oracle on a new database contract last month and were shocked to see how much more expensive the software was than we expected," said an IT asset manager at a large catalog retailer who asked not to be identified.

The retailer, which is installing a Sun Microsystems Inc. server that uses dual-core technology, has since negotiated discounted terms with Oracle. "But it's still more expensive than we anticipated," the asset manager said.

In April, Oracle clarified information posted on its Web site to inform customers that "a multicore chip with N processor cores is treated as N processors" for software licensing purposes. "But that's the way we've always charged," said Jacqueline Woods, vice president of global licensing and pricing strategy at Oracle.

A spokesman for IBM confirmed that it plans to continue charging users based on the number of processors on their servers. "There's always room for negotiation, but one processor is the basis for the licensing cost," the spokesman said. "Whether two processors sit on the same piece of silicon or not, we'll still charge for those two processors."

> **"It's a lot like mainframe-based software pricing – you pay more for larger processors, but you don't get any more software functionality out of it."**
>
> GREGORY WOODS, OKLAHOMA DEPARTMENT OF HUMAN SERVICES

Gartner analyst Alvin Park said he has heard from Microsoft Corp. users that they're getting similar messages about software costs for systems with dual-core chips.

But Sunny Jensen Charlebois, product manager in Microsoft's worldwide licensing and pricing group, said in an e-mail statement that the company has "nothing to announce" at this time. Because of the complexity of the issue, Microsoft is continuing to gather feedback from customers and business partners "to evaluate how they will use this technology," she added.

Not surprisingly, 10 IT managers interviewed at the conference all said the increased licensing fees are unfair.

"It's a lot like mainframe-based software pricing — you pay more for larger processors, but you don't get any more software functionality out of it," said Gregory Wood, director of critical support services for the IT unit within the Oklahoma Department of Human Services in Oklahoma City.

Donnie Rogers, an IT support manager at AAI Corp. in Hunt Valley, Md., hopes that any future installations of multicore servers won't significantly affect the defense contractor's licensing costs for at least a year. AAI runs Oracle's ERP software and databases.

"What I would do is ask Oracle, 'What can you do to keep me in my operating budget for now and handle any software license increases on an incremental basis?' " Rogers said.
ID 40648

Correction

The last name of TowerGroup analyst Robert Hegarty was misspelled in a story about CRM software for the financial services industry ("Unifying Customer Views") that ran in the Sept. 20 issue's Knowledge Center special report.

IT Switches From Hardware Leasing to Purchasing

ORLANDO

A growing number of IT managers are shifting their procurement strategies in favor of purchasing PCs and servers instead of leasing them, according to attendees at last week's IT & Software Asset Management Summits.

Gartner analyst Frances O'Brien said the shift is being driven by increasing interest rates and disenchantment among users with leasing "gotchas," such as penalties for late returns and damages.

"Companies are realizing that they're not going to return equipment back to the lessor on time, and it makes more economic sense to buy the equipment outright," said O'Brien, who spoke at the conference.

O'Brien's comments map with feedback from several IT managers who attended the Gartner-sponsored event.

For instance, an IT acquisition manager at a large pharmaceutical manufacturer that recently bought the company she was working for said she had been leasing equipment. But after the acquisition, her unit switched to a purchasing approach. That was done partly to mesh with the new parent company's technology procurement model, said the manager, who asked not to be identified. But it also was driven by the recent rise in long-term interest rates, she said.

For some other attendees, purchasing IT equipment remains business as usual. Federal Home Loan Mortgage Corp. conducts a purchase-vs.-lease analysis every 18 months, "and we've continued to purchase," said Craig Robles, an IT asset manager at the McLean, Va.-based home financing company, known as Freddie Mac.

The company is increasing its use of laptop PCs, and the costs of paying for scratches and other damages under a lease "just aren't advantageous to us," Robles said. "It makes more economic sense for us to purchase."

– *Thomas Hoffman*


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ACTUALLY NOT A SOLUTION.
(EXCEPT FOR CARS.)
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HP's CIO Points to Internal Issues in ERP Project Snafus

BY PATRICK THIBODEAU AND DON TENNANT

EIGHT MONTHS after he became CIO and executive vice president of global operations at Hewlett-Packard Co., **Gilles Bouchard** was put in about as unenviable a position as an IT manager can find himself. In August, CEO Carly Fiorina said HP had "executed poorly" on a migration to an order-processing and supply chain system based on SAP AG's applications [QuickLink 48819]. She partly blamed the problems for a $400 million third-quarter revenue shortfall within HP's enterprise servers and storage group. In an interview this month, Bouchard spoke candidly about what it was like to be on the IT hot seat. Excerpts follow:



Given that you're directly responsible for HP's supply chains and IT systems, what was your role in the failed ERP migration? I got this job in December, and in the following four or five months, what I didn't want to do was merge business and IT just at the corporate level. I wanted to also merge it in the field, in each region and each country. A lot of the pieces of the supply chain, order management and IT [functions] were in different businesses. Bringing those things together into one operation became official on May 1.

This [ERP migration] problem broke out three weeks later in the Americas region. It was one of many transitions we had done, and are still doing, where we simplify our portfolio of ERP [systems]. This was the 35th transition we had done; 34 had gone well, and this one did not go well.

What went wrong? It's a lot of little things that added up. Not one or two of them would have created the problem, but the combination of them created a bigger problem than we expected. We had planned for three weeks of disruption, and there were six weeks.

These problems are in three major categories. One we call "working across silos." The team that was driving this program had to work with other parts of the company. And working across these seams proved difficult. . . . Secondly, there were a lot of data-integrity [problems]. Orders fell out between the legacy front-end system and SAP on the back end, which required a lot of manual intervention. . . . The third element was increased demand. This migration had to do with our Intel-based server business. The demand really increased for those products, and it's still very high right now, which is good news. But it put even more pressure on the whole system. We should have had a contingency plan for four, five or six weeks.

HP has made it clear that this was an implementation problem, not an SAP problem. So where exactly does SAP fit into the mix? Clearly there was an SAP component to it, but the issue that created the problem was not the SAP [software] itself. It was the set of business processes that went around it.

Do you agree with Carly Fiorina's conclusion that HP "executed poorly on the migration?" Yes. When orders fall out and there's more manual intervention and there are data integrity issues, I would call those execution issues.

What should you have done differently? In August, we went back and basically polled everybody involved in the program and all the stakeholders and tried to turn this into a learning experience. We just got the results a few weeks ago. . . . When you consolidate, by definition, there's a lot more interdependencies. When everybody's got their own ERP [system], they can all work within their own silos. Now there's a lot more commonality and a lot more sharing, and a lot of learning in terms of program management. We've invested a lot in program management.



Fiorina fired three managers because of what happened in the third quarter. How did you escape the guillotine? Why did we miss [our numbers in] Q3? It was not just because of this. We have four businesses at HP: PCs, servers, services and printers. In Q3, three of the businesses met their goals and did well, and one missed. And it missed for three reasons. One was the SAP transition, one was weakness in the storage business, and one was some channel issues in Europe. What Carly did is she put accountability at the business management level. She took people out who were in charge of those businesses.

Are the problems fixed? Can customers expect their orders on time? The demand being still strong, we have some product shortages. So you might find a customer with a lead time that's longer than ideal, but that has nothing to do with what happened in Q3. **49604**

READ MORE ONLINE

Additional thoughts: Visit our Web site for the full interview with Gilles Bouchard. **QuickLink 49631**

Reorg move: A new division in HP's server group aims to unify blade server development. **QuickLink 49563 www.computerworld.com**

University Bedeviled by Portal Rollout Problems

PeopleSoft system crash at UMass has lingering effects

BY MARC L. SONGINI

A student information system built around PeopleSoft Inc.'s applications crashed earlier this month at the University of Massachusetts, causing serious disruptions for thousands of students and forcing the school's IT staffers to limit the use of a new software portal.

The system crash occurred Sept. 7 at the main UMass campus in Amherst, and university spokesman Ed Blaguszewski said there are still periods when the student administration applications are bogged down. IT workers continue to troubleshoot the system in an effort to fully resolve the problems, he added.

UMass is the second university to be waylaid by glitches in PeopleSoft installations at the start of the new school year. The University of Indiana disclosed earlier this month that problems on a PeopleSoft rollout there had temporarily left as many as 3,000 students without access to promised financial aid [QuickLink 49349].

At UMass, the applications automate tasks such as registration, financial aid services and preparation of class schedules. Blaguszewski said the problems arose after the school replaced a homegrown, Web-based front-end application with PeopleSoft's portal software in July.

Some initial bugs were worked out during testing, and the new, more user-friendly portal went live in time for the start of classes in early September. At first, the system's overall performance was satisfactory, despite slowdowns at times, Blaguszewski said. But then the system crashed, and end-user access remained slow and intermittent after it was restored.

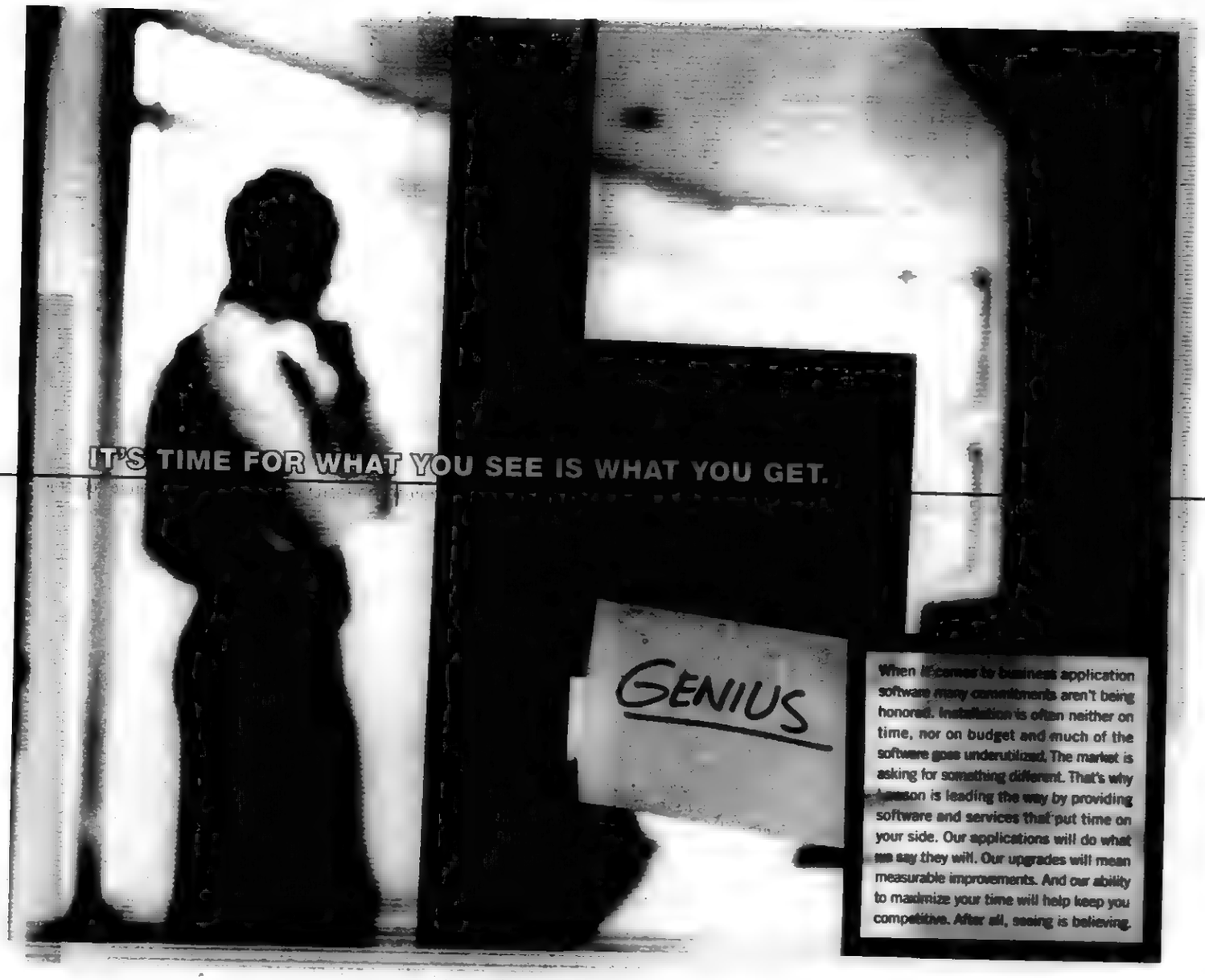
That resulted in "significant confusion, frustration and inconvenience across campus" when classes began on Sept. 8, Blaguszewski said. Some students didn't know where their classes were being held. Others were unable to add or drop classes. The problems prompted school officials to use e-mail blasts and post more data online to provide information to students.

According to Blaguszewski, the UMass IT staff worked around the clock to fix the problems, with help from a third-party consultant and PeopleSoft employees. As part of an interim work-around, IT made configuration changes and staggered portal usage by user type, requiring students and faculty members to log on at different times to prevent another crash.

"The university community now has full access to the system, and we will monitor performance closely," Blaguszewski said, adding that the cause of the system crash is still unknown. He noted that the school's database of student information remains intact.

PeopleSoft spokesman Steve Swasey said the problems weren't caused by the company's software and declined to comment further on the situation at UMass.

Lori Goss, education and government marketing director at PeopleSoft, also declined to comment about the problems during an interview at the software vendor's Connect 2004 conference in San Francisco. **49632**



LAWSON

It's Time.

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Continued from page 1

Kumar

agreement over the next 18 months.

As a result of the deferred-prosecution deal between the company and the DOJ, "CA will be better off," said Kenneth Pandaleon, a senior network engineer at NBTY Inc., a Bohemia, N.Y.-based maker of nutritional products.

Kumar and former head of worldwide sales Stephen Richards both pleaded not guilty to 10 charges, including securities fraud and obstruction of justice, in U.S. District Court in Brooklyn, N.Y., last Thursday, one day after the indictments against them were unsealed. Both men were ordered by the court to post a $5 million bond and surrender their passports.

Meanwhile, Stephen Woghin, CA's former general counsel, pleaded guilty to similar charges for his role in the alleged accounting scheme, which dates to 1999 and 2000.

Kumar left CA in June, two months after he was ousted from his position as chairman and CEO [QuickLink 47368]. The indictment against him charges that under his leadership, CA instituted a systemic practice of falsely recording some software sales within a fiscal quarter even though the contracts weren't actually signed during the period.

Alleged Falsifications

The government claims that Kumar and Richards personally advanced the goals of the accounting practice, which was built around a so-called 35-day month. For example, the indictment says that on July 8, 1999, Kumar was flown on the CA corporate jet to Paris to negotiate a $32 million software licensing agreement, which was falsely backdated to June 30.

The DOJ said CA has accepted responsibility for the alleged illegal conduct of its former executives as part of the cooperation deal that was announced last week. The company reached a similar agreement with the U.S. Securities and Exchange Commission to settle securities fraud charges that the SEC filed in the Brooklyn court.



SANJAY KUMAR, former CA CEO, arrives at U.S. District Court in Brooklyn for his arraignment.

"With these agreements, CA has taken a critical step in closing this deeply troubling chapter in its history," Lewis Ranieri, the company's chairman, said in a statement. He added that CA officials "fully support the government's efforts to bring all responsible parties to justice."

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The months of uncertainty also have left CA "a bit frozen internally in terms of making aggressive and imaginative moves in technology," said Rich Ptak, an analyst at Ptak, Noel & Associates Inc. in Amherst, N.H. "But they've done a pretty good job overall."

CA, which is being run by interim CEO Kenneth Cron, said it expects to name a permanent CEO within 30 days. Company officials wouldn't comment on the possibility of layoffs, which was raised by several financial analysts. Thousands of layoffs are "plausible" at CA, according to a report by Friedman, Billings, Ramsey Group Inc. in New York.

Still, the indictments of Kumar and Richards aroused the most interest among IT managers.

"If Kumar goes to jail, maybe Martha Stewart can decorate his cell," said Douglas Spindler, president of the San Francisco Networking Technologies Users Group, which includes about 2,500 network and systems managers. "I hope the truth comes out in this whole thing and that it serves as a wake-up call to business." **49647**

Continued from page 1

Woolworths

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But Roets said Woolworths has encountered no major technology problems since commencing the project in July. The retailer plans to deploy the application in a production environment by the end of next month. To ensure that performance is optimal, Woolworths kept the application simple and let the J2EE application and portal servers handle security and data refreshes, Roets said.

Yaacov Cohen, CEO of San Jose-based Mainsoft, said customers generally experience a 10% performance degradation compared with native Java performance. But he said his company's goal is to improve the product so its performance will eventually be equivalent to that of native Java.

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In-house Savings

Roets said that Woolworths, which operates department stores in Africa and the Middle East, saved 80% of the project cost by opting for the Visual MainWin approach over potential alternatives of hiring outside help or retraining its developers. Although Visual MainWin doesn't support Sybase servers, Woolworths' application runs fine, since the Sybase software is based on J2EE standards.

In addition to Visual MainWin, Woolworths considered the open-source Mono technology, which Novell Inc. acquired last year with Ximian Inc., and Stryon Inc.'s iNet software, which enables programs written in .Net to execute in any Java-enabled environment. But Roets said the retailer's developers would have needed more Java knowledge to work with those tools.

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Mono, in contrast, can also be used to develop desktop applications that run on Linux or Unix systems. Launched in 2001, Mono is an open-source version of Microsoft's .Net Framework that includes a runtime for the Common Language Infrastructure, a C# compiler and a set of class libraries.

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Woolworths Case Study

PROJECT: Upgrade of a homegrown monitoring/alerting system that runs on J2EE-based servers.

PROBLEM: Woolworths' development staff was skilled in the Microsoft tools environment, not J2EE technology.

APPROACH: The company wrote the application in Visual Basic .Net using Microsoft tools and used Mainsoft's Visual MainWin for J2EE to recompile the code to Java byte code and deploy the application on a Sybase application server and portal server.

Continued from page 1

Kumar

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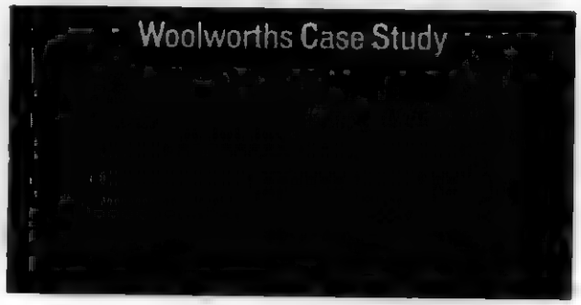
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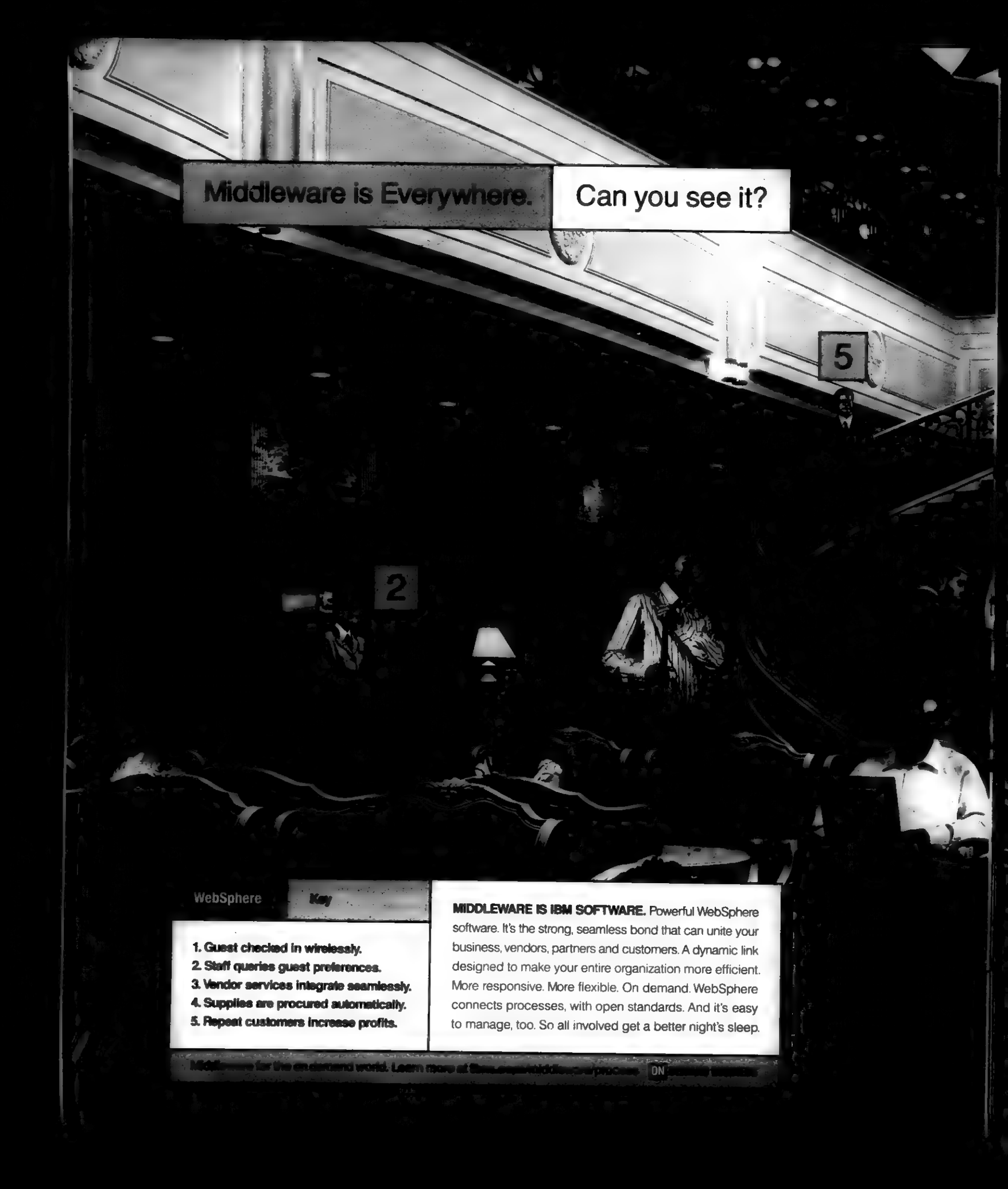
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AMD



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Cybertrust CEO Says Merger Driven by Users

BY JAIKUMAR VIJAYAN

Betrusted Holdings Inc. in New York and TruSecure Corp. in Herndon, Va., last week said they're merging to form a single IT security services vendor. The new company will be called Cybertrust Inc. and will have about 1,000 employees, 4,000 clients worldwide and $160 million in annual revenue. **John Becker**, *chairman and CEO of TruSecure, is scheduled to become Cybertrust's CEO. Becker spoke with* Computerworld *about the merger and competition in the IT security market.*



Who drove the merger – TruSecure or Betrusted? It was the customer, actually. Both businesses themselves were very complementary. Betrusted was the larger entity in terms of revenues, but both had a similar outlook in the security space. We also had some contacts historically. Betrusted was very strong in Europe and Asia and had a small but growing presence in the U.S. TruSecure was very strong in the U.S and [had] a small, growing presence in Europe and Asia. As we began dealing with larger and larger customers that have multinational sites, they were looking for a company with more [of a global reach].

What does the ongoing consolidation of the IT security market mean for users? I think it's a good thing for the user community. They're frustrated from being bombarded by 100 different vendors all pitching the latest firewall technology. The bottom line is, the differentiation among these technologies is not great. If you're a large organization with 100 sites around the globe, you're dealing with a $3 million company here or a $5 million one in England. It doesn't give you the comfort that you get when working with a trusted partner that you know and understand.

What do you think the broadening security efforts of major IT vendors, such as IBM, Cisco and Microsoft, is going to mean for pure-play security vendors? For us, since we aren't a product vendor, I think the [trend] is complementary to our business. I believe that large customers are putting more pressure on the Ciscos . . . and Microsofts of the world than on people like Symantec or Trend Micro. Customers have spent an awful lot of money on defensive technologies that are just not working. So they're putting pressure on these vendors to clean up things on the network and the endpoints. Inevitably, when Microsoft gets into this business, they won't kill the Symantecs, but they will put pricing pressure on them. **49603**

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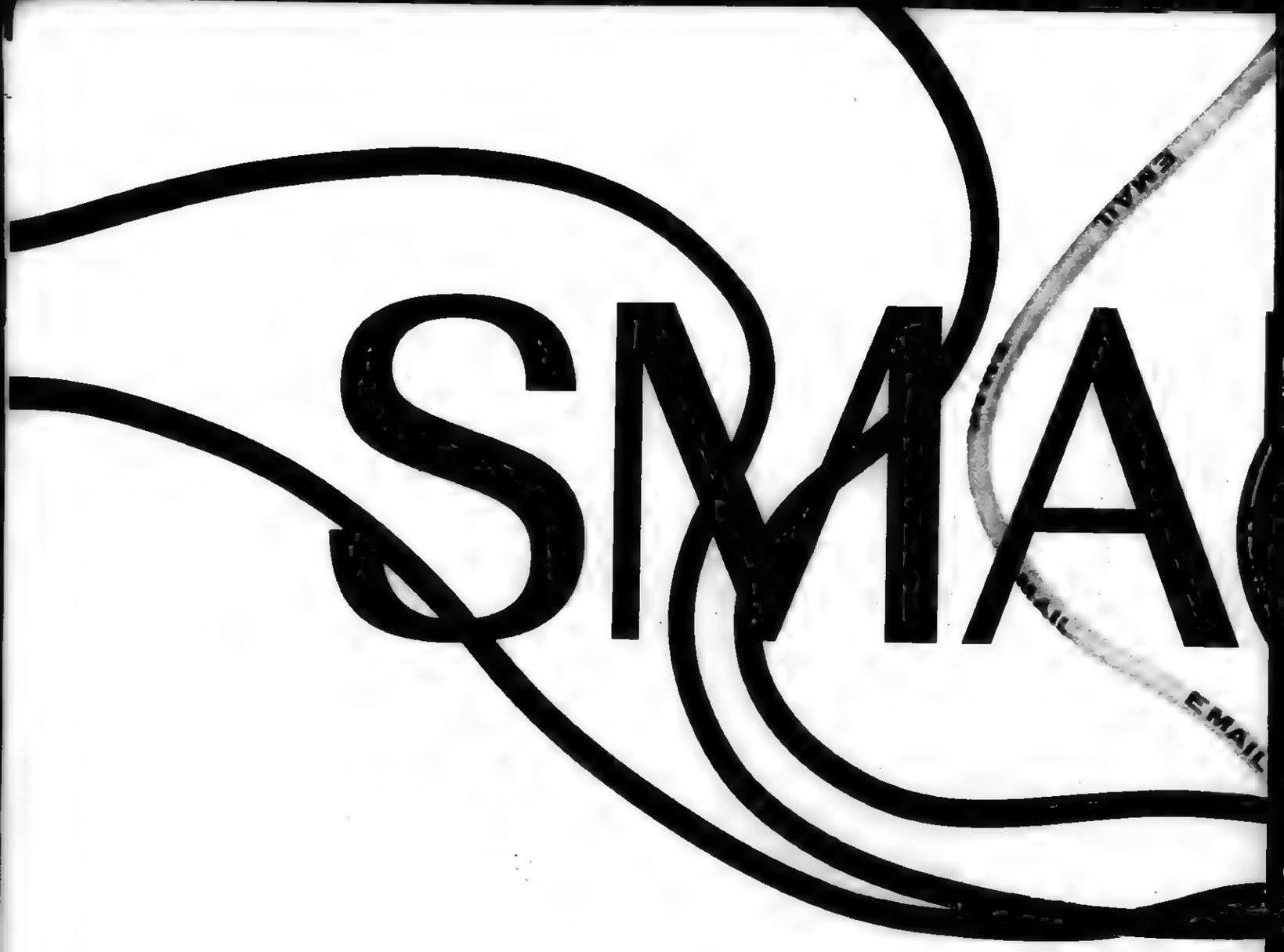
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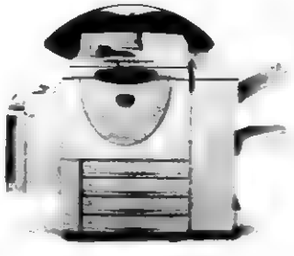
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'[Stuff] Happens'

WHAT IS YOUR worst nightmare as a CIO? Spilling chocolate milk in your zSeries? Being assured by your team moments before a hurricane strikes that your sys-



tems are fully mirrored, only to hear one of your sysadmins comment on how much larger and more airy all those mirrors make the data center look?

Or how about this: watching your CEO explain to the world that a poorly executed ERP migration that was your baby cost $400 million in lost revenue and is partially to blame for your company's disappointing third-quarter financials. Wait, let's make it even worse: Let's say the CEO fires three executives over the revenue drop, leaving you to explain why you still have a job. Hold on, let's just go for broke: The botched ERP migration involves SAP systems, and your company markets itself as a savvy provider of SAP consulting services. Now, tell me you wouldn't wake up from *that* one sweating bullets.

That might well be the worst nightmare of Gilles Bouchard, CIO at Hewlett-Packard. But unfortunately, it wasn't the kind he could wake up from — it was his reality.

You've probably read about the ERP consolidation fiasco that HP CEO Carly Fiorina cited last month when she listed the reasons behind the 5% revenue drop suffered by her enterprise servers and storage group [QuickLink 48813]. But what you might not have realized prior to reading our Q&A with Bouchard on page 14 is that HP has handled what had to be a horribly painful and awkward situation with about as much class and guts as a company could possibly demonstrate. And no one deserves the credit for that more than Bouchard.

Believe me, I can attest that there are plenty of other executives in the IT industry who would have hidden under the covers rather than confront the media under such difficult circumstances. And there are countless PR people working as handlers for those executives who would have done everything in their power to either block access to them or control the questions we put to them. I can't help but think back to how Computer Associates' PR machine tried (in vain, of course) to manipulate our questioning of senior CA executives around the time that recently indicted former CEO Sanjay Kumar was booted out. It was as shameful as it was shameless.

When I contrast that nonsense with the way HP has handled its recent PR nightmare, it just blows me away. Throughout the interview that senior editor Patrick Thibodeau and I conducted with him earlier this month, Bouchard never hedged for a heartbeat in responding to a single question, including those awkward ones about why his job was spared and others weren't, and about the impact of the whole mess on HP's credibility as an SAP services provider. And at no point did HP's PR machine make an attempt to prevent us from pursuing a line of questioning in order to spin the story to HP's liking.

Bouchard summed the mess up into two words: "S--- happens." He's absolutely right. It does. And when it does, good CIOs work with their teams to analyze exactly how it happened and then turn it into a positive learning experience. The *best* CIOs have the courage and professionalism to share that experience with their peers, no matter how painful or embarrassing it might be, so that they can learn from it as well. Of all the lessons you can learn from HP's nightmare, that one — by far — is the most valuable. **49607**

Don Tennant



DAVID MOSCHELLA

Vendors Are From Mars, Users Venus

HAVE YOU EVER wondered why some IT professionals choose to work on the vendor side of our business, while others prefer the customer side? Most IT people make this decision early in their careers, and few reverse it. It's arguably the single most important fork in the working lives of most *Computerworld* readers, yet it's rarely discussed or even mentioned. Nevertheless, the motivations behind this initial decision tell us a lot about the dynamics of our industry.

It's no secret that IT suppliers and internal IT organizations often have very different cultures, and thus they tend to appeal to very different sets of IT professionals, consciously or subconsciously. My firm has recently been doing a lot of psychographic work on IT executives, and the results are pretty clear. Vendor executives are more oriented toward competition, sales, ownership and compensation. CIOs and other internal IT executives are typically more concerned with softer rewards such as knowledge, achievement and collaboration.



In many ways, this is as it should be. CIOs and other internal IT professionals don't fully control their own destinies and need to get along with their business colleagues if they are to succeed. There isn't a lot of room for renegades, because there isn't a lot of room for forming start-ups or demonstrating other forms of independent behavior. The most prestigious jobs tend to be in large companies, where being politic is essential.

The contrasts with the vendor world couldn't be more stark. When the young Bill Gates decided to drop out of Harvard, I doubt he spent much time debating whether to start Microsoft or join, for example, Citibank and become an early PC evangelist. Ditto for the scores of other IT entrepreneurs who

have thrived on the vendor side and never spent a day in the customer world. They wanted the freedom to do their own thing and pursue their own dreams.

If all this seems a bit mundane, consider that few other industries seem to work this way. In what other sector do people of comparable expertise make such a fundamental career split, and do it in roughly equal numbers? It would be like having half of all doctors going to work for medical supply companies. While the split between accountants who work in-house and those at external accounting firms might seem to be another example, that situation has more to do with two types of employers competing for resources than it is about two entirely different ways of making a living.

The ramifications of all of this are greater than you might think. Internal IT professionals are often accused of lacking business vision and acumen and of being too cautious and risk-averse. While to some extent effective IT organizations need to be this way, it also seems clear that many of the most restless, entrepreneurial and daring IT professionals probably never went into the customer side of the business to begin with. This suggests that there may well be a deep-rooted reality behind what is often seen as an unfair stereotype.

It also helps explain why customers and vendors often struggle to get along with each other. It's not just the typical tension between buyers and sellers; rather, the leaders of each group have fundamentally different attitudes, values and concerns. In more ways than you might initially think, vendors really are from Mars, and users are from Venus. **49488**

PIMM FOX

Worrying About Election Day

U.S. ELECTIONS tend to confound most foreigners. They find it strange that our politicians crisscross the country, kiss babies and eat apple pie, all while donning a wide variety of headgear.

But of course, what they truly can't understand is how we have managed to screw up the actual voting process.



We can't even seem to count correctly. How is it possible that a nation that is able to debate the role of Moore's Law, demand overnight delivery of books and CDs ordered online and simulate nuclear blasts with a computer can't produce a tamperproof system to count votes?

Paper ballots were in widespread use until the 1890s, when the mechanical-lever system started to come into service. The machines, widely adopted in the 1930s, were supposed to be accurate and provide privacy, with voters making their selections behind a curtain. When the lever was moved, the vote was recorded and tallied.

But it was soon discovered that the counting of votes was subject to fraud. Thereby hangs the tale of the chad. Punch-card systems were introduced to prevent fraud and make the count more accurate. But the 2000 presidential vote produced so many disputes, particularly in Florida, that Congress decided to spend about $4 billion to upgrade voting systems.

Passage of the Help America Vote Act of 2002 was supposed to usher in an era of secure, reliable, computer-based vote tallying. The direct-recording electronic systems were to replace punch cards, optical scanner ballots and hand-counted paper ballots.

Well, it is sad to say that with the election just five weeks away, about one-third of the 150 million registered voters will be using machines that are still basically in beta mode, and that most of the money that was supposed to go to building and testing the machines hasn't been spent.

In California, the certification of the electronic voting machines has flip-flopped twice. They are going to be available, but voters who prefer to use a paper ballot can still do so.

In Maryland, the new electronic machines made by Diebold Election Systems use a Microsoft operating system, and security flaws were found when an independent lab tested the machines. The issue of voter fraud is such a big deal that both the Democrats and the Republicans have lined up teams of lawyers to challenge the vote counts in close elections.

In Nevada, the electronic touch-screen system from Sequoia Voting Systems also produces a paper record that can be checked. But other states, such as Kentucky, Delaware and Tennessee, received a failing grade from the Free Congress Foundation on their ability to accurately rely on electronic vote processing. New Mexico got a D-minus, and if that gives you the shakes, Florida snagged an F-plus. Ohio's system was so flawed that the secretary of state stopped an upgrade from the good old punch-card system because of security concerns.

In 2003, the six largest electronic voting machine vendors — Advanced Voting Solutions, Diebold, Election Systems & Software, Hart InterCivic, Sequoia and UniLect — formed the Election Technology Council.

But according to a report on the nonpartisan Web site Electionline.org, produced by the Election Reform Information Project and devoted to providing information about voter reform in the U.S., the group hasn't really done all that much except issue press releases. And, says Electionline.org, the links between the vendors, political parties and state election officials are both financial and personal.

Clearly, there is a lot of work yet to be done. **49540**

WANT OUR OPINION?

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READERS' LETTERS

Fixing the Vote

SHARON MACKLIS' column "A Voter's Paper Trail" [QuickLink 47905] leads to one question: If you can't trust the machine to correctly record your e-vote, how can you trust that the paper receipt correctly shows the e-vote that was recorded? With ATMs and gasoline pumps, users get an immediate receipt, but they also get a monthly statement. With a secret e-ballot, there is no follow-up accounting statement. I believe the best approach to make the voting machine trustworthy is through use of open-source code, digital code signatures, machine programming with ROM cartridges (like common video game sets), public-key certificates for authentication, and open interface standards so that authentication from multiple vendors is possible. But this still wouldn't provide the level of trust commensurate with a paper ballot.

Punch-card technology is fairly well developed. While it's true that Florida experienced chad problems, this could be fixed by having the electronic voting machine punch the ballot. The voter could immediately verify the punches, and the punched card would be retained for possible manual recounting. This approach would provide all the convenience of an electronic-voting user interface with the highest level of trust provided by the paper ballot.

Robert S. Baron
USAISEC, Enterprise Systems Engineering Directorate, Fort Huachuca, Ariz.

Terror Response

WHILE THERE may not be one technological solution to catching terrorists, it's shortsighted and self-defeating to assume that technology will not improve and help in the effort proportionally ["Technology Not the Answer to Terror," QuickLink 48705]. Various forms of biometric identification can be defeated individually, but the more seamless and redundant the barriers, the more effective the prevention. And that's where technological improvement plays its part.

Fred Lee
Atlanta

A Secure India

I WORK FOR ONE of the software development giants in India to which a lot of IT work is outsourced by companies in America and worldwide. In reading the article "Securing the Corporation" [QuickLink 48285], I felt that the CSOs interviewed were highly biased against non-Americans. Indian IT companies have very strong process frameworks and business ethics. The information available to one team working for a particular client isn't available to another team working for another client and sitting in the adjacent cubicle. Security, confidentiality and integrity of client data are our top priorities. A couple of the CSOs suggested code reviews. In my company, the average bugs present in the software at the first internal reviews is 10%, which is way below the industry standard, and the cost of quality is around 40%, whereas the industry standard is 25%. And no, this cost of quality is not charged to the client but is absorbed by the organization.

Mukul Dharwadkar
Technical analyst, Bangalore, India, mukul.dharwadkar@gmail.com

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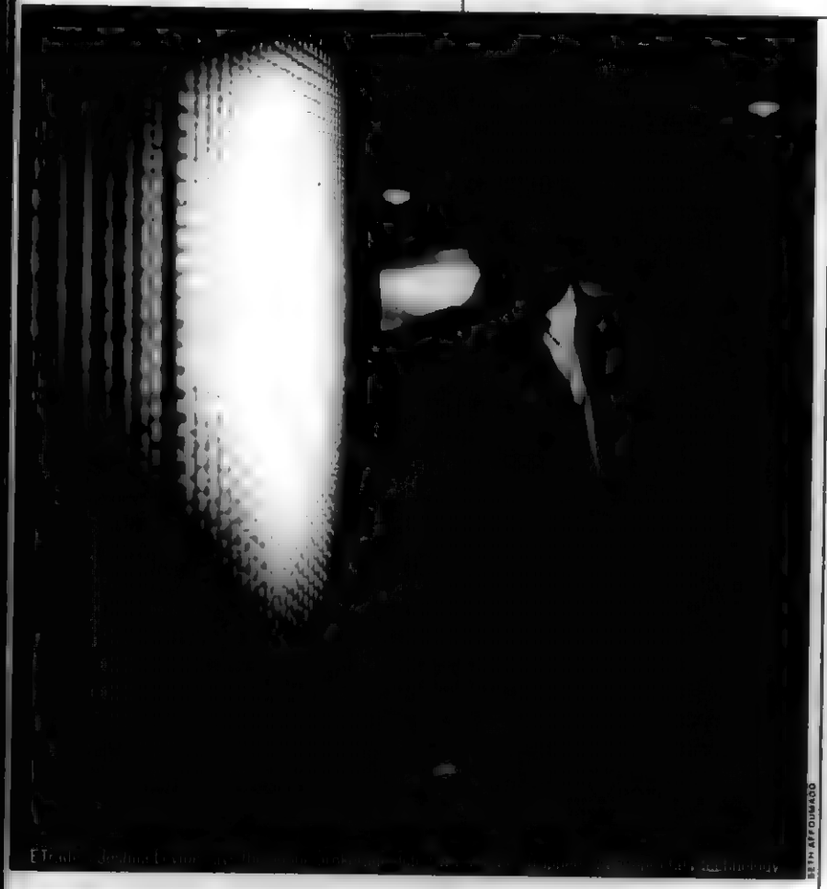
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CASE STUDY
Recollecting the Customer
A three-year effort to create a unified information architecture at ING Americas begins to pay dividends in the form of a single view of customer activity. **Page 34**

SECURITY MANAGER'S JOURNAL
IP Telephony Changes Security Equation
His company wants to save money by using IP telephony, but Mathias Thurman must sort out the ramifications of running voice traffic over its LANs and WANs. **Page 36**



OPINION
The Need to Know What We're Missing
Spam and pornography have made Internet filtering essential, but users in a transparent enterprise should know what's being filtered, says Daniel J. Weitzner. **Page 38**



SETH APPLEMAN

ETRADE Beats the Clock

The online brokerage built its systems around open-source to support its two-second trade guarantee. **BY GARY H. ANTHES**

FIELD REPORT

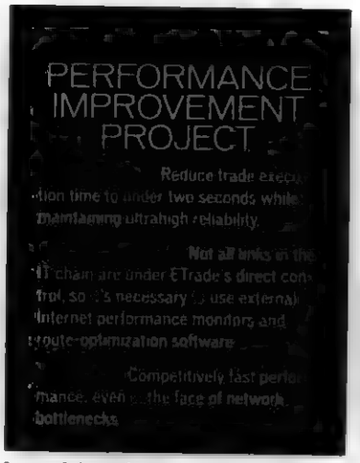
ETRADE FINANCIAL Corp. and other online stock brokerages are at war over how fast they can execute a trade. Ameritrade Holding Corp. kicked off the execution promise game in 2001 by guaranteeing a turnaround of 10 seconds or less. ETrade countered with a nine-second guarantee, and since then it has all been downhill.

Last year, Ameritrade promised to complete trades within five seconds, and in March, ETrade lowered its pledge to two seconds.

ETrade declines to say how many of its trades fail to complete in two seconds, but a spokeswoman says it will forgo less than $1 million in trading commissions this year as a result of the guarantee. The company collected $191 million in commissions in the first six months of this year.

ETrade has 3.5 million customer accounts and completes more than 100,000 trades each day, on average. The company says most of its trades are completed in less than a second, a remarkable achievement for a complex operation that spans multiple computers, routers and applications, not all of them controlled by ETrade.

"ETrade has a sophisticated infrastructure," says Tim Carpenter, senior brokerage analyst at GomezPro, an Internet performance management company recently acquired by Watchfire Corp. in Waltham, Mass. "They are not bogged down by trying to integrate with a legacy infrastructure, like an older broker that moved from the offline world to the online world. They didn't have to make concessions."



Excess Capacity Cheap

The company has gone through several major IT overhauls since 1996, when it began Internet-based trading. The most important transition, one that is still going on, has been a cutover from proprietary products to open-source components — principally Apache Web server software, Tomcat application server software and the Linux operating system (see diagram). The move from Sun Solaris/Sparc to Linux/Intel at the top two layers of the three-tiered architecture, in particular, made for a whole new economic ballgame for ETrade.

In 2001, the cost of proprietary systems was rising while the cost of open systems running on Intel processors was falling, says Joshua S. Levine, ETrade's chief technology and administrative officer. "And it wasn't just the price of the chip; it was memory, peripherals, everything. We said, 'If we stay on a proprietary architecture, we'll always be trapped by the rising price of proprietary vendor equipment.' "

With the savings from open-source

products came the luxury of being able to overprovision by buying spare capacity for every conceivable hardware failure and spike in demand. "When you get Linux servers so cheaply, the concept of capacity drops away," Levine says. "We buy a machine for $3,900, and we don't even buy maintenance on it. When it fails, we throw it away."

ETrade's three-tiered architecture includes a server farm, which it continues to build out horizontally, with 700 Linux/Intel boxes running most of the time at some small fraction of their capacity. Making that work, and making it easy to add more boxes, requires software that can move the workload around and the ability to swap out failed servers, in real time. ETrade uses load-balancing software from Resonate Inc. but is migrating to a similar tool from NetScaler Inc. that it says is faster.

Those products load-balance within an application, so if trade routing needs more horsepower or encounters a hardware failure, for example, that's addressed automatically and immediately. ETrade is now looking at ways to create a virtualized server farm for use by multiple applications. "How do you jump-start or repurpose a server?" says Hartley Caldwell, vice president of re-engineering. "We are thinking about that in the future."

The Right Routes

An ETrade customer may connect to the Internet over one path. But ETrade then finds the best route back to the customer using Adaptive Networking Software from San Mateo, Calif.-based RouteScience Technologies Inc., which can adjust traffic in subseconds to meet user-specified policies about application availability, performance and network usage. Route adjustments are made using open-standard application programming interfaces on routers and other network devices.

"It's a common myth that you can't manage the Internet," says Lloyd Taylor, technology vice president at Keynote Systems Corp. "Using the proper measurements, and understanding how routing works and working on your providers, you can actually control a good portion of the performance."

The move to Linux/Intel servers reduced trade times 30% and enabled the nine-second trade guarantee. Getting down to two seconds required other moves, including bringing ETrade's system for routing — moving trade orders to the proper exchange and bringing back confirmations — in-house.

ETrade was using a third-party service, but it saw that it could improve reliability and speed by developing its own routing software. Its internal system, RoutX, eliminated route hops and optimized the software, Levine says.

Extreme Measures

Gomez Inc. and Keynote both monitor ETrade Internet activity continuously. Keynote sends test transaction suites every few minutes from each of 20 locations around the U.S. and reports the results to ETrade every 15 minutes.

Says Caldwell, "Every morning we review the previous day's operations and the coming day's operations with the operational staff around the world. What was the customer's experience, how many million hits did we have, how many Web errors did we have, were they customer Web errors, did our load-balancing solution remove them in time, and so on."

Greg Framke, an executive vice president and head of IT at ETrade, says, "We have developed a rigor around performance and availability that has really made a big difference. Measuring reliability and performance is almost a cult with us."

At the middle layer of the three-tiered trading system, ETrade runs BEA Systems Inc.'s Tuxedo transaction manager, and that could be the next target for the company's move to open-source, Levine says. "We are very interested in Java Message Service — JMS," he says.

The move to JMS would be straightforward, and its benefits would be primarily economic, according to Caldwell. "Tuxedo is fairly expensive on a per-CPU basis," he explains.

While the top two tiers of the trading and routing systems run on Linux, the Sybase database layer remains on Sun Sparc systems running Solaris. A move to Sybase on Linux is possible, but that would require a significant system redesign and have an uncertain operational impact, Caldwell says.

Rather than making an intermediate move to Sybase on Linux, Framke says ETrade could go to a grid database concept in which data is cached at various points up and down the application stack. "If I could put data closer to the user, I could serve it up faster," he says.

That could improve availability as well. "If you look at the way we have architected our front end, it is rare — a very rare event — to have a user who couldn't on the second click get to where they were going," Framke adds. "And that's what I want in the database."

Watchfire's Carpenter says that many ETrade customers are not concerned about a few seconds of trade execution time. But for "active traders" — those making hundreds or thousands of trades a year — "execution quality and speed are of the utmost importance."

Says Levine, "What I'm most proud of is that we operate at 100% every day, 24 hours a day. And it's out there for everyone to see if you have a failure. I mean, my career could end right now with a three-hour outage." 49201

Inside ETrade's Data Center

PERFORMANCE and reliability aren't just about computer hardware and software; IT assets must be protected.

That was one of the pitfalls when ETrade built its regional operations center during the stock market boom of 1999. Speed was another. "Those were heady days for companies like ETrade," says Greg Framke, an executive vice president and head of IT at ETrade. "Companies could barely keep up with demand. The ROC was built in less than 12 months."

ETrade's main data center, the 570 million (excluding the computer gear) regional operations center is an unmarked, windowless concrete fortress in Alpharetta, Ga.

The facility is classified as a "Tier IV – Fault Tolerant" data center, with two independent electrical systems, multiple power and cooling distribution paths, redundant components and 99.995% availability.

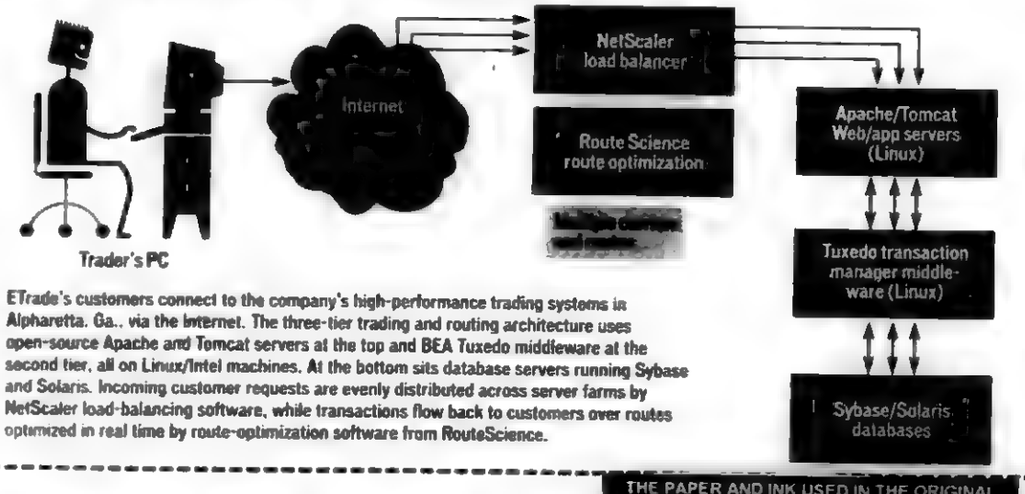
Six telecommunications carriers have pipes into the building, and there are three electrical feeds to the data center. Two rooms each house a pair of 600-ton chillers, and a million-gallon tank of cold water can supply cooling if a chiller fails.

The center has four generators rated to run the entire facility's power supply units, any one of which can fail with no operational impact. Two other rooms each house a pair of redundant, 2-megawatt diesel generators. Nearby is a 250,000-gallon tank of diesel fuel – enough to power the data center for two weeks.

Security is tight. There are closed-circuit TV monitors, doors are equipped with badge readers, and a fingerprint-recognition system controls access to the computer room.

– Cheryl Anthony

ANATOMY OF A TRADE



ETrade's customers connect to the company's high-performance trading systems in Alpharetta, Ga., via the Internet. The three-tier trading and routing architecture uses open-source Apache and Tomcat servers at the top and BEA Tuxedo middleware at the second tier, all on Linux/Intel machines. At the bottom sits database servers running Sybase and Solaris. Incoming customer requests are evenly distributed across server farms by NetScaler load-balancing software, while transactions flow back to customers over routes optimized in real time by route-optimization software from RouteScience.

A BRIEF HISTORY OF ETRADE

How the company – and its technology – have evolved

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THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICROFORM EDITION

products came the luxury of being able to overprovision by buying spare capacity for every conceivable hardware failure and spike in demand. "When you are buying servers so cheaply, the concept of 'capacity' drops away," Levine says. "We buy a machine for $3,900, and we don't even buy maintenance on it. When it fails, we throw it away."

ETrade's three-tiered architecture includes a server farm, which it continues to build out horizontally, with 700 Linux/Intel boxes running most of the time at some small fraction of their capacity. Making that work, and making it easy to add more boxes, requires software that can move the workload around and the ability to swap out failed servers, in real time. ETrade uses load-balancing software from Resonate Inc. but is migrating to a similar tool from NetScaler Inc. that it says is faster.

Those products load-balance within an application, so if trade routing needs more horsepower or encounters a hardware failure, for example, that's addressed automatically and immediately. ETrade is now looking at ways to create a virtualized server farm for use by multiple applications. "How do you jump-start or repurpose a server?" says Hartley Caldwell, vice president of re-engineering. "We are thinking about that in the future."

The Right Routes

An ETrade customer may connect to the Internet over one path. But ETrade then finds the best route back to the customer using Adaptive Networking Software from San Mateo, Calif.-based RouteScience Technologies Inc., which can adjust traffic in subseconds to meet user-specified policies about application availability, performance and network usage. Route adjustments are made using open-standard application programming interfaces on routers and other network devices.

"It's a common myth that you can't manage the Internet," says Lloyd Taylor, technology vice president at Keynote Systems Corp. "Using the proper measurements, and understanding how routing works and working on your providers, you can actually control a good portion of the performance."

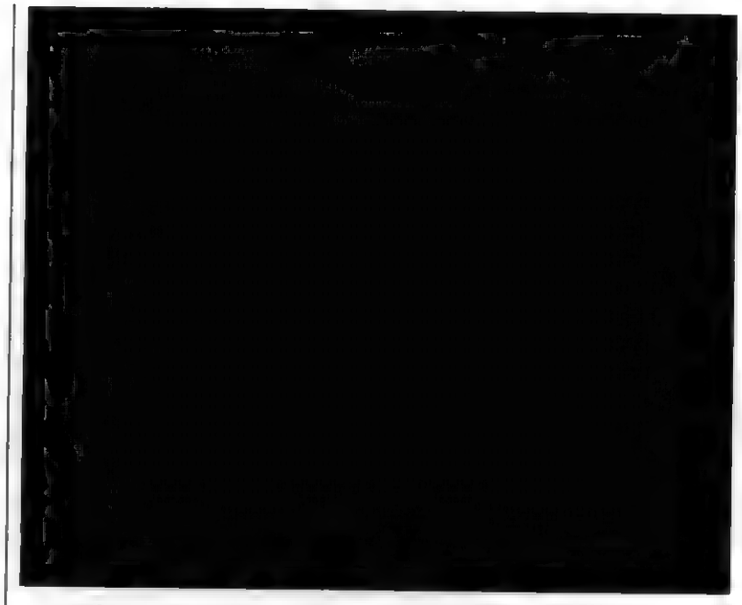
The move to Linux/Intel servers reduced trade times 30% and enabled the nine-second trade guarantee. Getting down to two seconds required other moves, including bringing ETrade's system for routing — moving trade orders to the proper exchange and bringing back confirmations — in-house.

ETrade was using a third-party service, but it saw that it could improve reliability and speed by developing its own routing software. Its internal system, RoutX, eliminated route hops and optimized the software, Levine says.

Extreme Measures

Gomez Inc. and Keynote both monitor ETrade Internet activity continuously. Keynote sends test transaction suites every few minutes from each of 20 locations around the U.S. and reports the results to ETrade every 15 minutes.

Says Caldwell, "Every morning we review the previous day's operations and the coming day's operations with the operational staff around the world. What was the customer's experience, how many million hits did we have, how many Web errors did we have, were they customer Web errors, did our load-balancing solution remove them in time, and so on."



Greg Framke, an executive vice president and head of IT at ETrade, says, "We have developed a rigor around performance and availability that has really made a big difference. Measuring reliability and performance is almost a cult with us."

At the middle layer of the three-tiered trading system, ETrade runs BEA Systems Inc.'s Tuxedo transaction manager, and that could be the next target for the company's move to open-source, Levine says. "We are very interested in Java Message Service — JMS," he says.

The move to JMS would be straightforward, and its benefits would be primarily economic, according to Caldwell. "Tuxedo is fairly expensive on a per-CPU basis," he explains.

While the top two tiers of the trading and routing systems run on Linux, the Sybase database layer remains on Sun Sparc systems running Solaris. A move to Sybase on Linux is possible, but that would require a significant system redesign and have an uncertain operational impact, Caldwell says.

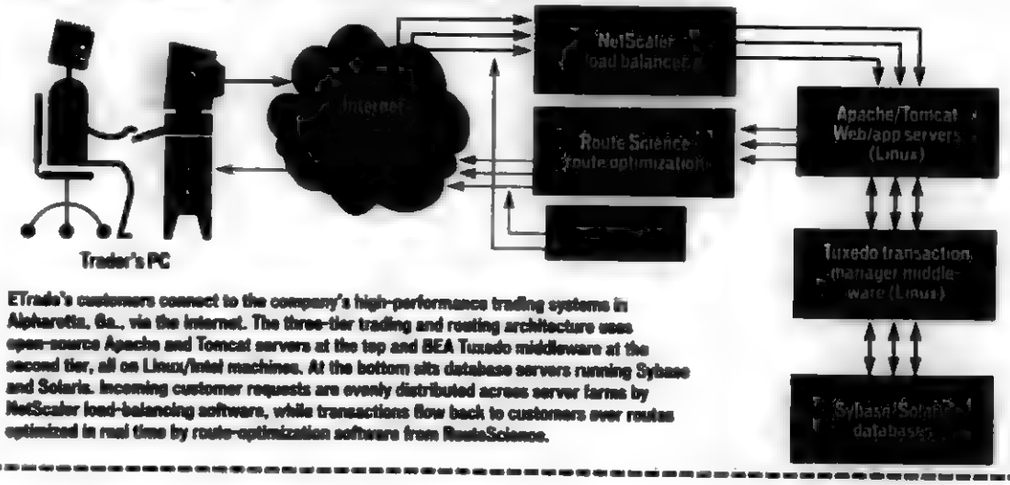
Rather than making an intermediate move to Sybase on Linux, Framke says ETrade could go to a grid database concept in which data is cached at various points up and down the application stack. "If I could put data closer to the user, I could serve it up faster," he says.

That could improve availability as well. "If you look at the way we have architected our front end, it is rare — a very rare event — to have a user who couldn't on the second click get to where they were going," Framke adds. "And that's what I want in the database."

Watchfire's Carpenter says that many ETrade customers are not concerned about a few seconds of trade execution time. But for "active traders" — those making hundreds or thousands of trades a year — "execution quality and speed are of the utmost importance."

Says Levine, "What I'm most proud of is that we operate at 100% every day, 24 hours a day. And it's out there for everyone to see if you have a failure. I mean, my career could end right now with a three-hour outage." 49201

ANATOMY OF A TRADE



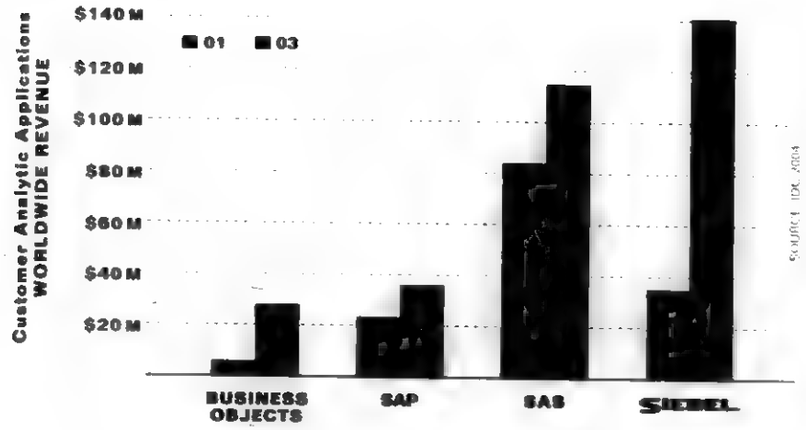
ETrade's customers connect to the company's high-performance trading systems in Alpharetta, Ga., via the Internet. The three-tier trading and routing architecture uses open-source Apache and Tomcat servers at the top and BEA Tuxedo middleware at the second tier, all on Linux/Intel machines. At the bottom sits database servers running Sybase and Solaris. Incoming customer requests are evenly distributed across server farms by NetScaler load-balancing software, while transactions flow back to customers over routes optimized in real time by route-optimization software from RouteScience.

A BRIEF HISTORY OF ETRADE

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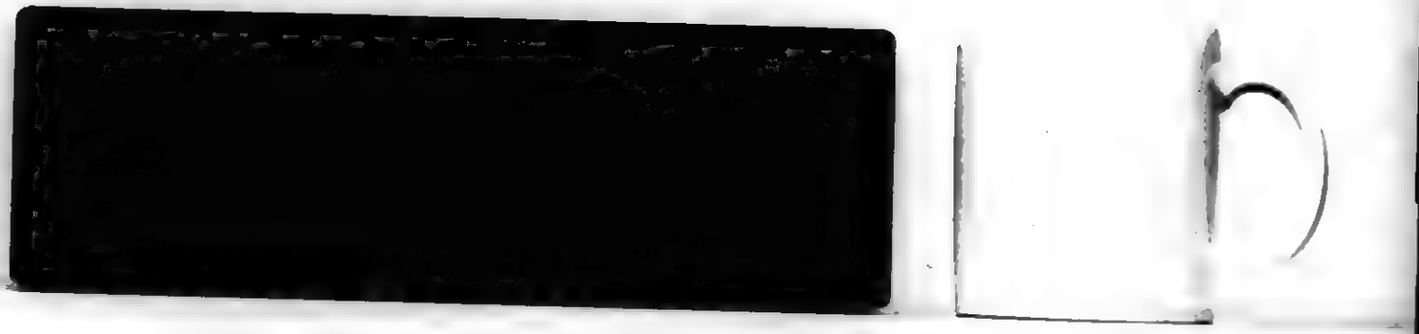
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THE GRAND CHALLENGES OF IT

Researchers are inventing new ways to tackle old problems.

BY THOMAS HOFFMAN

FUTURE WATCH

FUNDAMENTAL RESEARCH on how to make computer hardware more powerful and software smarter goes back 50 years or more, but many of the traditional methods have nearly reached their limits. Now, researchers moving in bold new directions may be setting the course of IT for decades to come.

There are literally dozens of grand challenges that scientists and economists are attacking, ranging from societal issues to technical advances. Here, we take a look at the challenges in three key areas of IT research: processor performance, chip miniaturization and artificial intelligence.

Processor Performance

In 1965, Gordon Moore, a co-founder of Intel Corp., observed that the transistor density of semiconductor chips doubled every 18 to 24 months, so new PCs are roughly twice as powerful as their predecessors. Most researchers expect Moore's Law to hold true for at least another 10 years.

But processor performance is reaching its limits, especially in terms of the amount of power that's dissipated by transistors. "As Moore's Law has gone along, it becomes harder and harder to get devices to work at very small scales using CMOS," says Phil Kuekes, senior computer architect in quantum sciences research at HP Labs in Palo Alto, Calif.

It's becoming increasingly difficult to cool chips economically, says Bijan Davari, an IBM fellow and vice president of next-generation computing at IBM's Thomas J. Watson Research Center in Yorktown Heights, N.Y. The power-density limitation for air-cooled processors is on the order of 100 watts per square centimeter of chip area, says Davari, "and it gets a lot more expensive to inject liquid into the backside of a chip, which could permit cooling to about twice that power density."

Depending on voltage ranges and other factors, Itanium and Pentium 4 chips burn 100 to 150 watts of power, Davari adds. "For future processors, we'd like to reduce the power dissipation into tens of watts per processor core, and more importantly, we need to contain the power density, or power dissipation per unit area," he says.

Given those restrictions, researchers are now focusing on new approaches to improving processor performance, such as placing multiple processor cores on a single chip, in addition to taking new approaches to chip architecture and design.

For example, IBM is evaluating – and in some cases already implementing – the use of new materials on a chip, such as copper, silicon-on-insulator and silicon germanium, to improve the performance of devices, lower the power density or provide a combination of the two. In addition, the materials allow researchers to fabricate smaller chips that consume less power, Davari says.

And at Austin-based Sematech Inc., researchers are working with so-called low-k materials, which allow metal circuits to be packed closer together on a chip with less risk of electrical signal leakage, says Randy Goodall, associate director of the International Sematech Manufacturing Initiative.

To help increase power dissipation, IBM is testing cooling gels that would prevent hot spots on a chip. IBM is also looking into the potential for water-cooled microprocessors, says Davari.

To help improve bandwidth inside chips, researchers at MIT are working on an effort called the Raw Architecture Workstation Project, where multiple "adders and subtractors" are placed throughout the chip along with storage to provide "neighborhoods of processing, rather than traversing the entire chip to move data," says Anant Agarwal, a professor in electrical engineering and computer science at MIT. "It's like going to a grocery store closest to me rather than going across the county."

Meanwhile, researchers at Los Alamos National Laboratory in New Mexico and elsewhere are developing parallel processing systems that would employ tens of thousands of processors and deliver up to 1,000 trillion floating-point operations per second of performance by as early as 2008.

David Patterson, a professor of computer science at the University of California, Berkeley, says he believes researchers will be able to double the number of processors they can place on a single chip every three to four years. "But that's predicated on the amount of software that can make use of it," he warns.

"Programming big parallel computers to exploit their potential has been the show-stopper," says Burton Smith, chief scientist at Cray Inc. in Seattle. "As computers grow from hundreds of processors to tens of thousands of processors in the next few years, this problem is going to increase dramatically."

Cray, IBM and Sun Microsystems Inc. are developing parallel programming languages. Smith says he expects that Cray will make its parallel programming language, called Chapel, available in an open-source version in 2005.



The Blue Mountain supercomputer at Los Alamos, built by the Cray unit of Silicon Graphics, was one of the fastest in the world when it was installed in 1998. It is now giving way to an even faster machine.

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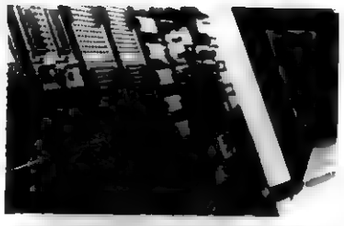
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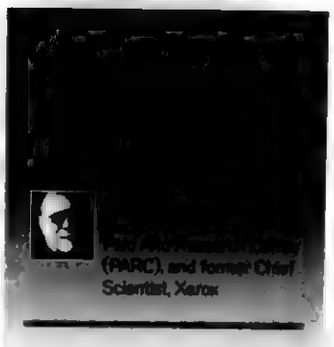
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Conference At-a-Glance *(subject to change)*

For details, updates, and to register visit **www.snwusa.com/cw**

MONDAY, OCTOBER 25

9:30am to 10:25am

INDUSTRY PRIMER TRACK

Addressing High Density Cooling of Storage Networking Equipment at the Facility Level
Donald Beaty, Founder & President, DLB Associates

INDUSTRY PRIMER TRACK

Storage Basics and Trends
Dennis Martin, Senior Analyst, and Greg Schulz, Senior Analyst, Evaluator Group

CAREER DEVELOPMENT TRACK

Power Statements, Questions and Answers Techniques
Howard Goldstein, Founder, Howard Goldstein Associates, Inc.

10:35am to 11:30am

Role of Server Blades and Virtualization in Next Generation Data Center
Arun Taneja, Founder and Consulting Analyst, Taneja Group

Why Tape Continues to Make the Grade
Richard Harada, President, Tape Technology Council

Communication Skills for the IT Techie
Bill Peldzus, Director of Storage Architecture, GlassHouse Technologies

11:30am to 1:00pm Luncheon

Afternoon

SNIA Tutorial Sessions
1:00pm to 6:40pm

- **Data Lifecycle**
- **Virtualization & Securing Your Storage**
- **Focus on Networking Your Storage**
- **Focus on Storage**
- **SAN Management**
- **Voice of the User**

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IDC Briefing Session
1:00pm to 4:00pm

IDC

In this fast-paced session, IDC's top storage analysts will examine companies' growing interest in deploying tiered storage solutions and assess its impact on storage components, systems, networks, management and services.

IT End-User Golf Outing
noon to approximately 6:00pm

The pre-conference golf outing at the Ritz-Carlton Golf Club located adjacent to the JW Marriott Grande Lakes Resort is complimentary (a $125 value) for registered IT end-users. (Other participants, including sponsors and vendor representatives, may play on an "as available" basis and are responsible for all applicable golf outing expenses.)

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7:00pm to 9:00pm Welcome Reception

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TUESDAY, OCTOBER 26 *General Sessions Begin*

8:30am to 9:15am — **Don Tapscott, Renowned Bestselling Author of *The Naked Corporation, Growing Up Digital* and *Paradigm Shift***

9:15am to 9:45am — **The Future of Knowledge Management**
John Halamka, MD, CIO, CareGroup Health System and Harvard Medical School

9:45am to 10:15am — **Kevin Rollins, President & CEO, Dell**

10:30am to 11:30am — **Keith Glennan, VP & CIO, Northrop Grumman IT**

11:00am to 11:30am — **Elevating the Art of Storage**
Shinichi Iwata, CEO, Hitachi Data Systems

11:30am to noon — **Industry Presidents' Roundtable: A Market Outlook**
Moderator: Don Tapscott, Author of *The Naked Corporation, Growing Up Digital* and *Paradigm Shift*

12:15pm to 1:30pm — CONCURRENT LUNCHEON SESSIONS

General Networking Luncheon
On the Valencia Lawn

Luncheon Session
Steve Duplessie, Founder & Senior Analyst, Enterprise Storage Group

Measuring the Value of IT Investments
Richard Snieder, Managing Partner, InterUnity Group

Storage and Mere: Is Convergence Ahead?
Networking, security and storage pros discuss their technology roadmaps, spending plans and vendor relationships
Ken Male, CEO & Founder, TheInfoPro (TIP)

1:30pm to 2:00pm — **End User Case Study: Best Practices: Data Center Consolidation**
David Coher, VP Technology Architecture Group, Merrill Lynch

2:00pm to 2:30pm — **Greg Reyes, Chairman & CEO, Brocade Communications Systems**

2:30pm to 3:00pm — **End User Case Study: Evaluating Options for Business Continuity/Disaster Recovery Plans**
Ron Mueller, Manager of Technology and Infrastructure, International Paper

3:00pm to 3:45pm — **CTO Insights Panel**
Moderator: Jon William Toigo, CEO & Founder, Toigo Partners International

4:00pm to 5:30pm — CONCURRENT SESSIONS

5:30pm to 8:30pm — Expo with Dinner / Interoperability & Solutions Demo Open — 5:30pm to 8:30pm

WEDNESDAY, OCTOBER 27

8:30am to 9:15am — **Nick Carr, former Executive Editor of the Harvard Business Review and author of *Does IT Matter?***

9:15am to 9:45am — **End User Case Study**

9:45am to 10:15am — **Industry Leader Presentation**

10:30am to 11:00am — **End User Case Study: Realizing the Vision of Management Simplicity and Improved Business Processes in a Demanding, Distributed, High-Performance Environment**
Michael Prince, VP & CIO, Burlington Coat Factory

11:00am to 11:30am — **The Half-Life of Storage Trends**
Peter van Oppen, Chairman & CEO, ADIC

11:30am to 12:15pm — **Panel: End Users Speak Out**
Moderator: John Dix, Editor in Chief, Network World

12:15pm to 1:45pm — Expo & Luncheon

1:45pm to 2:15pm — **End User Case Study**

2:15pm to 2:45pm — **Industry Leader Presentation**

2:45pm to 3:30pm — **Analyst Roundtable Panel**
Moderator: Jon William Toigo, CEO & Founder, Toigo Partners International

3:45pm to 6:15pm — CONCURRENT SESSIONS

5:15pm to 7:15pm — Expo and Reception

7:30pm to 9:00pm — Gala Evening, Dinner and Entertainment

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THURSDAY, OCTOBER 28

7:30am to 8:30am — Breakfast

8:30am to Noon — CONCURRENT TECHNICAL & BUSINESS TUTORIALS

Noon — Conference Concludes



"... SNW is a great venue for peer discussion ... an opportunity to provide feedback to vendors on what users need from them ... I sat down with my key vendors and shared information ..."

John Greer
Director, IT Infrastructure
Pacific Gas & Electric



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- ❑ Insurance
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- ❑ Telecommunications
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- ❑ Food Industry
- ❑ Government/Military
- ❑ Healthcare/Medical Services
- ❑ Travel/Hospitality/Recreation
- ❑ Manufacturing (non-IT)
- ❑ VAR/VAD/ASP/System Integrator (Channel/Integrator/Consultants Only)
- ❑ Industry Consultant/Storage Solution Integrator (Channel/Integrator/Consultants Only)
- ❑ Manufacturing (IT) (Channel/Integrator/Consultants Only)
- ❑ Computer Retailer/Dealer/Wholesaler (Channel/Integrator/Consultants Only)
- ❑ Software Development (Storage) (Channel/Integrator/Consultants Only)
- ❑ Other Computer Related (Storage) (Channel/Integrator/Consultants Only)
- ❑ Other

Your Job Title/Function
- ❑ CEO/COO/Chairman/President
- ❑ CIO/CTO
- ❑ VP/GM/Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Other Corporate Business Manager
- ❑ CEO/COO/Chairman/President (Channel/Integrator/Consultants Only)
- ❑ CFO/Controller/Treasurer (Channel/Integrator/Consultants Only)
- ❑ VP/GM/Director (Channel/Integrator/Consultants Only)
- ❑ Sales/Marketing/Product Staff (Channel/Integrator/Consultants Only)
- ❑ CIO/CTO/Director/IT Manager (Channel/Integrator/Consultants Only)
- ❑ Engineering Staff (Channel/Integrator/Consultants Only)

The one item that best describes your involvement in the IT purchase process
- ❑ Author or the purchase
- ❑ Approve the budget
- ❑ Initiate the purchase
- ❑ Evaluate/recommend products, brands, vendors
- ❑ Identify/establish the need to purchase
- ❑ All of the above

Number of employees in your entire organization (ALL locations)
- ❑ Over 10,000
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ Less than 500

What is the estimated annual revenue of your entire organization?
- ❑ Over $10 Billion
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499.9 Million
- ❑ Less than $100 Million

Your organization's annual IT/IS budget for all IT/IS products, or if you are a Channel/Integrator Partner or Consultant, what is the annual dollar value of IT products/services you sell/resell/recommend/influence for purchase by your customers/clients.
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

Annual company IT budget (storage products and services)
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

Would you like to receive information about playing in the golf outing on Monday, October 25th?
- ❑ Yes
- ❑ No

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❑ **$1,295** (through September 14, 2004) General Conference Package (includes General Conference Sessions, Expo, Meals & Receptions)	❑ **$1,690** (after September 14, 2004) General Conference Package (includes General Conference Sessions, Expo, Meals & Receptions)

❑ **I am a qualified member of the press.** I can verify my press credentials. Press should call Erin Keefe at 1-781-915-5009 to register.

Please fax this completed application to 1-508-820-8254

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In the event of cancellation, the registrant has three options:
1) He or she may substitute another attendee for this conference.
2) He or she may transfer this registration to the Storage Networking World Spring 2005 conference.
3) The registration fee will be refunded, less a $250 service charge (if written notice is received by October 5, 2004).
Please send cancellation requests via email to: snwreg@computerworld.com

Chip Miniaturization

Today, chips can be made with features as small as 70 to 90 nanometers wide, with hundreds of millions of transistors on them.

Last year, HP Labs developed a 64-bit RAM that sits on a single square micron, says Phil Kuekes.

One way to deal with the heat generated by ultradense circuits is to reduce the power supply voltage, says Anantha Chandrakasan, associate director of the Microsystems Technology Laboratories at MIT.

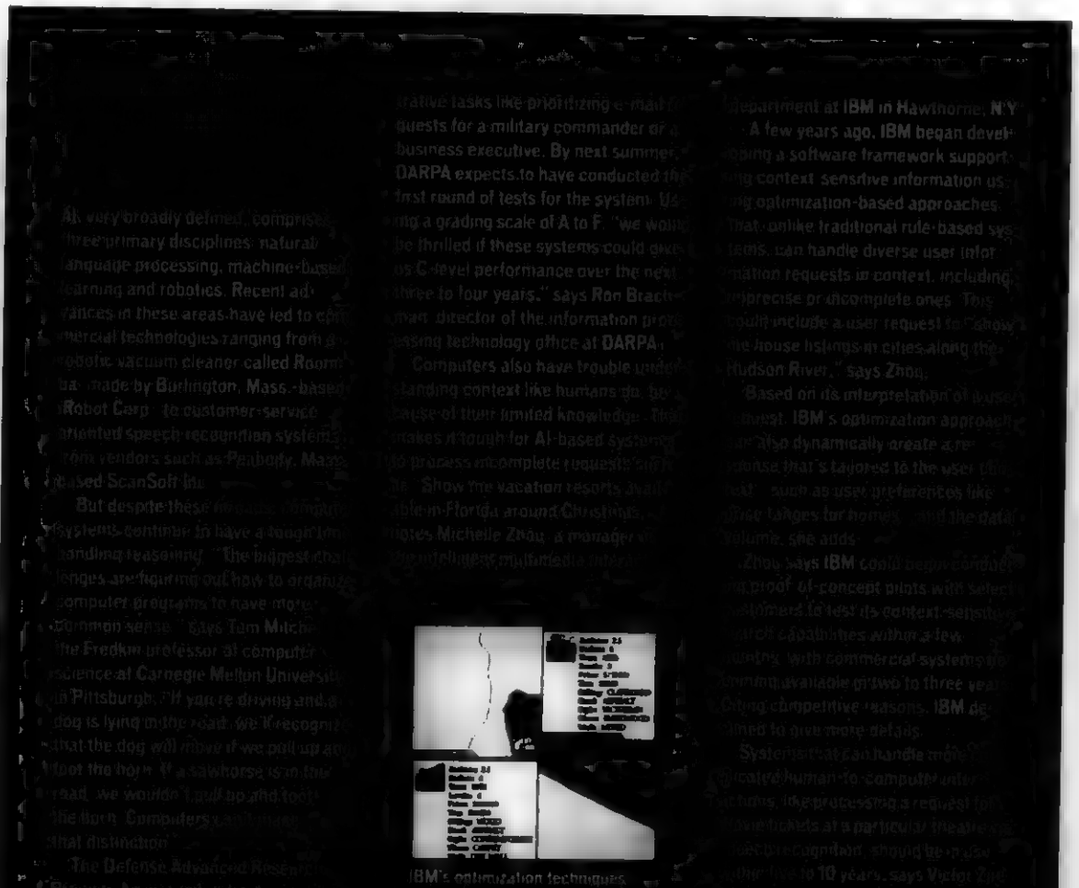
Over the past 10 years, designers have been able to create circuits that operate from 1-volt power supplies, and Chandrakasan says designers should reach the half-volt threshold within five years.

But to scale the power supplies down, the device thresholds must also scale down, which causes power leakage to exponentially increase, says Chandrakasan. To contend with these problems, he expects to see increased emphasis on gating the power supply – or cutting off the power supply network when the circuit is idle, using power switches on the chip die – and using multiple threshold devices to minimize power requirements.

Tom Theis, director of physical sciences at IBM Research, says he believes that further refinements in ultrathin silicon and ultrathin gate insulators could allow researchers to shrink device-channel lengths from roughly 45 nanometers today to 15 to 20 nanometers within 10 years. He also expects to see some high-performance chips dissipating at least 10 times the power of today's chips, as well as chips with 10 times the memory density of today's through the use of optical lithography tools that will arrive in 10 years.



HP has created a prototype of a 64-bit memory in one square micron of space – an area so tiny that more than 1,000 could fit on the end of a single strand of human hair. Each image is magnified 10 times more than the previous one. The first (upper left) shows the wafer on which 625 memories and their test structures were simultaneously imprinted.



IBM's optimization techniques

Grand View



To Internet pioneer David Clark, the most pressing research challenge in IT is figuring out how to provide universal communications across the face of the earth.

"The grand challenges aren't about getting faster and measuring ourselves against some meter on the wall so that we're in line with Moore's Law," says Clark, a senior research scientist at MIT. "If you talk to users, they don't care about speeds – they care about things like ease of use, reliability and access," he adds.

To help provide global access to communications, Clark advocates several approaches, including the use of wireless technologies in developing nations that can't afford to install wireline networks, especially in sparsely populated regions.

"We don't need to get there with 100 megabits to the home – many of these people can't even read," Clark says. "The possibility for a lower-cost wireless infrastructure is the great hope."

– *Thomas Hoffman*

CLOSING THE GAP

Researchers are increasingly focusing their attention on technologies aimed at optimizing the edge of the network.

QuickLink 48383
www.computerworld.com

RECOLLECTING THE

By Thomas Hoffman and Lucas Mearian

CASE STUDY

WHEN THE stock market slumped in mid-2000, most financial services firms found themselves struggling to hold onto clients. ING was focused on selling them new products.

"Not only must large companies retain customers, but to increase revenues, they have to cross-sell to them more effectively," says Linda Marr, chief knowledge officer at Atlanta-based ING Americas, a division of Amsterdam-based ING Groep NV.

To help it draw upon customer data across multiple accounts more effectively, ING embarked on a massive data integration effort in July 2001 aimed at creating a series of database "hubs" that together form a unified information architecture for its seven U.S. business units, including reinsurance, pension plans and mutual funds.

"The hubs are for centrally structured data . . . enterprise value data that's commonly used across all lines of business, [including] customer information, agreement information and product information," says Chief Technology Officer Raymond Karrenbauer.

ING, which has 27 lines of business worldwide, has completed four hubs and has 10 more under construction. Those multiterabyte databases give business units a comprehensive, unified view of the customer. But Karrenbauer had two broader goals in mind: create a reusable architecture to drive costs down and mitigate risk.

To appreciate the immensity of this project, one needs only to walk into ING's project control room in Atlanta. Tacked along the walls are dozens of schematic diagrams that illustrate how the financial services firm is simplifying an incredibly complex IT environment. That system was created by a flurry of mergers and acquisitions that included the purchase of Barings PLC in 1995 and Aetna Financial Services Inc. in 2000.

ING began implementing its integrated data environment in May 2003. The structured data sits in a set of partitioned IBM DB2 Universal Database EEE databases. Key to the project is data-mapping software from Informatica Corp. in Redwood City, Calif., that allows ING to cross-reference customer information among databases at business units.

ING also uses data profiling software from San Francisco-based Evoke Software Corp. and ad hoc reporting and analytical tools from France-based Business Objects SA.



KARRENBAUER says some projects have yielded an internal rate of return of over 100%.

In just 11 months, ING's staff built an object-based database infrastructure that melds unstructured and structured data from 2,000 databases into one logical view of customer and operational information.

Now, when an ING call center agent pulls up a customer record in the new database, "it will retrieve the customer information from the structured data and then also provide any relative documents with that customer," says Karrenbauer.

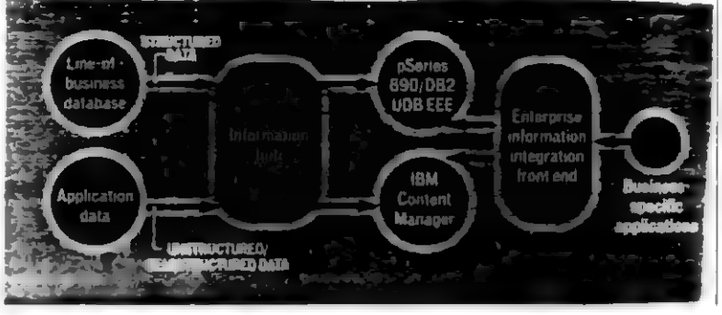
ING created DB2 repositories to aggregate a subset of structured data from each business unit's database that's of interest to the other business units. Along the way, the source data is funneled through a hub that conducts a series of transformation and deduplication steps.

Unstructured data sits in a separate repository. Sitting above that is an architectural layer that uses metadata to determine common traits between structured and unstructured data, says Karrenbauer. Some data is transferred in batch mode, but ING is piloting real-time, bidirectional data updates between the databases.

The source databases used by ING — which include Ingres, Sybase, SQL Server, Oracle and DB2 — remain in use for claims and statement processing, says Karrenbauer. Under the data integration effort, ING merely centralized some of the source data from these systems and classified it using common terminology so information can be shared across business units.

ING's Integrated Data Environment

ING collects customer data from an array of 2,000 databases scattered across 27 business units. Information from source databases is cleaned, transformed and deduplicated in the information hub before passing to the consolidated DB2 UDB EEE databases running on a pSeries 690 multiprocessor server. The new database gives ING's business divisions the ability to reuse customer data more effectively. Unstructured and semistructured application data is routed to the IBM Content Manager server where it is accessible based on metadata tags.



Avoiding Duplication

Karrenbauer places the hardware costs associated with each information hub at $2 million to $4 million, but he says some of the projects have yielded an internal rate of return in excess of 100% by avoiding project delivery duplication. That's because ING created a standardized project delivery model that can be repeated as each business unit pursues its own relational databases, according to Karrenbauer.

Although reusability leads to lower costs, "there's risk mitigation in taking this approach," he says. "If you did one-offs in each case, the risks are clearly higher."

And as other ING divisions in Brazil, Chile, Canada and the Netherlands apply the information-hub approach adopted by ING Americas as a template for their own data integration efforts, Karrenbauer estimates that they can reuse 50% to 65% of the IT architecture that his division created.

ING's efforts have won praise from industry observers. "I've seen other companies try to stitch together pieces of applications into new applications, but ING is a real leader in its formation of an integration competency center and its use of data services," says Philip Russom, an analyst at Cambridge, Mass.-based Forrester Research Inc.

Marr says the unified IT architecture is already paying off. For instance, she points to recently enacted antispam regulation that requires financial services companies to offer customers an e-mail opt-out option. By now having all of its customer information accessible from a single environment, she says, ING is about to comply with the regulation "while allowing us to continue to market to and support our customers." **48402**

MORE ONLINE

ING's Raymond Karrenbauer discusses the rationale for the database integration project, the benefits and his biggest challenge.

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www.computerworld.com

RECOLLECTING THE CUSTOMER

ING Group's new unified information architecture pulls data from disparate business units' databases to create a unified view of customer activity. **By Thomas Hoffman and Lucas Mearian**

CASE STUDY

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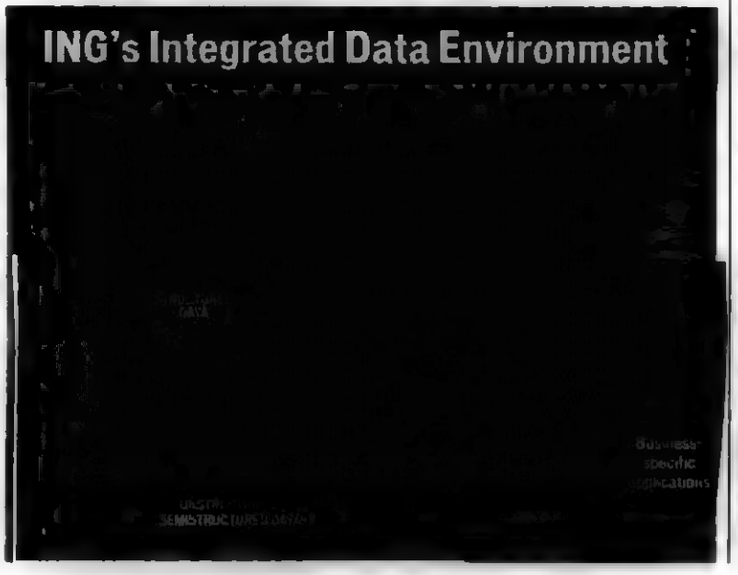
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IP Telephony Changes Security Equation

Voice over IP presents challenges in protecting the corporate network. By Mathias Thurman

IN AN EFFORT TO cut costs, my company has decided to migrate from private branch exchanges to IP telephony. By routing calls over our existing IP network and using voice-over-IP links, we can significantly cut our telecommunications costs, especially since we have significant telephone traffic between our U.S. offices and places like Europe and India, as well as other parts of Asia.

The bottom line, however, is that we'll have phones on our desks that are connected to the network. And that means securing the telephone network will become my problem.

SECURITY MANAGER'S JOURNAL

The thought of IP traffic with voice traversing the network bothers me, since our network isn't as secure as it could be. So I conducted an assessment of the major pieces of the IP telephony infrastructure. Since my exposure to IP telephony has been limited, I started by reading up on the technology. Most of the vulnerabilities discussed focused on the ability to either intercept network traffic or conduct impersonation attacks — manipulating a phone call so that it appears to come from someone else.

Since I didn't have a lot of time, I didn't focus on denial-of-service attacks, which we can address with our regular network gear. For example, we use Cisco network equipment, which includes several self-defense features within the operating system to address most DoS attacks. In addition, we will most likely deploy an all-in-one device to mitigate the threat posed by malicious code. Fortinet Inc. in Sunnyvale, Calif., has a very appealing product that we're considering deploying. This device not only addresses malicious code, but also supports firewall, VPN and intrusion detection and prevention functions.

To conduct my tests, I created a scaled-down version of the new IP telephony system. The setup included several IP phone models, a call management server and some networking gear. I started by testing the network over which the voice traffic must flow. I first attached my Linux laptop to an available Ethernet port to see what I could monitor using the free dsniff and ethercap tools.

Once I recorded some network traffic, I downloaded and compiled a tool called Voice Over Misconfigured Internet Telephones, which goes by the horrible acronym VOMIT. This program can take captured IP telephony packets and reassemble them into a form that you can play back over your computer's speakers. The IP phones from which I gathered the voice traffic don't support encryption, so I could easily play the conversations. Using handsets that encrypt traffic will be a requirement. We'll also require that IP telephony traffic be separate from our regular data traffic. We'll do this by creating separate virtual LANs on our network switches. By segregating the traffic in this way, we can thwart users on the data VLAN from sniffing voice traffic.

> **The thought of IP traffic with voice traversing the network bothers me, since our network isn't as secure as it could be.**

In addition, we will add firewall rules that limit access to the critical IP telephony devices to only the required IP addresses. For example, if managers are on a separate VLAN, we can craft rules that state that only certain users can obtain management access. We could further lock down the network by restricting the traffic so that only the IP phones can contact a manager.

Another aspect of IP telephony is the PC phone, or "soft phone," which lets any PC with a headset or microphone and speakers work like a regular telephone. Until we address desktop firewall and patch management issues, however, we'll restrict users from using these applications.

Integrity Check

Next on my agenda was to assess the integrity of the centralized communications server, or call manager, which sets up and manages phone calls. IP phones initiate a call by contacting this server. While the call manager plays a role in setting up calls, once the connection is established, the phone conversation occurs directly between the two IP phones over the switched IP network.

The communications server software we'll most likely use, Cisco CallManager, runs on Windows 2000 and Internet Information Server. That's not the ideal system for a critical infrastructure, but Cisco claims that the Windows implementation has been hardened, that unneeded services have been disabled and that there is even a host-based intrusion-detection system installed on the server.

If I could hack into CallManager, I figured that I would own the entire phone system. For this test, I ran a combination of Nessus, a freely available port scanner, and WebInspect from SPI Dynamics Inc. in Atlanta to conduct a comprehensive application-layer assessment. To my surprise, both assessments identified no critical vulnerabilities. Then again, my test represented an assessment for only a single point in time. More testing will be needed, and patching will be critical. As soon as Microsoft announces the next Windows vulnerability, if the call management server isn't patched, it may then be possible to gain access to it.

Cisco and the vendors we approached all claim that they keep up with all patches and security issues and provide regular updates to the operating system and their software.

This was just my initial look at some of the main components of the IP telephony infrastructure. I still need to address DoS issues, and we have to take a hard look at the architecture of the entire IP telephony infrastructure. Several other tests we conducted provided a comfortable level of assurance that we can deploy a secure IP telephony system.

For now, it seems possible to deploy IP telephony in a secure manner with the proper architecture and planning — and by taking advantage of the available security configuration options of the devices.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: Quickid.link a1580

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Security Bookshelf



The Tao of Network Security Monitoring: Beyond Intrusion Detection, by Richard Bejtlich; Addison-Wesley Professional, July 2004.

This book is one of the most useful titles I've read this year. It offers a comprehensive review of intrusion detection and network monitoring. The author takes the reader from the basics of placement of network sensors through a comprehensive description of tools, many of which I had never even heard of. Bejtlich uses real-world examples to provide a clear understanding of network monitoring, intrusion detection and incident response.

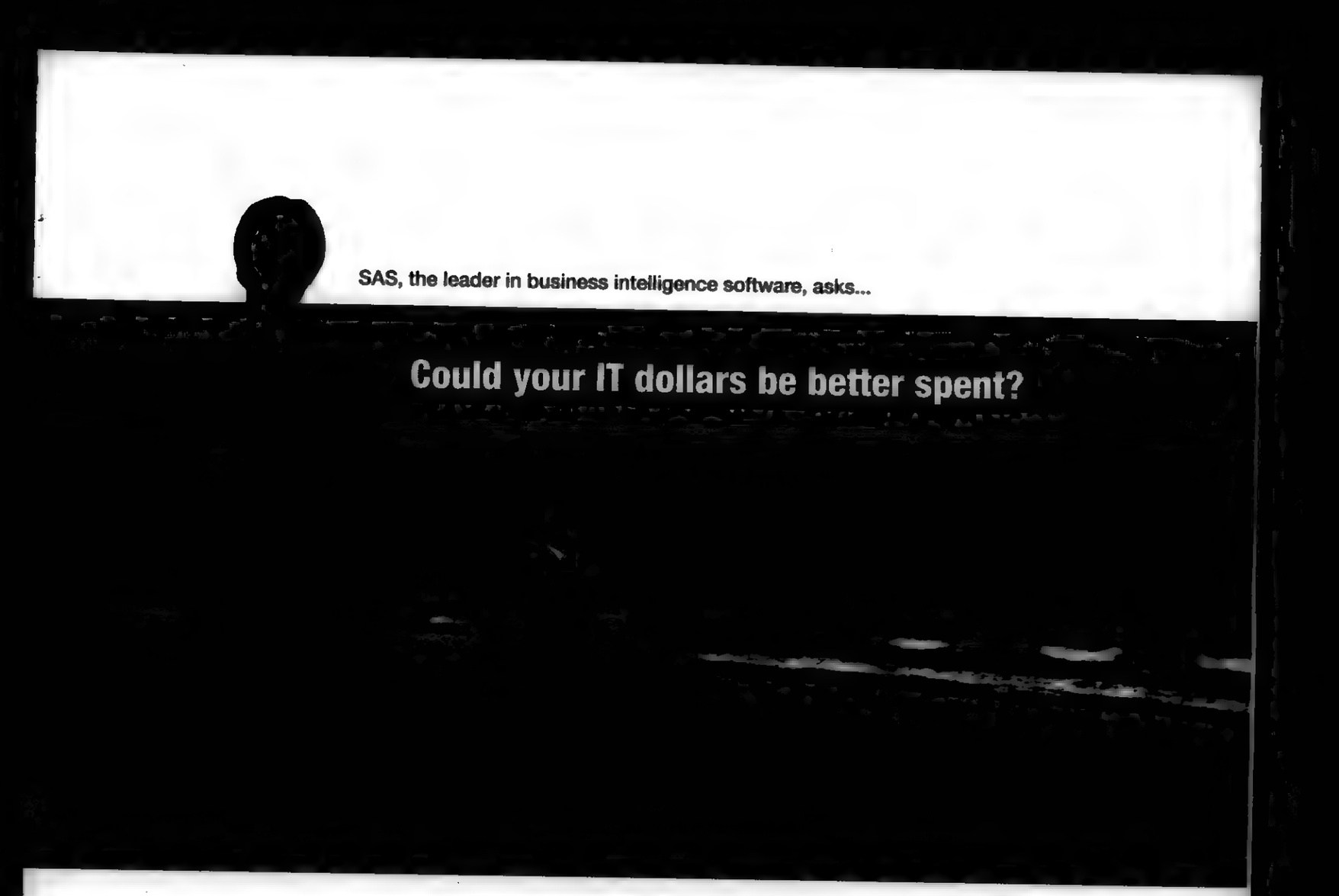
One aspect of the book I particularly appreciate is the discussion of real-world applications of some popular, freely available tools. Unfortunately, the book doesn't include a CD-ROM containing these tools, but the author does provide Web addresses where you can download the programs he discusses.

–Mathias Thurman

TCS Announces Trusted Linux

Trusted Computer Solutions Inc. has announced that it is developing a product called TCS Trusted Linux, a multilevel-secure version of the Linux operating system.

Behind the Linux hacking hubbub, there's a real need for a secure version of Linux, especially in government and military circles. Traditional Common Criteria Evaluation and Validation Scheme at Evaluation Assurance Level 4, therefore, the highest TCSEC rating the product will achieve under the NSA



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BRIEFS

SurfControl Stiffens E-mail Protection

Antispam software vendor SurfControl PLC has unveiled its first network gateway e-mail appliance product line, called SurfControl RiskFilter. The Cheshire, England-based company said the appliances use advanced filtering techniques, including spam fingerprints, heuristics and lexical analysis, to eliminate e-mail threats while delivering acceptable e-mails to recipients. SurfControl RiskFilter runs on a hardened Linux operating system. The appliance will be available starting Oct. 4 in three models priced between $12,900 to $48,000.

Xten Launches Video Softphone

Xten Networks Inc. in Santa Clara, Calif., has announced eyeBeam, a video softphone based on the Session Initiation Protocol and the H.263 video coder/decoder standard. The product is designed to provide high-quality videoconferencing capabilities. It's available now, although pricing wasn't announced. EyeBeam for Windows starts at $80 per unit.

3am Labs Eases Remote Access

3am Labs Inc. in Woburn, Mass., has announced three products designed to improve security and simplify remote access: LogMein, LogMein Pro and LogMein Scout. LogMein is free and provides desktop remote control so users can access their desktops and e-mail from any location using a device with an Internet-enabled browser. LogMein Pro is $12.95 a month and includes features such as file synchronization, secure file distribution and remote-to-locale printing. The LogMein Scout product, also free, is a remote-access discovery and management tool intended to give systems administrators the ability to detect LogMein and other remote-access software such as pcAnywhere and GoToMyPC.

DANIEL J. WEITZNER

The Need to Know What We're Missing

THE INTERNET is becoming an increasingly filtered medium. At the same time, organizations depend on absolute transparency when it comes to delivery of information in the form of e-mail, Web pages or from other applications. Given the growing reliance on



the Internet for remote work and the increased need for integration with external partners' networks, the transparent enterprise depends on open networks — both internally and across the entire Internet.

While we think of the Internet as the ultimate open communications platform, it may not be as open as we think. The twin plagues that sometimes threaten to bring the Internet to its knees — spam and pornography — may be undermining this openness.

More than a decade ago, Internet architect and civil libertarian John Gilmore famously declared, "The Net interprets censorship and routes around it." Today's Internet is much different.

In response to the scourge of spam, many filters, some of which are largely invisible to enterprises and end users, stand between e-mail senders and recipients. Filtering techniques range from trapping messages with spoofed domain names to content-based filters that use sophisticated machine-learning techniques to spot potential spam ISPs. Other service providers are filtering literally billions of messages per day and dumping them into the digital void. Sometimes this happens under the control of the enterprise, and sometimes it doesn't. The cumulative effect, however, is very hard to assess or manage.



The latest domain authentication technique, known as Sender ID, is somewhat hung up in the standardization process because of possible patent-licensing problems [QuickLink 49427], but it appears likely that some form of sender authentication will be put into place soon.

Client-side filters operate under user or local enterprise control and offer a considerable range of configuration options. Those who use this sort of spam filter have the satisfaction of seeing far fewer prescription drug offers and financial scams, but it's very hard to know whether overfiltering is weeding out messages that we'd actually like to see. Our only options are to turn down the filtering rate and open our in-boxes to more spam, or to actually wade through all mail tagged as spam and manually check for mistakenly filtered messages. Neither option is particularly appealing, so it seems likely that we'll get used to the idea that we are just going to miss valuable messages. Not exactly the model of transparency.

Web content is also increasingly filtered. Enterprise gateways often block URLs that appear on lists identifying sources of pornographic or offensive material. Other sites are blocked because they are identified as sources of harmful spyware. Some filters also block sites that seem more recreational than professional (such as those providing sports scores). But whose judgment is used to make these blocking decisions? Beyond choosing a blocking software vendor, does IT or anyone else in your company really know what blocking criteria are being applied?

Where is all of this filtering taking us? Are we missing things or stopping traffic that should be getting through? How many sales leads have been lost to filters? How much time has been wasted researching a question when the useful pages were mistakenly blocked from view? A more transparent approach to filtering would notify users when (and perhaps even why) pages they might be looking for were blocked.

Policymakers and courts are turning increasing attention to the uses and abuses of filtering. Congress has mandated the use of content filters in libraries to protect against pornography. The U.S. Supreme Court recently struck down an Internet censorship statute on the grounds that client-side content filters installed at the discretion of parents or teachers seem likely to be as effective, if not more so, at protecting children from harmful content. But the court has also asked the lower court that tried the case originally to make a detailed assessment of the effectiveness of filters.

On the other hand, a court in Pennsylvania just struck down a law that required ISPs to filter out URLs deemed to point to child pornography, on the grounds that the law ended up blocking scores of Web sites that were entirely benign.

Don't misunderstand me. Filtering is a powerful and useful tool and far more effective than government censorship. Whether it's being used to keep pornographic material out of the workplace or to help us manage the torrent of spam, filtering is downright essential, given the state of today's Internet. But perhaps a bit more transparency would be useful. We ought to know what we're missing. **49552**

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THE FASTIRON EDGE X-SERIES 10GbE SWITCHES



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FOUNDRY NETWORKS

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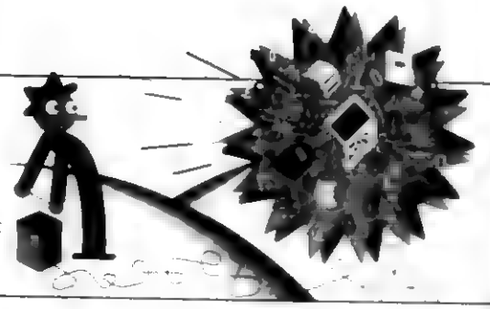
MANAGEMENT

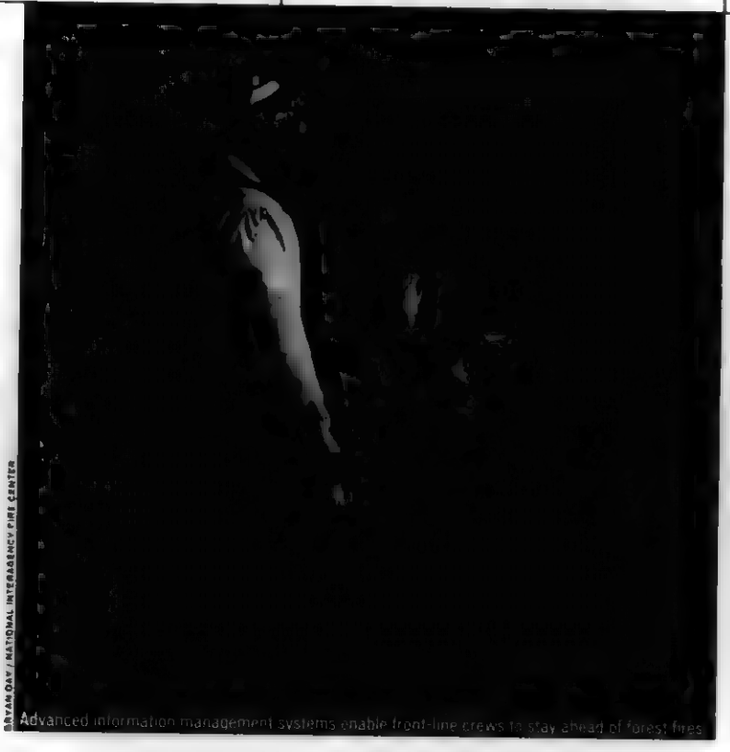
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Career Watch
The economic bounce is bypassing IT; tech etiquette blunders are on the rise; and India faces its own skills gap. **Page 48**

OPINION
Hiring Horrors
Today's IT hiring processes are often ill-conceived, poorly executed, disrespectful and error-prone. But David L. Burkett says it doesn't have to be that way. **Page 50**

How to Kill an IT Project
Wasting time, energy and resources on doomed projects? Here's a process to identify the losers early, pull the plug and get on with business. **Page 46**





BRYAN DAY / NATIONAL INTERAGENCY FIRE CENTER

Advanced information management systems enable front-line crews to stay ahead of forest fires

Putting out Fires

IT helps federal agencies get the jump on forest fires.

BY BOB BREWIN

AT 8:15 A.M. ON A DAY in mid-August, Rick Ochoa, the top weatherman at the National Interagency Fire Center (NIFC) in Boise, Idaho, walks into a briefing room filled with personnel from the multiple federal agencies that staff the center. As he does every morning during the peak spring and summer fire season, he provides a detailed weather report for the entire country on a floor-to-ceiling screen.

But unlike the forecasts on nightly TV, Ochoa's zeroes in on weather conditions of little interest to laymen but of key importance to fire-fighting agencies. He talks about relative drought and the presence of "dry" thunderstorms, which can spark and then help spread a fire.

When Ochoa finishes, Kim Christensen, a U.S. Department of Agriculture Forest Service employee who manages the NIFC's National Interagency Coordination Center, reviews major forest fires across the country. This summer, favorable weather has held forest fires in check throughout much of the continental U.S. But the fire-fighters have more than weather in their favor. Advanced information management systems are helping them to better predict, manage and contain forest fires.

Though fires in the Pacific Northwest cost to suppress in 2001, the costs could have hit if fire crews had not been in place ahead of time

Planning Ahead

Up until the late 1990s, wildland forest-fire managers could only react to fires, giving nature a head start. But today, advanced systems for predicting weather and fire behavior, combined with powerful resource management systems, enable forest-fire managers "to work and plan ahead" of a fire, says Neil Hitchcock, a Forest Service employee who serves as the NIFC's deputy director of fire operations.

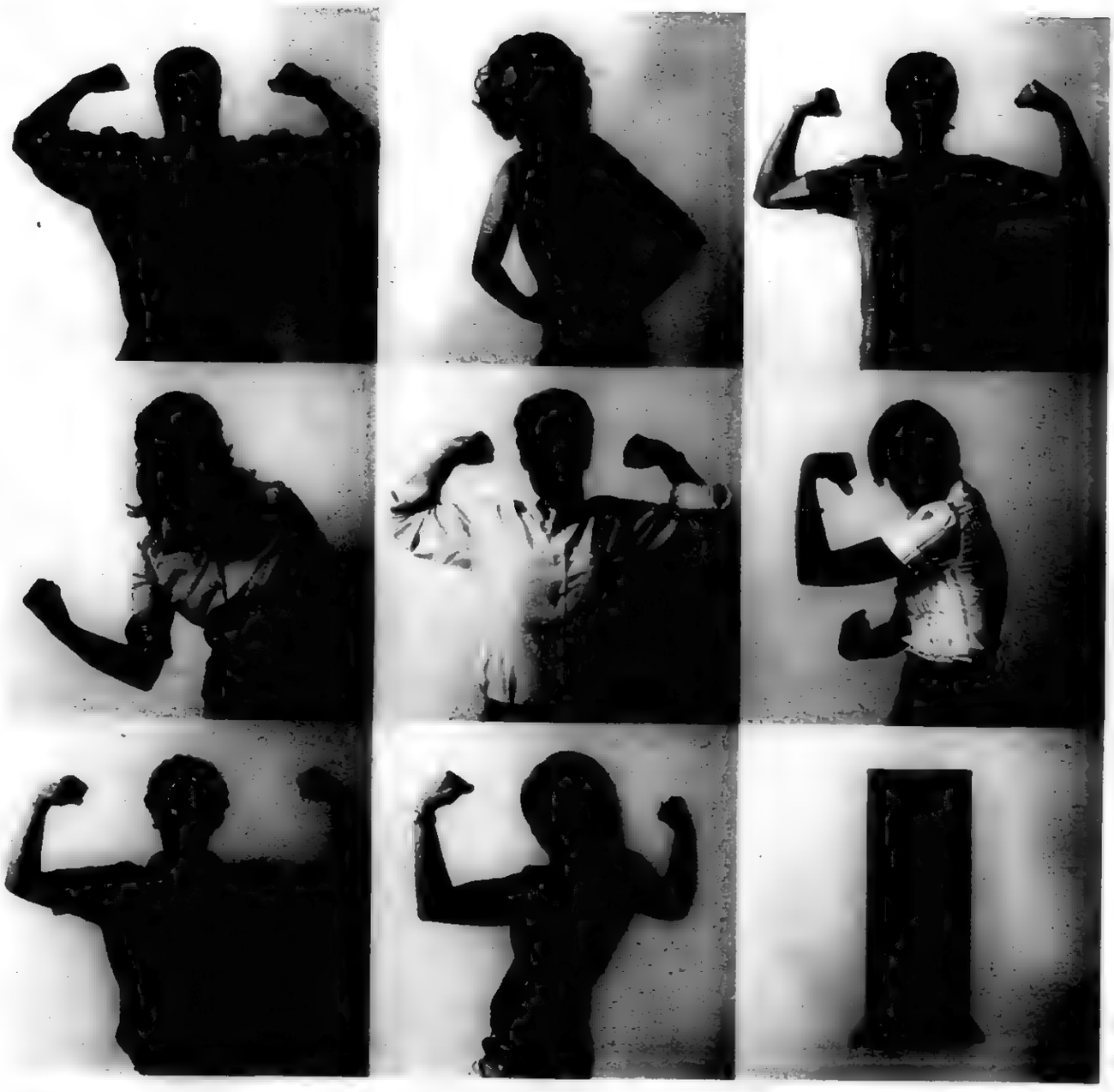
The center has also developed standard fire management policies for the multiple agencies that battle forest fires across the country. Moreover, these agencies — the Forest Service, the Bureau of Indian Affairs, the Bureau of Land Management, the Fish and Wildlife Service and the National Park Service — now also use common software systems and tools to solve common problems, Hitchcock says.

Weather forecasting plays a key role in fire management, according to Ochoa, a Bureau of Land Management employee who manages the National Fire Weather Program in the center's predictive services division. Ochoa and his colleagues continually monitor conditions that can cause or affect the spread of fires, such as relative humidity and wind direction and speed. Much of this information — including satellite imagery — is provided by the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service, which has a presence at the center.

The NIFC also relies heavily on information provided by 1,500 remote automated weather stations, which are unstaffed outposts scattered across the country that transmit data on wind speed and direction, air temperature, and humidity to the center's computers over a NOAA satellite.

Continued on page 44

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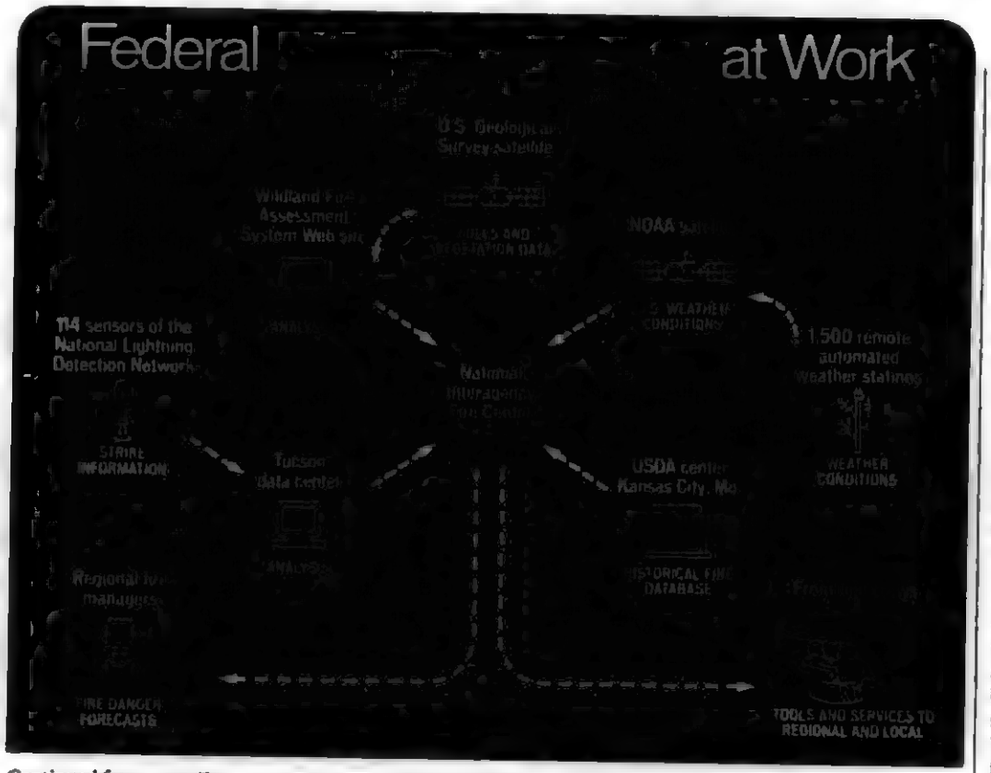


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e server



Continued from page 41

Ochoa can also tap into historical fire data through the Weather Information Management System database, hosted on an IBM mainframe at the USDA National Information Technology Center (NITC) in Kansas City, Mo.

Fire spreads best in areas where dry wood, called fuels, is plentiful, and Ochoa uses fuel moisture and temperature information transmitted by the remote weather stations as well as the Web-based Wildland Fire Assessment System. That system provides satellite data from the U.S. Geological Survey on current and past weather and on types and moisture content of live and dead fuels and other vegetation.

Information on lightning strikes that could ignite a forest fire is provided through the National Lightning Detection Network, operated by Vaisala Inc. in Woburn, Mass. The nationwide network of 114 6-ft.-tall sensors uses triangulation to detect lightning strikes. Within seconds, the sensors transmit the strike information to Vaisala's data center in Tucson, Ariz., where it's analyzed. Then data on the location, time and amplitude of each strike is sent to the NIFC and accessed via Internet from a desktop PC.

"Ninety percent of all forest fires are started by lightning," says network coordinator Phil Sielaff, so the strike information is a key tool in helping the NIFC managers predict fires.

Ochoa uses all this data, as well as regression analysis, to develop a fire danger forecast for the next 10 to 15 days. This allows wildland fire managers around the country to "stay ahead of the curve," he says.

The predictions also allow Christensen at the Forest Service to position resources in anticipation of a fire instead of in reaction to it. Prepositioning firefighters, water bombers, equipment and top-level incident management teams can make the difference between an out-of-control fire that burns for weeks and one that's controlled within days, she says.

Ochoa recalls that predictive services truly paid off in 2001. As fires threatened forests throughout the Pacific Northwest, long-range predictions allowed the center to preposition a variety of firefighting resources. Though the fires in that area cost $170 million to suppress, the costs could have hit $1 billion if fire crews hadn't been in place ahead of time, he says.

And since 2003, Christensen has had a powerful Java-based tool to manage and marshal these assets. The Resource Ordering and Status System, developed by Lockheed Martin Corp., ties into Oracle databases of firefighting resources housed on IBM servers at the NITC, where Web services are provided by public-domain Apache Web server software.

Instead of spending hours on the phone tracking down the resources she wants to position at the site of a likely fire, Christensen can just log onto the resource system, see which crews and resources are available and dispatch them. "It's changed the way we do business," she says.

Front-line Use

The predictive tools and resource-ordering system are also used by federal wildland fire managers. Sielaff says that he has 1,500 subscribers to the lightning-detection network, and some, such as fire truck crews, are on the front lines of forest fire management.

The resource management system has been installed at 400 fire-dispatch centers and has 6,000 users. Bill Waterbury, assistant director for fire operations at the Southwest Coordination Center in Albuquerque, says he uses it for quick updates on the status of his firefighting assets. For example, when Waterbury consulted the system in mid-August, he found that some crews from his region were unavailable, having been dispatched to British Columbia.

At the regional level, weather forecasters and fire-behavior analysts can use a wealth of predictive data from the national center as they develop their own fire management plans. Fire-behavior analysts in the field use laptops to tap into the same Web-based tools used by the NIFC as well as Windows-based systems developed by the Forest Service. One such system produces detailed graphic and tabular fire-danger summaries. With this information, analysts can help incident management teams plan strategies and tactics, Waterbury says. The analysts can also warn of impending shifts in the direction of a fire to get crews — and local residents — out of harm's way.

These information systems have forever changed the way forest fires are managed in the U.S., says Hitchcock. Every fire allows firefighters "a window of opportunity" to get the upper hand, he says, and these tools give them a better chance to seize that opportunity. **ID 49326**

Brewin is a former Computerworld *reporter.*

Web Sites

You wouldn't expect to find a webmaster at a forest fire. But thanks to **Eric Neitzel**, a USDA Forest Service webmaster, on-scene teams managing major forest fires in the Southwest will soon have their own fire-specific Web sites to provide timely information to the news media and residents of communities near a fire.

Neitzel began creating fire-specific Web sites when he was hired by the Forest Service last year to design and maintain a Web site for the Apache-Sitgreave National Forest north of Phoenix.

He proved the power of the Web at the Willow Fire, which burned 119,000 acres near Payson, Ariz., this summer. Neitzel used detailed maps and text alerts on the Willow Fire Web site to help local residents and business owners decide whether to evacuate. Alerts about smoke and wind direction on the Web site also helped people downwind of the fire with asthma or lung diseases assess whether it was prudent to go outside, he says.

Mary Zabinski, fire information coordinator at the Southwest Coordination Center, says fire-specific Web sites can provide more timely information than she would have at her office hundreds of miles from the scene.

An on-scene webmaster can quickly gather information – such as two-way radio reports from firefighters – that would trickle down slowly to a remote webmaster, Neitzel says. At the Willow Fire, this included timely reports of fire encroaching on a key road. Neitzel says he sometimes updated that fire Web site "every couple of minutes" and recorded as many as 200,000 hits a day. (See *www.fireteam-sw.com/whitney/willow/*.)

Neitzel emphasizes that because fire teams often operate in low-bandwidth environments, he leaves out animation or bandwidth-hogging plug-ins on his fire-specific Web sites.

Now Neitzel is training three webmasters using Dreamweaver Web software from Macromedia Inc. He hopes these pioneering efforts can serve as a model for other fire coordination centers.

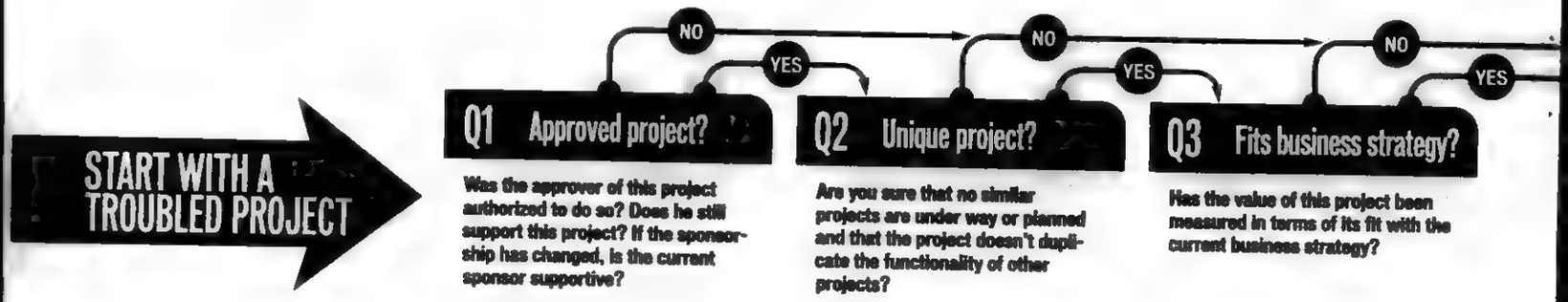
–Bob Brewin

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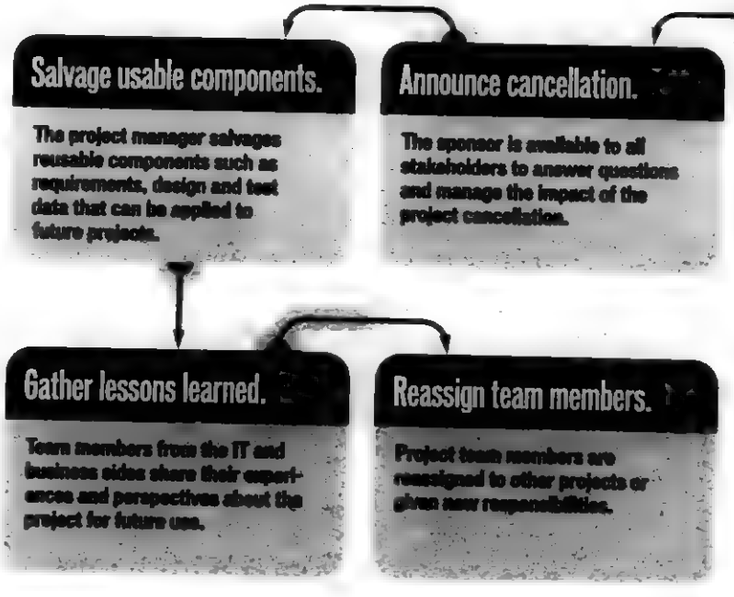
How to Kill IT Project





Here's how it works.

ProjectHALT methodology is copyrighted by the Center for Project Management and illustrated with permission.



NO

YES

Q4 Technologically viable?

Is the enabling technology operational? Can the technology be supported? Will users accept and use it?

NO

YES

Q5 Committed sponsor?

Is there an active, committed sponsor, and does he understand the project's complexity? Does he have the authority and time to be effective?

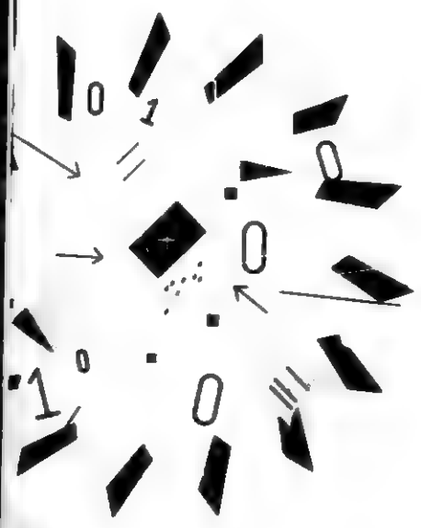
NO

YES

Q6 Customer buy-in?

Have customers been involved? Are they satisfied with the project? Have impacts on customers been addressed and communicated?

YES



VITAL SIGNS Define vital signs and set threshold levels.

Vital signs use a point system; the higher the point value, the more serious the problem. The sponsor and project manager must agree to thresholds indicating that a project is healthy, requires caution or is in danger.

VITAL SIGN	VARIANCE	POINTS	VITAL SIGN	VARIANCE	POINTS	VITAL SIGN	VARIANCE	POINTS
Schedule delay (actual vs. planned)	< 10% 10% to 20% > 20%	0 1 2	**Unresolved issues** (issues vs. deliverables)	no issues < deliverables > deliverables	0 1 2	**High-probability, high-impact risk events***	1-3 risks 4-5 risks 6-7 risks	1 3 5
Milestone delay (actual vs. planned)	< 10% 10% to 20% > 20%	0 1 2	**Cost over budget** (actual vs. planned)	< 10% 10% to 20% > 20%	0 1 2	**Disposition of the team**	good fair poor	0 2 4
Deliverable delay (actual vs. planned)	< 10% 10% to 20% > 20%	0 2 4	**Resources shortage** (actual vs. planned)	< 10% 10% to 15% > 15%	0 2 4	**Sponsor's commitment and time**	good fair poor	0 3 6

REPORT CARD

Healthy (1-8 points): The variances are acceptable, and the project is in good shape.
Caution (9-15 points): Project is in trouble. Project manager needs sponsor's involvement if recovery is warranted.
Danger (16+ points): Project is a runaway. Sponsor must shut it down or implement a recovery plan.

** High-probability, high-impact risk events can result in a loss of budget or sponsor, a change in strategy, or a similar move.*

Inform key stakeholders.

The sponsor personally communicates to key stakeholders prior to the public announcement of the project cancellation.

Develop a recovery plan.

The sponsor and the project manager collaborate to develop and deploy a recovery plan for the project.

Continue the project.

The sponsor reviews the project's vital signs every two weeks – more frequently if vital signs breach their thresholds.

Assess vital signs and Q1-Q6.

The project's vital signs, as well as answers to Questions 1 through 6, are routinely monitored.

YES

NO

Plan project cancellation.

The sponsor and the project manager build a comprehensive cancellation plan, minimizing the impact to customers, stakeholders and the project team.

NO

Q8 Kill the project?

Consult the legal department.

Consult the HR department.

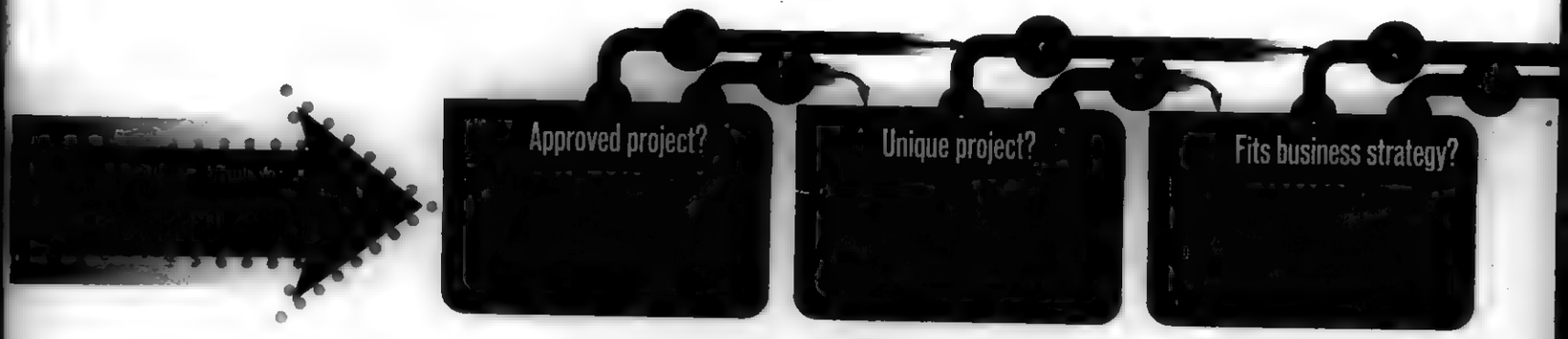
NO

Q7 Variances acceptable?

YES

Send assessment to sponsor.

The sponsor reviews the vital signs and Questions 1 to 6 to ascertain the project's health.



How to Kill an IT Project



Close to 40% of IT projects fail or are abandoned before completion, resulting in annual financial losses of more than $100 billion in the U.S. alone, according to the Center for Project Management in San Ramon, Calif. The center has developed a process called ProjectHALT to help identify and cancel doomed projects early. Here's how it works.

ProjectHALT methodology is copyrighted by the Center for Project Management and illustrated with permission.



Technologically viable?

Committed sponsor?

Customer buy-in?



Define vital signs and set threshold levels.

VITAL SIGN	VARIANCE	POINTS
Schedule delay (actual vs. planned)	<10%	0
	10% to 20%	1
	>20%	2
Unresolved issues (issues vs. deliverables)	no issues	0
	<deliverables	1
	>deliverables	2
Cost over budget (actual vs. planned)	<10%	0
	10% to 20%	1
	>20%	2
Resources shortage (actual vs. planned)	<10%	0
	10% to 15%	2
	>15%	4
High-probability vs. high-impact risk events*	1-3 risks	1
	4-5 risks	3
	6-7 risks	5
Disposition of the team	good	0
	fair	2
	poor	4
Sponsor's commitment and time	good	0
	fair	3
	poor	6

*High-probability, high-impact risk events can result in a loss of budget or sponsor, a change in strategy, or a similar move.

Inform key stakeholders.

Develop a recovery plan.

Continue the project.

Assess vital signs and Q1-Q6.

Plan project cancellation.

Kill the project?

Variances acceptable?

Send assessment to sponsor.

Consult the legal department.

Consult the HR department.

Career Watch

'Tech Etiquette' Blunders on the Rise

If you're checking e-mail and instant messages or surreptitiously working on your laptop during business meetings, your boss is probably on to you. A recent survey of more than 1,400 U.S. CIOs by recruiting firm Robert Half Technology in Menlo Park, Calif., found that 67% of CIOs consider breaches in technology etiquette more common today than three years ago.

Distractions that peeve CIOs most during business meetings:

Ringing cell phones	88%
Instant messaging	80%
Responding to e-mail	79%
Working on laptops while others are speaking	65%

Other tech etiquette blunders uncovered in the survey:

- Taking cell phone calls during meetings
- Using e-mail for sensitive subjects that require face-to-face communication
- Overusing "reply to all" for messages that others don't need to know about
- Using instant-messaging shorthand with readers who may not be familiar with it
- Taking camera-phone photos without permission

High-Tech Bust

The economy may be bouncing back, but the IT job market is lagging behind. So says "America's High Tech Bust," a September 2004 report from the Center for Urban Economic Development of the University of Illinois at Chicago. Authors Snigdha Srivastava and Nik Theodore found that the discrepancy between the rapidly growing economy and the sluggish labor market is especially pronounced in the IT industry.

Nationally, between March 2001 and April 2004, the last month for which data was available, the IT industry lost a whopping 403,300 jobs, 200,300 of which disappeared after the recession was officially declared over, according to the report.

While there isn't much current and reliable information on the extent of job losses resulting from offshore outsourcing, there is little doubt that it has contributed to soaring unemployment rates in the industry, the report states.

To support that contention, the authors point out that the national unemployment rate for computer programmers, one of the top jobs sent offshore according to the Information Technology Association of America, was 6.7% in 2003, up from 2.5% in 2001.

Despite recent growth in the aggregate number of new jobs per month, there is little evidence of significant job expansion in the IT industry, the report concludes.

– Kathleen Melymuka

IT Industry Employment Nationwide And in Key Metropolitan Areas

	NATION	BOSTON	CHICAGO	SAN FRANCISCO
MARCH 2001	2,146,800	71,200	63,400	54,900
MARCH 2002	1,878,700	55,500	54,200	33,100
MARCH 2003	1,763,700	48,700	49,100	29,500
MARCH 2004	1,744,000	48,700	47,300	27,900
APRIL 2004	1,743,500	46,900	47,000	28,000

HIRING PLANS

Which of the following best describes the current status of your full-time IT staff?



BASE

SOURCE

INDIAN SKILLS GAP

MANY EXPERTS say the U.S. faces a looming IT skills gap over the next decade, but we're not alone. India's booming IT sector faces a skills shortage that could cost that country nearly half its lead in the outsourcing market, according to a report from The Associated Press.

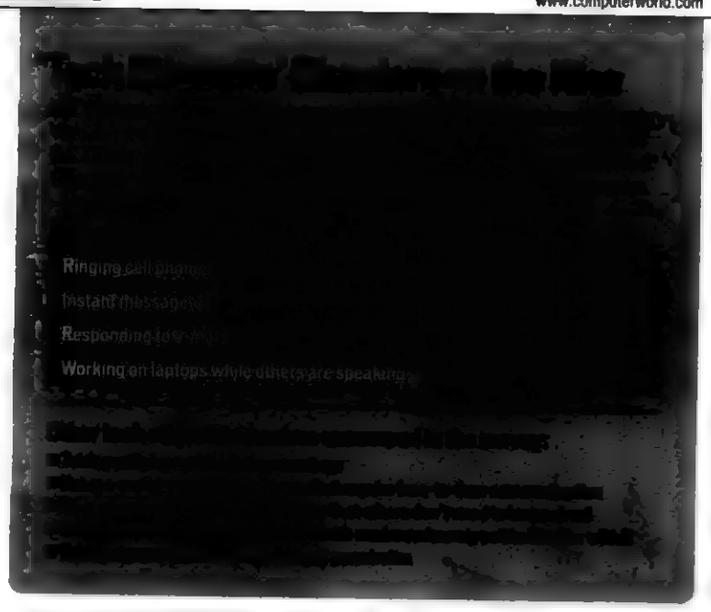
The AP quoted a study by the National Association of Software and Services Companies, India's top IT association, projecting a shortage of 262,000 IT professionals by 2012. Kiran Karnik, president of Nasscom, said the group has begun talks with IT firms, universities and the Indian government about improving curricula to prepare students for outsourcing and IT research jobs, the AP said.

Apparently, the missing skills are not just technical. Karnik suggested that introducing foreign language and communications skills would help close the gap.

The Nasscom report follows research by Gartner Inc. predicting that unless India devises a long-term strategy to keep ahead of the outsourcing pack, emerging efforts in Thailand, Malaysia, Fiji, Mauritius, the Czech Republic, Poland and South Africa could chip away almost half of its current 80% share of the market.

According to the Nasscom report, outsourcing contributed 29% to India's total software exports and posted revenue growth of 46% in the fiscal year that ended in March 2004. Revenues are forecast to grow about 40% in the current fiscal year, the AP reported. **49463**

Career Watch



High-Tech Bust

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–Kathleen Melymuka

IT Industry Employment Nationwide And in Key Metropolitan Areas

	NATION	BOSTON	CHICAGO	SAN FRANCISCO

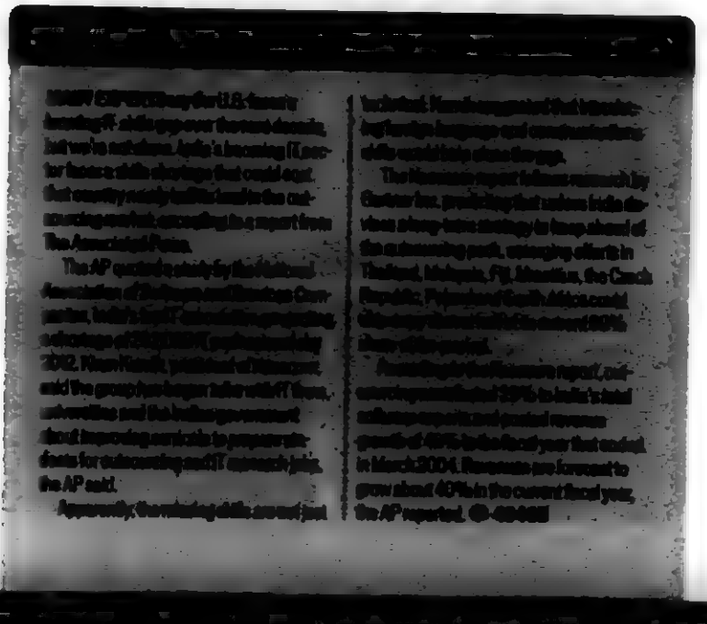
SOURCE: "AMERICA'S HIGH TECH BUST," CENTER FOR URBAN ECONOMIC DEVELOPMENT, UNIVERSITY OF ILLINOIS AT CHICAGO, SEPTEMBER 2004

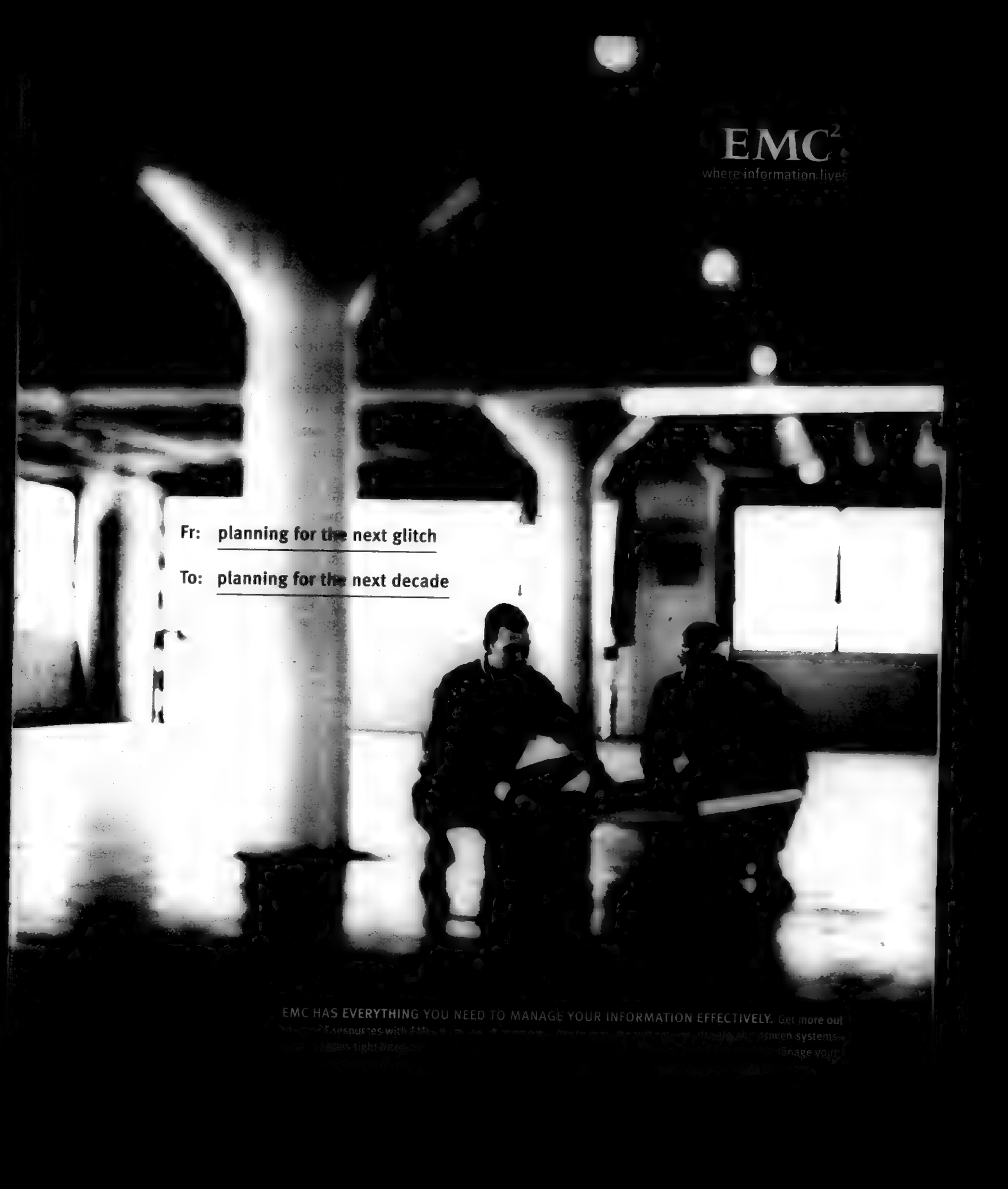
HIRING PLANS

Which of the following best describes the current status of your full-time IT staff?



BASE: 560 TECHNOLOGY DECISION-MAKERS AT NORTH AMERICAN COMPANIES
PERCENTAGES MAY NOT EQUAL 100 BECAUSE OF ROUNDING
SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS., SEPTEMBER 2004




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To: planning for the next decade
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QUICK HITS

2005 IT Budgets: Which Direction?

How do you think your company's 2005 IT spending will compare with this year's?



SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS., JUNE 2004

BASE:

Hiring Horrors

EVEN IN THIS EMPLOYERS' JOB MARKET, routine IT hiring processes often result in bad matches and high turnover. That's because the techniques for hiring and processing technical personnel in corporate America are a hodgepodge of unscientific and unprofessional rituals. As author and poet Paul Goodman once said, "Few great men could pass personnel."

As an independent IT consultant, I've sought and obtained many technical and leadership positions over the years. My experiences provide examples of the errors and failures inherent in IT hiring practices.



DAVID L. BURKETT is principal consultant at Oak Business Services in Marshfield, Mo. Contact him at david.burkett@att.net.

To begin with, the [illegible] used to screen [illegible] examples:

- **"Resumes without salary history will *not* be considered."** [illegible] Druckers?
- **"College degree required."** [illegible] duce the candidate pool? (I don't care if your name is Bill Gates. No sheepskin, no job.)
- **"Send cover letter and résumé (ASCII text) to . . ."** Although I usually send a cover letter, I resent being ordered to do so. And I've worked long and hard developing my "on paper" presentation, which is lost in ASCII text. (If he won't dance to our tune, screen him out.)

The applicant's information is scrutinized by an HR specialist, an intern or an Applicant tracking system (ATS), none of which has a real grasp of actual technical work. The HR person usually has little knowledge of the job to be performed but tries in vain to match résumé information to a company-provided job description.

I find it unsettling to have my future considered so haphazardly.

The ATS looks over the applicant's information, searching for buzzwords and other selection criteria. This may work if the person who sets up the screening requirements knows the technical details of the position and can properly encode them into the scanner's program. But too often, the scanning criteria have nothing to do with skills.

For instance: Having three jobs in five years disqualifies a candidate. This screening metric is currently used by a large insurance organization (known, by the way, for laying off IT staffers at the drop of a hat). I was hired there as a high-level technical lead only after one of the executives overruled the scanner. He knew that some of the best IT talent changes jobs frequently. It comes with the territory.

The interview process can be degrading and infuriating. I've had interviewers arrive late without apologies. I've had them not show up at all. I've watched them nod off during my hard-won interview. (I'm sorry that my employment story is so dull!) Twice, I've been interviewed by someone who was obviously drunk. It's difficult not to become cynical about the whole hiring process.

HR Blunders

And how about HR foul-ups? A misplaced check mark can be devastating. At a Chicago-based communications provider, I resigned and gave the usual two weeks' notice. The HR department, ever mindful of getting a full day's work for a full day's pay, scheduled my exit interview after quitting time. I met with the HR specialist, signed the required documents, shook hands and went on my way.

Some time later, I was trying to get a new job and was having little success. I finally asked a friend still at the company to check my references. Sure enough, the HR specialist had checked a box on the termination form that stated, "Not eligible for rehire." This was causing me to be screened out from prospective opportunities. So much for quality assurance.

The only person empowered to change the damning box was the person who had conducted the exit interview, and she was on maternity leave! It took several calls to a vice president to get this straightened out.

The point is that today's hiring processes are ill-conceived, poorly executed, disrespectful and error-prone, and yet we're supposed to entrust our livelihoods and careers to them.

The situation could be immediately improved by giving the hiring managers control over hiring processes and making their bonuses dependent on their turnover statistics. Why not let the managers manage? **49558**

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DAVID L. BURKETT

Hiring Horrors

EVEN IN THIS EMPLOYERS' JOB MARKET, routine IT hiring processes often result in bad matches and high turnover. That's because the techniques for hiring and processing technical personnel in corporate America are a hodgepodge of unscientific and unprofessional rituals. As author and poet Paul Goodman once said, "Few great men could pass personnel."

As an independent IT consultant, I've sought and obtained many technical and leadership positions over the years. My experiences provide examples of the errors and failures inherent in IT hiring practices.



To begin with, the criteria used for screening candidates, while often inane, are rigidly enforced by corporate human resources gatekeepers. Here are three examples:

- **"Résumés without salary history will *not* be considered."** (That goes for you too, Peter Drucker!)
- **"College degree required."** In what? Do the duties of the job really require this, or is it merely a tool to reduce the candidate pool? (I don't care if your name is Bill Gates. No sheepskin, no job.)
- **"Send cover letter and résumé (ASCII text) to . . ."** Although I usually send a cover letter, I resent being ordered to do so. And I've worked long and hard developing my "on paper" presentation, which is lost in ASCII text. (If he won't dance to our tune, screen him out.)

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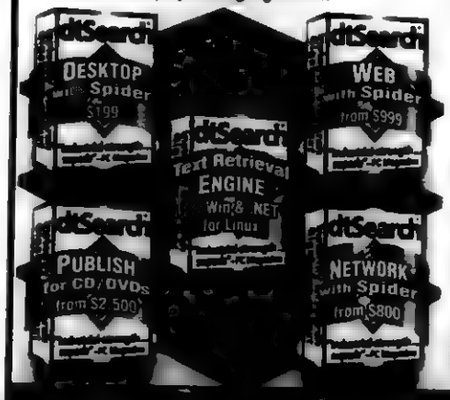
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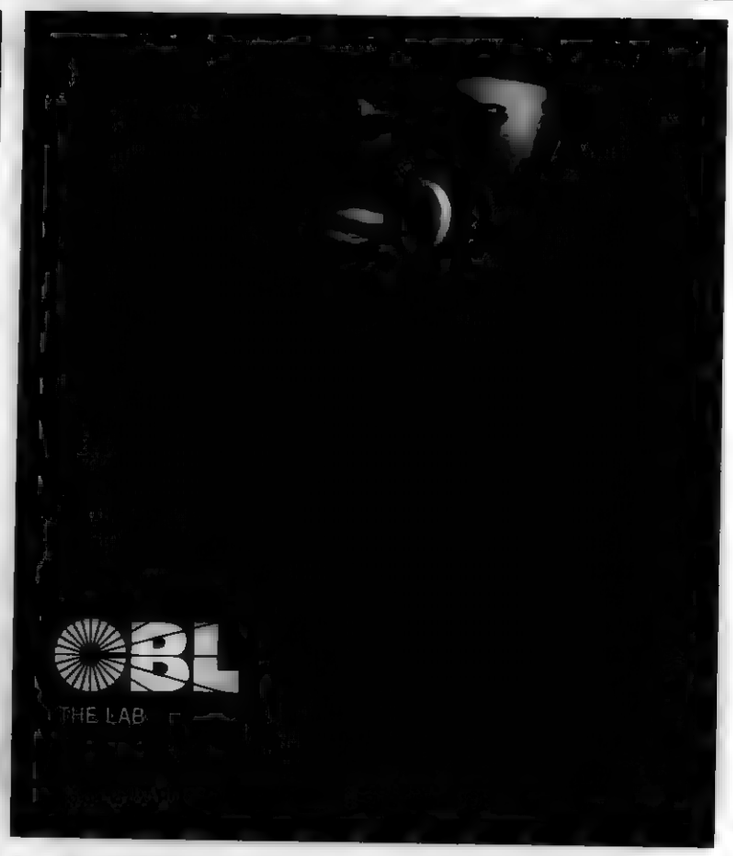
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IT Careers: Being Brave Part of Professional Development

Having a mentor or role model is as critical for professionals as it is for kids. That's one reason the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) launched a multi-year project to record autobiographies for some of the nation's leading Native American and Hispanic professionals in the areas of math, science and technology. A quick scan of the life stories points to careers that range from seismologist to zoologist, from surgeon to statistician.

With support from the Sloan Foundation, the National Institutes of Health and the Verizon Foundation, SACNAS gathered together women and men from a variety of backgrounds, recording how they established their careers. Just as telling, however, is what they've found once in the workplace.



Dr. Ermelinda DeLaVina's story is one typical of many Hispanic professionals: she is a first generation college graduate, she came from a poor household, she had a teacher who saw more in her than she did herself and who stayed interested in her long after she left his classroom, and she had ambition.

"Generally, the best advice is to have a willingness to try something new, to be brave about it," says DeLaVina who, in addition to being an associate professor in the Computer Science and Mathematics Department at University of Houston, helped develop a computer program known as Graffiti. The program generates conjectures in math, similar to how a scientific hypothesis will be proven. If a conjecture is proven true, it's a theorem. If it's false, the mathematical statement process begins again. Since the graduate research project, DeLaVina has continued work, creating Graffiti.pc.

DeLaVina, who dropped out of undergraduate school after one year and returned later to go on to doctoral studies, says her student base today is diverse – about 25% Hispanic, 25% African American, 25% international and 25% traditional Anglo. "One of the difficulties for minorities is that we may feel that we are very different or perhaps inadequate," she says. "We work to help students understand that they may look different, but that does not mean they are less capable. I could make myself stand out as being different, but when it comes to my area of expertise, I'm really not. When we sit at lunch, we talk about our dreams, goals and ambitions. The person I have the most in common with is a white man who also grew up poor.

"There are external forces that can make you feel different, but the point is to not let yourself become different" in terms of what you are doing, she adds.

In addition to being brave, DeLaVina stresses the importance of ongoing learning, particularly in areas outside of math, computer science and technology. "Academically that may mean choosing a minor that will distinguish you from others," she says. "We used to say that this made you a more interesting person. In this day and age, we know it's important to what you actually do."

For DeLaVina the next career steps are long-term but clear. She wants to clean up the interface on Graffiti, which she originally developed while learning Visual Basic, and see it launched and used by a wider audience. And, she wants to be a full professor – a process requiring at least six more years of research and publishing before consideration.

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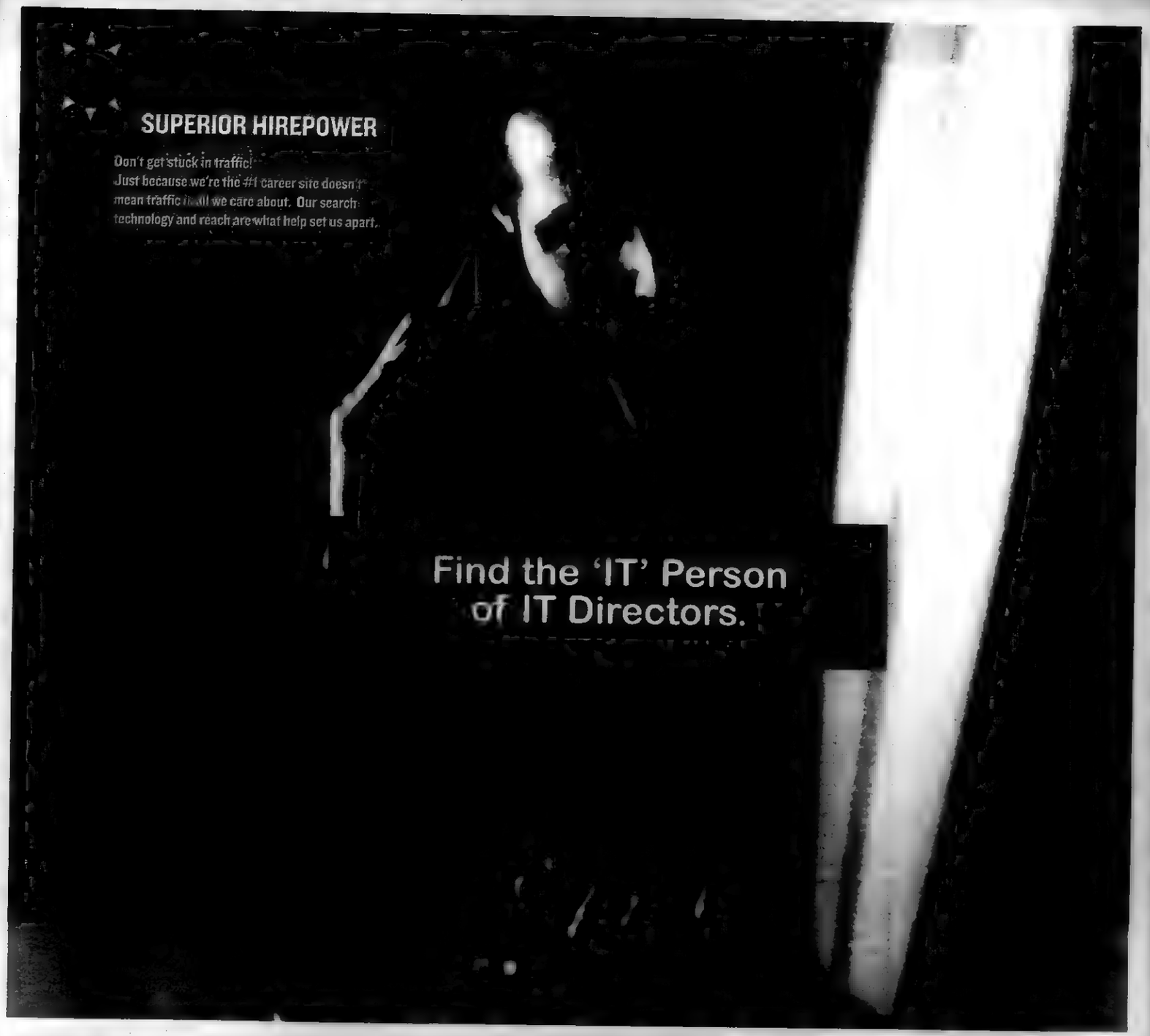
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F/T Research Software Engineer for NM location. Responsible for performing database design, system configuration, data conversion planning, application design and development, documentation development, and application and system training. Configure hardware, software, and network components of GIS and LIDAR systems. Assist clients in developing practical programs that maximize the benefits of their GIS investment. Analyze clients' system operations to determine opportunities for increasing production efficiency. Must have a Master's degree Computer Science, related field, or foreign degree equivalent. Must have 2 yrs. of exp. in job offered or a position w/ same duties. Salary: Competitive. Send resumes to: Sheila Seals, Spectrum Mapping, LLC, Ref. 222, 28965 Information Lane, Easton, MD 21601.

Computer Services - Chief Programmer - Rye, NY & locations per assigned. Plan, sched, & direct prep of progs for enterprise sftwr using C++/OO, C, Unix, Win, TCP/IP, J2EE envrons. Comp Security & Oracle; consult with personnel to clarify prog intent, identify problems, suggest changes, and determine extent of programming & coding req'd; apply knowledge of biz processes & enterprise sftwr to dev & enhance billing & customer care solution that integrates acctg, inventory, mktg & finance disciplines. Master's degr w/maj in Mgmt Info Sys or Hi-Tech, 2 yrs' exp. Send resume to: **Recruiting Quantum Horizon, 31 Purchase St, Ste 2, Rye, NY 10580** Or email: prog0804@qhorizon.com.

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Technical Support Engineer: Provide technical support to customers via phone or e-mail for company, or partner, products. Perform fault reproduction & troubleshooting, system characterization & analysis, & root cause analysis, of product issues up to, & including, issuing product field bulletins & managing resolution of product defects with engineering teams. Representant Tech Support department in product meetings & reviews with internal product teams, & external customers. Assume lead roles introducing new products into Tech Support organization & create plans for cross-training other tech support engineers. Assume assignments as project lead & manage technical contributions of other engineers. Requires B.Sc. degree in Electrical Eng. or Comp. Sci. & 3 yrs exp as Technical Support Engineer, Systems Engineer Network Operations Analyst or or Telecom Technician Exp. Must include 2 yrs designing, testing & supporting cable & RF networks, including DOCSIS modems, TCP/IP protocols, data routers & telephony switches. 5 yrs exp. is acceptable in lieu of B.Sc. degree & 3 yrs exp. M-F 8:00-5:00. Job in greater Chicago area. Fax cover letter & resume with Referral # 43413 to (630) 281-3364. Attn: HR Dept. Ams International Inc.

Programmer Analyst (2 Positions) Provide conceptual data processing solutions to customer business problems in mission critical systems such as customer billing, customer service, reporting into systems & service & materials & financial systems. Provide technical expertise, systems consultation, assistance in coding & informal leadership during the systems development, maintenance & production processes. Bachelor's in Computer Science or a closely related field & 2 yrs exp in a database administration position. Alternatively, employer will accept as qualified an individual w/ 4 yrs of exp in the position offered or 4 yrs of exp in a related database administration position. Exp must include at least 2 yrs exp in Microsoft & Oracle database technologies & UNIX operating systems environments, systems software design & application. Resume to Ali Zaar, Supra, 5600 Oakbrook Pkwy, Ste 120, Norcross, GA 30093.

Innovative Consulting Solution is seeking IT engineers, analyst to customize applications using VB, Java, Oracle, ERP SQL, SAP, WebSphere, EJB, etc. Applicants must have BS/MS with exp. Travel is required for some positions. Competitive salary. Apply at info@icsincorpusa.com. EOE.

Computer Consultant. Technical Associate wanted by Methodix Technology Solutions to develop web-based Oracle Form 3-tier applications using Oracle Workflow, Oracle Form Builder 9i, PL/SQL, JSP. Require minimum BS with experience. Please contact careers@methodix-net.com. EOE

IT Officer Responsible for proper sizing, installation & day-to-day operations of multiple hardware & software platforms in addition to ensuring proper functioning of the hardware & software. Bachelor's in Computer Science, Bus. Admin. or a related field & 2 yrs exp. in position offered or in a related DB admin. or systems admin position. Resume to Ms. Krueger, Logistics Plus, 1408 Peach St, Erie, PA, 16501

S/W Engr to dsgn, develop & impl applns. for supply chain & othr b/z sols. in Obj Oriented & Web based tech. Analz. Client needs & prep req docs, determine feasibility of dsgn, s/w dev. in Oracle8i/9i, PL/SQL, C, C++, VC++/MFC, MAPI, TAPI, ATL, COM+), VB, OOA, OOD, XML, Cognos, MS ASP, MS SQL, MS IIS, UML, Rational Rose, MS Visio, .NET, C# & Java in Client/Server applns on Win & UNIX OS. Exp with QA analysis, unit & system testing is required. Knowledge of EDI, VSS, ClearCase, COGNOS-PowerPlay Enterprise Server, PowerPlay Trans Server & IIS is essential. BS in Electronics or CS + 2 yr. exp in above skills. Apply: OSSI- Code VR, 5825 Glenridge Dr., Bldg.3, #101, Atlanta, GA 30328 w/ proof of perm. wk authzn

Seeking qualified applicants for the following positions in Memphis, TN: Senior Business Application Analyst. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree or equivalent* in computer science, math, statistics, business, MIS or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with airline scheduling systems development also required. *Master's degree or appropriate field will offset 2 years of general experience. Submit resumes to Matt Coplas, FedEx Corporate Services, 2955 Republican, Memphis, TN 38118. EOE M/F/D/V

eFORCE, Inc. has multiple openings for the following positions at its office in Hayward, CA and unanticipated client sites throughout the U.S.

Programmer Analyst
Software Engineer
Project Manager
Business Analyst
Software Developers

B.S or M.S. and rel. exp. Travel to unanticipated client sites with travel expenses paid by employer. Please send resume and salary history to: The HR Manager, eFORCE, Inc., 4120 Point Eden Way, Suite 100, Hayward, CA 94545-3703.

Swinsoft, Inc. is hiring all levels of Programmer/Analysts and Software Engineers. Send resumes to 104 Adderley Court, Folsom, CA 95630. May be placed at client sites nationwide.

Web Developers needed. Seeking candidates possessing BS or equiv and/or relevant work exp. Duties include: Design, code, test & debug software applications; Develop administrative tools; Design utility tools. Part of rel. exp. must include 1 yr working w/ XML, ASP and XSL. Mail resume & references to: Carekey Inc., 137 Newbury St., Boston, MA 02116.

Systems Architect needed in Miami, Florida to coordinate and lead design and development of customized asset management software applications, including analyze customer business requirements, develop configuration design and functional specifications, develop actual software applications, and implement/test developed applications. Must have Bach. in Comp. Sci., Info. Systems, or equiv. 2 yrs. exp. in software development or systems analysis; knowledge of C/C++, SQL Windows, Oracle, PL/SQL, Java, HTML, XML, and client-server applications. Salary $81,500/yr. No overtime - salaried position 9-5, Monday-Friday. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302. Job Order No. FL-2550587.

Verso Technologies seeks applicants for the position of Telecommunications Engineer in Provo, UT to test switch-based telecommunications protocols including SS7, prepaid applications, ISDN and VOIP. Requirements for position include bachelor's in electronics or communication engineering and 2 yrs exp testing switch-based telecommunications protocols including SS7, prepaid applications, ISDN and VOIP, developing and implementing test plans; and utilizing Inet tester, Hammer tester, ISUP, TUP, H.323, and SIP protocols. Respond by resume to Rynelle Hoffman, Verso Technologies, 400 Galleria Pkwy, #300, Atlanta, GA 30339

MSYS, Inc.

Systems Analysts. Design, analyze and develop computer and business applications of existing and proposed systems. Knowledge in VB, ASP, JavaScript, SQLServer2000, .NET Technology, Web Design and Development, E-Commerce Services, XML, COM. Crystal reports, with back end databases like SQL Server and Oracle. Need Bachelor degree in Comp. Science or Engg. or related and 2 yrs of exp. Send resume to: HR, MSYS, Inc., 104 Iowa Ln., Suite 201, Cary, NC 27511. E-mail info@msysinc.com

Programmer Analyst - Analyze reqs, design, test & implement apps using VisualBasic, ODBC, Visual Source safe & SQL Server on Windows based platforms. Reqs: 3 years exp. Employer is a computer consulting company. Relocation req'd to client sites for periods between 6 mos & 2 yrs. M-F 9AM-5PM, 35hrs/wk, $42.00/hr. Send Resume to: Workforce Program Support, PO Box 10869, Tallahassee, FL 32302-0696. Ref#FL-2530736.

Computer Programmer/Analyst - System analyses, design, programming, debugging and testing for software development. Requires a bachelor's degree, foreign bachelor's, or equivalent and two years of experience in C++, .NET, JAVA, J2EE and Oracle. We have positions throughout the US and job will require extensive travel or relocation to the job location depending on duration of the project. Please forward the resumes to: IT Technical Recruiter, Niagara Consulting Group, Inc., Tech-Recruiter@niagaraconsulting.com. Reference Code: WEB0822.

IT Professionals, exp'd, sought by a Software Consulting Co., in any of following areas (i) J2EE Architecture, weblogic or iplanet, JavaScript & XML/XSLT (ii) Oracle Forms, Reportwriter & Database Dsgn (iii) Lotus Notes, SDLC, PVCS VM, Tracker relational d/bases & IBM MQ Series (iv) Datawarehousing applics using Informatica, Powercenter, Powerconnect, Cognos Reportnet & Metrics/Framework & (v) C, C++, ASP, VSS, SQL Server, XML & .Net. BS in Comp Sci, Eng. or related field. Applicants must be willing to relocate/travel to various unanticipated locs throughout US. Resume to DatamanUSA, Attn: HR, 315A West Lincoln Way, Ste 15, Cheyenne, WY 82001 or email to jobs_wy@datamanusa.com

Systems Administrator - Prov syst admin/support under direct supvsn of Sr Syst Admin of Unix syst on HP 9000 Superdome RP-8400 Enterprise Class Syst & Sun Fireesystems using Veritas clusters, HP MC-Serviceguard, Veritas Netbkup, HP Datapro-tector, storagetek, tape libraries, Veritas Volume Mgr, HP Logical Volume Mgr (LVM), Sun Disk-Suite, EMC Enterprise disaster-tage, HP Hitachi Enterprise Disk-storage. Prov support for ERP apps. Shell & PERL scripting Reqs: Bach degr or equiv in Comp Sci or related field. Min 1 yr exp. 40 hrs/wk, 9am-5pm. Send resume: VP, Network Informatic, 1 Lincoln Hwy Ste #10, Edison, NJ 08820

Programmer/Analyst needed to dsgn, dvlp client/server & Web/Internet applics using Java, C++ (plus STL), JSP, Servlets, Sun One Web Server, XML & XSD, Xerces-J/C++, SQL, DB2 (plus ESQL/C) & Middleware products such as MQ Series & process monitoring/control utilities. Resume to Global Consultants, Attn: Hireme, 8800 Grand Oaks Cir, #100, Tampa, FL 33617.

Programmers & Software Engineers Analyze, design, develop, test & implement specialized business apps. in Business Objects Version 5.1, Web Intelligence & related Business Objects products. RSA Basic SDK, VBA, ASP, Oracle related RDBMS & rel. tools. Travel req. / US Workers only. Send resume to Sapphire Consulting Company, 355 Pikes Falls Road, Jamaica, VT 05343. EOE.

Senior Programmer. Under supervision, perform client application development and support; client requirement collaboration and application design; and duties applicable to application front and back ends. Must have Bachelor's degree in Computer Science, Mathematics or related, 1 yr exp in job offered or Systems Analyst, Programmer or related, including experience with Visual Basic, C, Relational Databases implementation, and SQL. Send resume to APAC Customer Services, Inc., Attn: Cindy Corbaly, 6 Parkway North, Deerfield, IL 60015. EOE/AA. APAC CUSTOMER SERVICES, INC. is not affiliated with APAC, INC., the road paving and construction materials company.

Sys. Analyst to analyze data processing probs for applns to elect. data proc. sys. Analyze user requirements, biz analyses, dev. procs & probe to automate sys & review comp sys capabilities, w/flow & schedule limitation. Dsgn web applns & SDLC including user interface, test & maint using .NET, Biztalk Server, XML, Rational Rose 2000, UML, VB.NET, ASP.NET, Active X, COM/DCOM/COM+, MTS, VB-Script, Java Script, C/C++, MS SQL Server, SQL Compare, Jtest, Jverify, VB 6.0 & Card Pac. Perform data model, db base d/dsn in ER-Win & MS Visio. Dev tech strateg for BPR, mng progs & POC demos. Cust sup & train users. BS in Math or CS + 3 yrs in job duties OR 3 years in s/w dev. Exp. If no BS - 5 yrs SDLC exp. Apply: HR, ECS - Code DA, 8744 Main Street, #101, Woodstock, GA 30188 w/ proof of perm. w/k authzn

Online continuing education provider (Old Saybrook, CT) seeks Software Engineer to dsgn, dvlp & implmnt web-base s/w applictn w/ ColdFusion, Flash, Visual C++ & Java, dsgn & dvlp DB for online learning mgmnt system w/ SQL & Crystal Report; test, debug, & upgrade applictns. MS in CS, CompEngg or EE + 1 yr exp. Skills in ColdFusion, Flash, Visual C++, Java & Crystal Report. Send res to: CE University, 140 Ferry Rd, Old Saybrook, CT 06475, Attn: Bruce MacMillian.

Programmer Analyst

Design, develop, implement and support client-server & Internet based programs for ERP packages, CRM, asset mgmt, sales force automation and E-commerce. Integrate Technologies in core SAP R/3 includes: Electronic Data Interchange, ABAP, Netweaver, XML, Workflow Business Connector and Web Application Server. Oracle 8i, .NET, and Visio, Biztalk, Business Objects, web intelligence, Erwin, Office Master sys & UNIX. Req. Bachelor in Comp. Science or Engg. & 2 yrs of exp. Send Resume to: Sierra Infosys, Inc. 1227 Howe St., Batavia, IL 60510 or E-mail: resume@sierrainc.com

Software Engineer to participate in full cycle of software engineering activities and lead team in analysis of requirements, design, development and maintenance of applications and technical specifications; testing, implementation and documentation. Requires BS in Computer Science, Engineering or closely related field plus 4 yrs experience as Applications Developer of applications for auto industry which must include Web Logic, ClearCase, ClearQuest, Rational Rose, Load Runner, J2EE. Send resume to IS Human Resources, Attn: JMVL, Crawford Group, 600 Corporate Park Dr., St. Louis, MO 63105.

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IT PROFESSIONALS

Senior Consultant

(Glen Mills, Pennsylvania and other locations throughout the U.S.) Assist managers in developing work plans for components of client engagements, identify client business strategies, activities and business processes to assess potential opportunities for improvement of information technology, build awareness of technology enablers and potential impact on business strategy and recommending improvements. Map clients' business processes, organization and technology to the new technology solutions, identifying gaps and resolving issues. Participate in the development of implementation plans and elements of plan deliverables for specific components of the strategy, implementing and customizing various systems and applying industry/technical solutions to support key business needs and objectives. Develop new business process and application design within a sub-module. Create designs for complex technical requirements including gap analysis, infrastructure, interfaces, reports, enhancements and conversions utilizing Oracle Applications (11i) Modules, such as Discrete Manufacturing, Flow Manufacturing, Process Manufacturing/GEMMS, Financials, BOM, WIP, INV, Quality, Purchasing and Planning Modules. Participate in the architecture, functional analysis, design, and configuration of deliverables, the development of tools and methodologies as well as the development and documentation of standards decisions. Lead the development and execution of test plans, test scripts, cases and acceptance criteria. Design and execute cut-over plans within a single division, department, business process or function and design and lead knowledge transfer plans for sub-teams, including providing training for the end users, post implementation support and troubleshooting issues.

The wage offered is $78,764 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The position requires a Bachelor's degree or equivalent in Computer Science, Engineering (any), Management (any), Business Administration, Information Systems + 4 years of experience in the job offered or 4 years of experience as a Senior Consultant, Consultant, Programmer/Analyst, Business Analyst or Engineer. Employer regards a foreign degree as equivalent to a US Bachelor's degree as determined by an accredited education evaluation service. Related experience must include at least two full life-cycle implementations of Oracle Application modules, including Oracle Process Manufacturing/GEMMS and Oracle Manufacturing, with at least one year of experience functioning as a project lead.

Please send your resume or C.V. referencing Job Order Number **WEB455841** to the: PA CareerLink, 701 Crosby Street, Suite B, Chester, PA 19013. EOE.

IT PROFESSIONALS

Senior Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.) Participate in client business requirements gathering and translate the requirements into technical and functional specifications. Lead the design and development life cycle of specific modules of the application. Reverse Engineer custom application either based on client requirements or interpret and translate current legacy system into an object oriented application design to meet the client's current needs. Develop specific modules of software application in Java or C++. Develop Custom web applications to fit clients need using JSP, Servlet technology. Design and document the various data flow diagrams to help support the underlying application design and translate them into Entity Relationship Diagram, Develop Data Base Model and high-level application component model. Interact closely with senior client and firm management personnel to scope project deadlines. Coordinate cross-team knowledge transfer and ensure that the various modules of the application fit into an optimal object oriented design. Responsible for managing timelines for specific application modules and also help the project management to scope and plan the various phases of the project. Contribute vital methodologies and procedures that need to be executed prior to system integration, User Acceptance and Operation acceptance testing. Provide guidance and mentor junior staff based on industry knowledge and application design experience. Monitor and participate in code reviews and provide valuable feedback on coding practices and optimal object oriented design practice. Provide consulting services to clients in the Consumer Business and Financial services industries.

The wage offered is $78,764 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree in Engineering (Any), Business Administration, Computer Science or Management Information Systems + 5 years of experience in the job offered or 5 years of experience as a Senior Consultant, Consultant, Programmer/Analyst, Software Engineer or related occupation. Employer will regard a foreign degree to be equivalent to a US Bachelor's degree as determined by an accredited academic credentials evaluation service. Related experience must also include at least 3 years of object oriented coding expertise utilizing Java C++ and JSP/Servlets. Related experience must also include web application design and development.

Please send your resume or C.V. referencing Job Order Number **WEB455882** to the: PA CareerLink, 701 Crosby Street, Suite B, Chester, PA 19013. EOE.



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IT PROFESSIONALS

Senior Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.) Responsible for managing configuration of SAP FI/CO component of client engagements for deployment of SAP and other related SAP processes globally for clients. Lead implementation of SAP modules - FI, CO, GL, AR, AP, EDI, Taxes, Credit Management, Logistics Invoice Verification and SAP Archiving, perform accurate analysis and effective diagnosis of client issues and document designs in these areas, identify client business strategies, activities and business processes to assess potential opportunities for improvement of information technology. Configure SAP to meet client's business requirements for process optimization and benefit realization. Coordinate communication between business representatives and technical resources. Perform tax determination and reporting and MM (Materials Management) integration. Prepare and execute cutover plans, participate in unit and integration testing and identify gap issues. Responsible for preparing billing, managing budget, tracking progress, timelines and issues using appropriate management tools and defining roles and responsibilities.

WAGE: $89,138/year

Hours: Monday-Friday, 9:00am-5:00pm

MINIMUM REQUIREMENTS: Bachelor's degree or equivalent in Computer Science, Engineering (any type), Management (any type), Business Administration or Information Systems + 4 year exp. in the job offered or 4 year exp. as a Senior Consultant, Consultant, or Systems Analyst. Related experience must include configuration and integration with the following SAP modules: FI/CO (Financial and Controlling), GL (General Ledger), AR (Accounts Receivable) and AP (Accounts Payable) and Logistics Invoice Verification, MM (Materials Management) integration and Tax determination and reporting.

Please send your resume, referencing Job Order Number **WEB455888** to the: PA CareerLink, 701 Crosby Street, Suite B, Chester, PA 19013. EOE.



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Software Engineer

Analyze, design, develop, and implement dbase applications. Must have bach. in comp. sc. or eng. plus two yrs. prof. exp. w/ Teradata V2R5, Teradata Utilities, Oracle 8.x/7.x, OLAP models, MS Analysis Server, SQL Server 2000, MITI toolset, Win 2000/NT, Designer 2000 & Developer 2000. Frequent travel & relocation. $66,750/yr. F/T, Insurary. Send resumes to: Pgh/Alleg. Cty. Careerlink, Attn: CL Program/Super, 425 6th Ave., Ste. 2200, Pgh, PA 15219-1837. Ref. Job Order # WEB 452377.



IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations throughout the U.S.) Work under supervision of Managers & Sr. Managers to provide consulting services to clients. Will assist with architecture, analysis, definition design & construction of complex Object Oriented J2EE & C++ applications utilizing Rational Unified methodologies such as: Rational Rose. Develop business applications. Assist in performing analysis & scope definition for client's business problems. Use RMI (Remote Method Invocation) techniques to develop distributed applications. Assist in deployment of applications on Weblogic 4.5.5 & 6.0 (6.1) & iPlanet application server 6.0 and web server 4.0. Develop financial service applications using open source technologies. Participate in Designing database models and database connectivity techniques from applications. Participate in building awareness of technology enablers, which apply to client's business process. Salary = $76,800 per year. The work schedule is Mon - Fri, 9:00 am to 5:00 pm. The position requires Bachelor's or equivalent in Computer Science, Math, Bus. Admin, Engineering, (Any Type), Information Systems plus 2 years of experience in the job offered or 2 years of experience as a Programmer/Business Analyst, Systems Analyst/Architect, or Consultant. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited education credential evaluation service. Related experience must include at least one year of experience utilizing Object Oriented J2EE, C++, Rational Rose, Remote Method Invocation (RMI), Weblogic Application Server, iPlanet Application Server.

Please send your resume or C.V. referencing Job Order Number WEB455221 to the PA Careerlink, 701 Crosby Street, Suite B, Chester, PA, 19013-8096. EOE.

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- **Mountain View, CA**
  Software Engineers, Web Design Engineers, Program Managers, Hardware/Electronic/Design Engineers
- **Chicago, IL**
  Support Engineers (Escalation Engineers)
- **Malvern, PA**
  Marketing Managers
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Aries Solutions Intl, Inc. is hiring Software Engineers. Send resumes to 2450 Peralta Blvd. Suite# 118, Fremont, CA 94536. May be placed at client sites nationwide.

Systems Analyst to analyze, design, develop, implement, install and maintain computer software systems for financial and business applications using Visual Basic, VB Script, Java Script, HTML, DHTML, SQL Server 7.0, Active Server Pages (ASP), Visual Interdev 6.0, Microsoft .NET, and Wireless Application Protocol. Require Bachelor's degree in Computer Science, Business Administration, or a closely related field with two years of experience in the job offered or as a Programmer/Analyst. Competitive salary offered. Send resume to Indarmil Chowdhury, Project Manager, Acuity Specialty Products, 1310 Seaboard Ind Dr., Atlanta, GA 30318 Job: SK

Senior Programmer (Bachelors with 2 years experience) - Great Falls, VA. Job entails and requires experience in database administration and in development, testing and implementation of applications using Oracle, OracleSAS, JSP, PL/SQL Scripts, Shell Script, Perl, Sun Solaris and NT Server. Relocation within USA possible. Attractive compensation package. Send resume to: Lalitha Chakuri, Great Falls Software Solutions Inc., 1000, Evonshire Lane, Great Falls, VA 22066.

SOFTWARE ENGINEER to design, develop, implement and maintain various application software using Java, J2EE, EJB, JSP, Servlets, JDBC, HTML, XML, WebLogic, Eclipse, C++, Oracle, PVCS and Visio Tools on UNIX and Sun Solaris platforms. Require M.S. degree in Computer Science/Engineering, or a closely related field with 2 yrs of exp in the job offered or as a Programmer/Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Raz L. Allord, ASAP Staffing LLC, 3885 Holcomb Bridge Rd., Norcross, GA 30092. Attn: Job NR

DATAFORMIX Technologies, Inc. has openings nationwide for Computer Professionals w/ two yrs of exp in the following skills: VB, VB.NET, ASP, ASP.NET, C#, JSP, JavaScript, Java, J2EE, JVMPI, JNI, JDI, EJB, Struts, SOAP, Servlets, RMI, Java Beans, Swing, Visual Age for Java, JMS, WSAD, JBuilder, C++, VC++, COM/DCOM, SQL Server, HTML/DHTML, UML, CSS, XML, XSL, DSOM, TCP/IP, CML, Active X, SharePoint Portal, Site Server, MTS, IIS, Web Logic, WebSphere, IntelliJ IDEA, Visual Source Safe, COBOL, IMS, DB2, CICS, JCL, VSAM, TSO/ISPF, DB2 Stored Procedures, MQSeries, Oracle, PL/SQL, Oracle Forms, Oracle Reports, Oracle Express, Seibel, PeopleSoft, ERP, Oracle Applications, Epiphany E5/E6, Oracle 11i CRM Applications, OLAP, Actuate Reporting, Informatica, Abinitio, Bus Objects, SAP ABAP/4, AIX, Cognos Impromptu, Win NT/2000/XP/2003, Unix, Shell Scripting and Linux. Positions req Bachs Deg or Mast Deg. Equivalent deg & exp is accepted. Candidate should be willing to travel & relocate. Exc. Pay & Benefits. Sal commensurate w/ exp and position sought. Email res: hr@dataformix.com

Software Engineer

For Melbourne, FL employment. 40 hrs./wk. 8:00am to 5:00pm. $56,160.00/yr. Requirements: Bachelor's degree in Computer or Electrical Engineering or Computer Science. Experience: in all phases of software development for real-time multi-tasking embedded systems; with C, C++, Visual C++, Windows NT & UNIX; in reverse engineering software applications; in structured analysis & design; applying Object Oriented methodologies to develop class, sequence & state diagrams & use cases; in visual modeling with Rational Rose & Visio; & troubleshooting a multi-faceted computer system. Proficient in software quality assurance practices, including modeling CMM & ISO process initiatives. Duties: Work in a collaborative environment, which interfaces to internal customers & external customers, in the development of locomotive products. Duties include software analysis, design, testing & debugging of real-time embedded software systems. Travel to customer facilities for technical interchange & integration of locomotive products. To apply send resume to Agency for Workforce Innovation, P.O. Box 10869, Tallahassee, FL 32302-0869. Job Order # FL-2555611. EOE.

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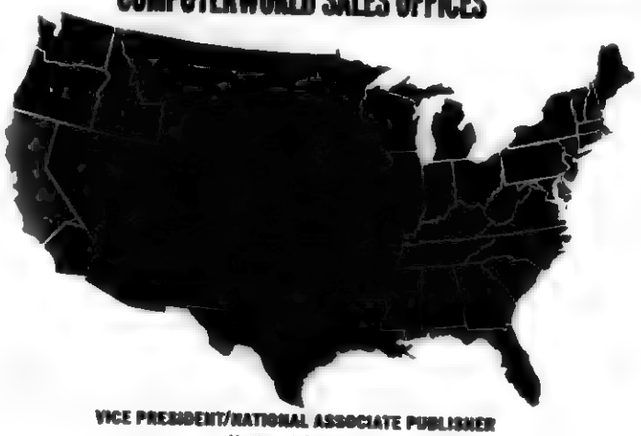
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Attacks

Tom Corn, a vice president at Mazu Networks Inc., a Cambridge, Mass.-based vendor of DDoS mitigation technologies. Many of the attacks involve attempts to extort money from the targeted companies, Corn added.

The plight of Bellevue, Wash.-based Authorize.Net is a perfect example. The company, which provides payment processing services to more than 100,000 mainly small to midsize online businesses, was the target of intermittent but "large-scale" DDoS attacks that began on Sept. 15, said David Schwartz, the company's marketing director. The attacks resulted in periods of "brief disruptions" for Authorize.Net's customers, said Schwartz.

The DDoS assault was launched a few days after company officials refused to give in to an extortionist's demand for "a substantial amount of money," Schwartz said. "It was something that was sent to our general mailbox," he said, adding that the FBI and other law enforcement authorities are investigating the incident.

This isn't the first time Authorize.Net has found itself targeted by cyberattackers, but the scope was bigger this time. "We have been attacked in the past, but not on this scale and with such tenacity," Schwartz said.

Following the Money

Jonah Paransky, a senior manager at Cupertino, Calif.-based Symantec, said 16% of the attacks against e-commerce sites that the company analyzed were identified as targeted. In the same period last year, only 4% of the attacks on e-commerce sites were thought to be aimed at specific sites. The increase suggests "that attackers are turning to where the money is," Paransky said.

A jump in the number of remotely controlled "bot networks" that are used to launch such attacks is also increasing the seriousness of the threat, Paransky added. Between January and June, the number of bot networks monitored by Symantec rose from well under 2,000 to more than 30,000, he said. Malicious hackers have also been getting faster at exploiting new vulnerabilities.

In addition, the attackers are becoming more sophisticated, Corn said. Increasingly, DDoS attacks are being "dynamically monitored" by their creators and modified on the fly in an effort to get around corporate defenses, he noted.

The combination is creating havoc for IT managers, said Jon Duren, chief technology officer at IdleAire Technologies Corp., a Knoxville, Tenn.-based provider of electrification services at truck stops.

Despite his company's best efforts, its networks keep getting infected with worms, viruses, adware and spyware "that render machines useless," Duren said. Too much time is spent fighting a battle "where the enemy grows increasingly intelligent," he said.

Contributing to the problem is that tool kits for developing and launching attacks are increasingly readily available on the Internet, said David Giambruno, director of strategic infrastructure and security at Pitney Bowes Inc., a $4.5 billion mail and document management firm in Stamford, Conn. The way such tools simplify the process of launching attacks "scares me to death," he said.

Extortion schemes that use attacks like the one against Authorize.Net are becoming more common, with banks among the typical targets, said John Pescatore, an analyst at Gartner Inc. "They are definitely targeted, ransom-type attacks, and there's going to be a lot more of them," he said. **49831**

Key Findings

Symantec's Internet Security Threat Report included the following findings for the period between Jan. 1 and June 30:

It took an average of 5.8 days for a newly announced vulnerability to be exploited.

48 new vulnerabilities were announced per week.

E-commerce sites received the most targeted attacks.

Worms compromised 40% of the Fortune 100 companies.

British Police Arrest Man In Cisco Source Code Theft

The Sept. 17 arrest of the person allegedly responsible for stealing internetworking software source code from Cisco Systems Inc. continues a string of recent successes for law enforcement authorities who are looking to catch cybercriminals.

The trend is encouraging, analysts said. But they added that the successes still tend to be limited to well-known cases – not the majority of incidents.

"I'm very happy. The big, high-profile attacks are being solved more quickly these days," said Bruce Schneier, chief technology officer at Counterpane Internet Security Inc. in Mountain View, Calif. "But there's a lot of cybercrime that falls under the radar."

Police in the U.K. arrested a 20-year-old British man in connection with the theft of more than 800MB of Cisco's source code. The theft, involving Version 12.3 of Cisco's IOS software, came to light in May when a Russian Web site briefly posted a portion of the stolen code [QuickLink 47039].

The Cisco arrest is the latest of several recent breakthroughs by law enforcement officials. In July, the FBI charged a Boca Raton, Fla., man with breaking into Acxiom Corp.'s computers and stealing about $7 million worth of data. Last month, a federal grand jury in California indicted a Romanian hacker and five Americans on charges of attempting to steal $10 million in computer equipment by breaking into Ingram Micro Inc.'s online ordering system. And earlier this month, prosecutors in Germany indicted a 19-year-old for allegedly creating the Sasser worm last spring.

"The successes are not based on magical cyber-sleuthing technology but old-fashioned police work" involving tips and informants, Schneier said. He added that much of the success also has to do with law enforcement agencies, such as the FBI's new Cyber Crime Unit, and their increased emphasis on cybercrime.

But more needs to be done to fight cybercriminals, Gartner analyst John Pescatore noted. "Right now, there's a shortage of resources to go after them," he said. "It really is a matter of bigger investments."

– *Jaikumar Vijayan*

BearingPoint Wins $229M DHS Contract

DAN VERTON

The U.S. Department of Homeland Security last week awarded BearingPoint Inc. a $229 million IT contract to help consolidate and integrate the agency's vast financial resources and assets.

The contract, known as Electronically Managing Enterprise Resources for Government Efficiency and Effectiveness, or eMerge^2, is intended to help the DHS gain control of accounting, acquisitions, grants, asset management and other business operations across the 22 formerly independent agencies that now make up the DHS.

"The terrorists are coming, and they're coming by land, by air, by sea and by cyber [means]," said Darryl Moody, senior vice president responsible for BearingPoint's homeland security practice in McLean, Va. "Therefore, DHS needs the ability to know where its assets and resources are so that it can move and apply them where the highest threat is at that moment."

The contract is a series of individually negotiated task orders, the first one being a $3 million "conference room pilot." The pilot program will enable the DHS to test the complete system designed by BearingPoint using business and homeland security scenarios before deciding to deploy it across the entire agency, Moody said.

The effort is expected to last 60 days, and the entire rollout will likely take two to three years, he said.

While some reports have called the contract an ERP project, Moody said it's actually a "transformation program" that includes a very large ERP component. "ERP [systems] are certainly huge. But this is bigger and more strategic," said Moody, who likened it to a private-sector ERP effort that's tightly linked to supply chain management.

"With the award of this contract, we are one step closer to providing improved visibility into our critical business information," said Andrew Maner, chief financial officer of the DHS, in a prepared statement. **49642**

MORE DHS NEWS

A bill seeks to move the U.S. cybersecurity director from the DHS to the White House

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FRANK HAYES ■ FRANKLY SPEAKING

Try 'Let's Talk'

WHAT'S THE EASIEST ANSWER to give to a user's request? *No.* It's short, it's to the point, and it ends the conversation. It gets the user out of your face and lets you get back to your real work. Besides, saying no *feels* so good.

What's the second-easiest answer to give a user? *Yes.* It's not as short and sweet as that powerful, muscle-flexing no, but it does close the discussion — whether you're giving the user permission or making a commitment that you can always decide later not to keep.

And what's the *hardest* answer? "Let's talk."

We hate that kind of answer, don't we?

No and yes are the zero and one of business. We IT people like to believe we think in zeros and ones. That's silly — we're capable of much more complex thinking than that. At the very least, we can think in *strings* of zeros and ones.

But we do love that binary simplicity. No and yes *are* simple.

That's why they're practically useless to us.

Look, the business and technology challenges we face today are way too complex for that. We don't control technology anymore. We can't, because users can and will drag in whatever consumer-grade technology they think will help them do their jobs.

So they'll work from home on unsecured networks. They'll smuggle in Wi-Fi access points. They'll copy truckloads of confidential data to handheld computers and DVD-ROMs and memory sticks.

They'll download and install and come to depend on software they find on the Internet. They'll build their own critical applications in a spreadsheet or database. They'll work up their own service-oriented architectures by constantly accessing outside Web sites for information and functionality they need.

And that's just regular users. That doesn't include the Rube Goldberg contraptions that real power users can string together nowadays using freeware utilities, cell phones on steroids and whatever hit the shelves last week at CompUSA Best Buy and Circuit City.

Users just plain control a lot of IT today. Which means almost all the IT complexity is what we're stuck with. And we can't crack that complexity with a simple no or yes.

If we say no, users will use this stuff anyway. We can try chasing it down and ripping it out, but they'll just get better at hiding it. And we'll spend all our time playing cops and robbers instead of putting IT to work for the business.

If we say yes — if we give them permission to use whatever high-tech tools they want — we're creating a time bomb. Sure, we can establish a hands-off, support-it-yourself policy for users. That way they're responsible for any IT complications they create, right? But one day, we'll get a help desk call: A whole department now depends on a support-it-yourself application. The guy who whipped up this mission-critical hack job has moved on. The app has just gone south. Fix it — now — or they can't work.

That's what brings us to "Let's talk." And "Tell me what you do and what you need to do it." And "Here are several options, along with what each one will cost. Which do you think might work best?"

Then there's "Here's what I think is wrong with what you're doing and how we might solve those problems." And "Let me repeat your description back to you in my own words, so you can tell me if I've got it right."



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Or maybe "You'll have to make some choices — I can explain them, but you'll have to make them." Or "Let's think about what might happen with this technology over the next few years."

Or — and this one really works with users — "I don't understand. Show me."

They're not the easiest answers, or the simplest. But they're the answers we've got to give. 49609

Hey, Whatever Works

Users complain that data they enter into a major application mysteriously disappears, but programmer pilot fish can't find the problem. So he adds an auditing system to record what data is added and when. "After I announced the auditing trail, all the data-disappearance problems suddenly stopped," fish says. Months later, another app shows the same problem. "I didn't have time to add an audit trail, so I just announced a go-live date and never made any changes," says fish. "The problem of the disappearing data never showed up again then, either."

SHARK TANK

Cliold

User at this insurance company manages to delete every name from the member database, and she promptly calls pilot fish in to help. "I was going to save my work, and I accidentally clicked Delete rather than Save," user explains. Usually, a dialog box asks if you're sure you want to do this, fish points out. "Yes, one did," says user, "and I clicked OK." Why? "I always click OK," user says. "I don't have time to read them, so I just click OK."

Everybody's Got To Be a Critic

It's the mid-1980s, and the data center where this pilot fish works has just checked out and packed up a communications controller destined for a satellite office. But the next morning, the pallet containing the large cabinet and its overflowing box of cables and manuals is missing. It takes a while, but fish and his cohorts finally track it down. "That pallet of junk? We dumped it into the computer," mainframe group chief says proudly. "Are it would take up less room in the Dumpster."

That Must Be It

Underbudgeted security team at this financial services company counts it out for two years but manages to keep things virus- and intruder-free. "It is a true team effort. What money we had was spent well, but hard work is the real reason for the success," smarty pilot tells the company's board meeting. That's phenomenal, one board member says. CEO's response: "Well, we have spent a lot of money in that area."

It Doesn't Work That Way – Yet

It's 1978, and this company's new controller wants improvements to some financial reports. No problem, says programmer pilot fish, who makes the changes. But the controller's still not happy with the reports that have arrived fresh from the computer room's line printer. "That's not what I need," he tells fish. "I need to see the credits printed in red."

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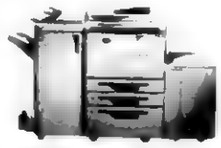
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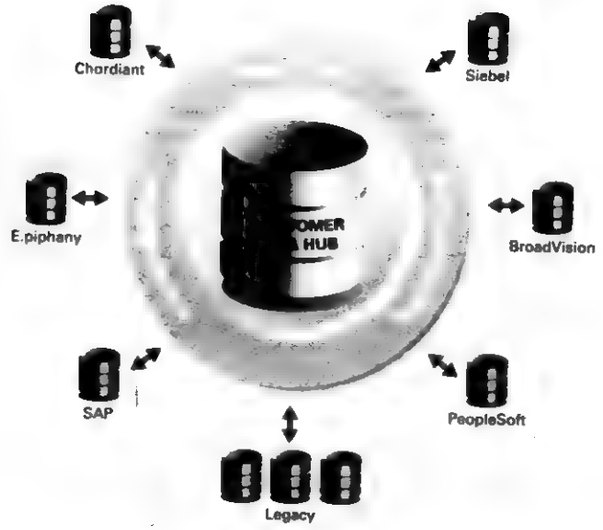
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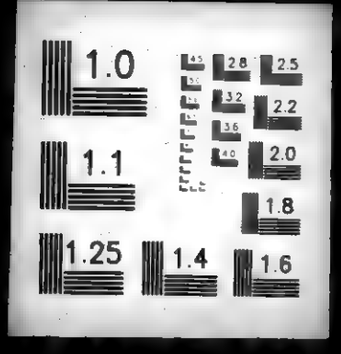
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2004

Two financial services firms invest in modernizing their storage infrastructures.
IT managers share some wisdom at Computerworld's business intelligence conference.

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MICHELLE ANDONIAN

Eric Litt, CISO at General Motors, is in charge of integrating security into every aspect of the $186 billion business.

Chief information security officers are gaining an influential seat at the executive table. Regulatory compliance, risk management and turf battles are all part of the job, reports Jaikumar Vijayan. **PAGE 31**

Rise OF THE CISO

PeopleSoft Ousts Conway From CEO Job

Board cites 'loss of confidence' in top exec; some users applaud move, others seek answers

BY MARC L. SONGINI, HEATHER HAVENSTEIN AND TODD R. WEISS

The turmoil surrounding PeopleSoft Inc. and the uncertainty about its future both increased another notch on Friday after the software vendor announced that its board had ousted CEO Craig Conway due to "a loss of confidence" in his ability to lead the embattled company.

PeopleSoft's five independent board members voted unanimously to replace Conway with co-founder Dave Duffield, who had given up the CEO job to Conway in 1999. During a teleconference after the move was announced, Duffield said that he is "here for the long term" and that his priority will be returning the company to the core values on which it was founded. "We need a little more in the way of vision and strategy, and I think I'm very good at that stuff," he said.

Nonetheless, some PeopleSoft users were caught off guard by the shakeup.

"I don't know how to read this. It's like getting hit cold," said Mike Ten Eyck, manager of information systems at Texas Christian University in Fort Worth and president of the PeopleSoft Higher Educa-

PeopleSoft, page 45

Early Adopters Send Mixed Messages About RFID

Users talk up benefits of tags, but ROI remains distant goal

BY CAROL SLIWA
BALTIMORE

Companies preparing to test or evaluate radio frequency identification technology didn't get any easy answers at the EPCglobal U.S. Conference 2004 here last week.

Consumer goods manufacturers facing RFID compliance deadlines from retailers such as Wal-Mart Stores Inc. and Target Corp. encouraged other companies to begin using the technology. They also spotlighted potential benefits, such as the ability to track inventory with greater precision and keep products in stock and on store shelves.

But some of those same early adopters said that they're still trying to nail down business cases, that the technology isn't mature and that RFID standards remain a work in progress. In addition, the cost of RFID tags and readers has yet to drop to levels that will help users achieve returns on their investments.

"It's going to be pure cost at the beginning. That's a concern, because it cuts into our profitability," said Richard Siegfried, manager of global data synchronization efforts at Binney & Smith Inc., a subsidiary of Hallmark Cards Inc.

RFID, page 16

HP Drops Pricey Utility Technology

Pieces of UDC will be used in modular line

BY MATT HAMBLEN

Hewlett-Packard Co. officials said definitively last week that the vendor is retiring its Utility Data Center offering, a set of data center management tools that costs more than $1 million and was described by analysts as too much technology for most users to swallow.

But HP plans to incorporate pieces of UDC into a series of lower-cost, modular utility computing products that will be sold separately in an effort to attract more users, including smaller companies that couldn't afford the complete product. The company announced four modular offerings last month, including one designed to centralize the management of blade servers.

Rumors of UDC's demise began circulating among users last June at the HP Software Forum 2004 conference in Montreal. Last week, Nick Van der Zweep, director of virtual-

UDC, page 45

NEWSPAPER

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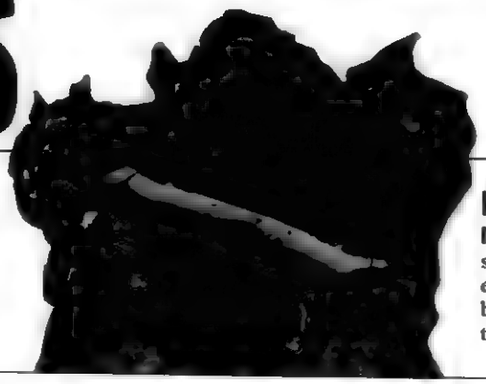
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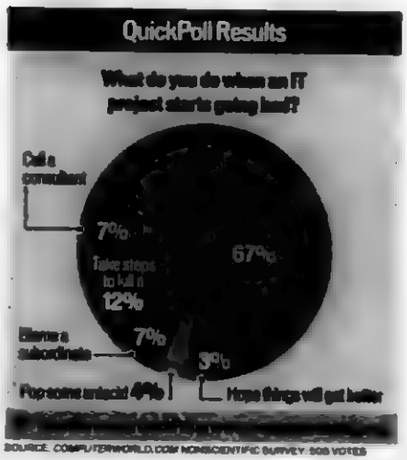
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SECURITY: Columnist Douglas Schweitzer outlines 12 key mistakes organizations can make when trying to secure their networks. **QuickLink 48707**

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GRID COMPUTING: Grid pioneer Ian Foster outlines what is needed for the technology to be as useful to industry as it now is for research and academia. **QuickLink 49580**

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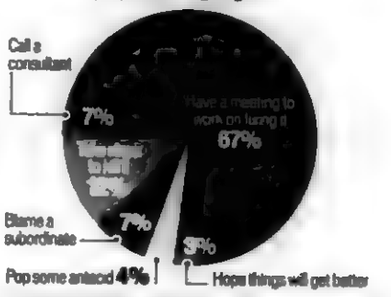
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The Dirty Dozen

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Poised for Prime Time

GRID COMPUTING: Grid pioneer Ian Foster outlines what is needed for the technology to be as useful to industry as it now is for research and academia. QuickLink 49599

Recognizing Risk in Wireless

MOBILE/WIRELESS: AirDefense's Anil Khatod reviews the problems of self-deploying wireless devices. QuickLink 49763

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AT DEADLINE

DOJ Won't Appeal Ruling on Oracle

The U.S. Department of Justice said it won't appeal a federal judge's ruling that allowed Oracle Corp. to proceed with its hostile takeover bid for PeopleSoft Inc. Chief Judge Vaughn Walker of the U.S. District Court in San Francisco last month rejected the DOJ's effort to block Oracle on antitrust grounds [QuickLink 49350]. "While we disagree with the District Court's disappointing decision, we respect the role of the courts in the merger review process," Assistant Attorney General R. Hewitt Pate said on Friday.

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Computer Associates International Inc. reiterated that it expects to name a new CEO within the next 30 to 45 days. But the software vendor denied a published report that said Leo Apotheker, head of global field operations at SAP AG, is the preferred choice of two CA directors. Apotheker isn't a candidate for the CEO job, Islandia, N.Y.-based CA said.

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EMC Expands Replication, Storage Management Tools

Open Replicator lets users copy Symmetrix data to rival disk arrays

BY LUCAS MEARIAN

EMC CORP. today plans to announce upgrades to several of its software products, including the integration of automated data migration technology with its storage management suite and the release of a data replication tool that supports disk arrays from rival vendors.

EMC also said it has integrated the server virtualization software acquired through its buyout of VMware Inc. earlier this year with its Symmetrix Remote Data Facility (SRDF) replication tool. That will enable users to asynchronously replicate data from a large number of servers at a primary data center to a few systems or even just one at a remote site by creating multiple instances of a server operating system on the target boxes.

But chief among EMC's upgraded products is a new version of the replication software for its Symmetrix high-end disk arrays called EMC Open Replicator. The tool will allow data to be copied to storage devices from IBM, Hitachi Data Systems Corp. and Hewlett-Packard Co. — EMC's main hardware competitors. The company said Open Replicator is due for release in next year's first quarter.

Extended Options

"That's great stuff," said Bill North, an analyst at IDC in Framingham, Mass. "It's not unique. But if you're an EMC customer and . . . have merged with another company or have regional offices with different storage, you can now have greater flexibility."

On the information lifecycle management (ILM) front, EMC is integrating its ControlCenter storage management platform with a set of application-aware tools that the company inherited when it acquired Legato Systems Inc. last year. Chuck Hollis, vice president of storage platforms marketing at EMC, said the integrated offering will include Legato Software's EmailXtender for Exchange 2003 and Lotus Notes products, as well as the EMC DatabaseXtender for Oracle, PeopleSoft and Sybase. Shipments are due this quarter.

EmailXtender identifies infrequently used e-mail messages, and DatabaseXtender searches databases for old or inactive records. Both products can move the older data off high-cost primary storage devices to secondary disk systems or tape drives.

John Halamka, CIO at CareGroup Inc., a Boston-based company that operates six hospitals, said he plans to test the new ILM offering. "I have to keep medical records for 30 years," he noted. "Would I love to invest in Symmetrix DMX for the next 30 years? Sure. Unfortunately, I can't afford that."

Halamka has been experimenting with ILM for a year on his 40TB storage-area network, which he manages with ControlCenter and backs up using EMC's SnapView and TimeFinder software. He said he has reached the point where he can automatically migrate data from Symmetrix boxes to EMC's Clariion midrange arrays or tape storage.

"When we initially went down the [ILM] path, the tools to do all of this business-rule-, policy-driven shuttling of data back and forth didn't exist," he said. "They do now."

Halamka added that although he likes the additional upgrades EMC is offering, "obviously, there is still work to do." For example, he said it would be "nirvana" if the time tickets that are used to generate payroll checks within CareGroup's PeopleSoft applications would automatically move from Symmetrix to Clariion. "That's something PeopleSoft has to work on with EMC," Halamka said.

49790

ALSO NEW FROM EMC

SRDF Star
Replicates data to two remote sites at once.
Due for release in Q1 of 2005.

Celerra FileMover NAS Gateway
Migrates files to lower-cost storage devices.
Available now.

EMC Express Solution for E-mail
Combines a Clariion disk array with EmailXtender and Replication Manager tools.
Available now.

Sun Ships Java Upgrade

Adds features to boost ease of use

BY HEATHER HAVENSTEIN

Sun Microsystems Inc. last week released Java 2 Platform Standard Edition (J2SE) 5.0, an upgraded version of its programming language with more than 100 new features designed to bolster ease of use, performance, scalability and desktop development.

J2SE 5.0, which was code-named Tiger and announced at the JavaOne conference in June, includes what Sun officials claim are the most significant enhancements to the Java development platform and language since the first release almost a decade ago.

Sun also provided a peek at J2SE 6.0, now called Mustang. Scheduled to be available in the spring of 2006, Mustang will feature increased performance and added support for XML and Web services.

"We try to have a measurement for how often the community wants to see updates," said James Gosling, the father of Java and chief technology officer for Sun's Developer Platforms Group. "The [Mustang release date] is when we think the community is going to be ready for a new release."

Developers can download J2SE 5.0 from Sun's Web site now. The company said new features supporting faster and more secure coding should help boost Java programmer productivity. The upgrade also supports faster start-ups and a smaller memory footprint.

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"Particularly for Java applications on the client, it has taken a while for them to start up," O'Grady said. "That has been a problem. Also, from a user's perspective, [Sun] has updated the look and feel. It looks good. It's cleaner, and it's more modern."

The enhancements in J2SE 5.0 reflect demands from corporate users for enterprise-oriented capabilities, such as the ability to manage and monitor applications, said Thomas Murphy, an analyst at Meta Group Inc. He added that Sun "certainly is trying to make a big push to come back again on the client side."

49786

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Financial Firm Consolidates SANs With Eye Toward ILM

Installs tiered storage network, plans to move toward automated data migration

BY LUCAS MEARIAN

State Street Corp.'s investment management unit has completed the rollout of a tiered storage infrastructure that will be used to consolidate seven storage-area networks (SAN) and set the stage for the eventual adoption of automated information life-cycle management processes.

The movement of data among the various tiers of storage devices is still done manually, according to State Street Global Advisors, which finished the multimillion-dollar installation in September and announced the deployment last week along with storage switch vendor McData Corp.

But the process will be automated over time and driven by predefined policies based on the business importance and age of information, said Bob Shinn, a principal in the IT department at State Street Global Advisors who is responsible for managing the unit's storage systems. "It's a complete change in how we approach storage," he said.

State Street Global Advisors, which, like its parent company, is based in Boston, deployed high-end and mid-range disk arrays from EMC Corp., a tape library from Storage Technology Corp. and 32 of McData's network storage switches as part of the project.

Shinn said his team also used a new Eclipse 2640 SAN router that McData introduced last week to integrate Brocade and Cisco switches that are part of State Street's SANs at facilities in and around Boston, thereby tying together its data migration pathways.

Altogether, more than 1,000 switch ports connect application servers to the storage devices on the central SAN, which was installed at a new data center in Boston. Different paths to the devices can be dynamically created by the McData switches, Shinn said.

Layered on top of the switched network is McData's SAN Navigator software, which provides topology mapping, asset tracking and automated discovery of storage hardware. "The point is to abstract [the network] to create multiple virtual paths back to the storage," said Patrick Harr, McData's vice president of director platforms.

Bill North, an analyst at IDC, said he's impressed by State Street's architecture but added that the company's approach sounds more like data life-cycle management at this point. "It's about the bits, bytes and buckets," not business information itself, he said.

"When you have particular classes of business records that have to be stored and retrieved in a certain way, with certain service levels . . . then things have to be more sophisticated," North added.

The new SAN has 250TB of capacity on EMC's Symmetrix DMX and Clariion CX arrays, plus another 500TB on a PowderHorn tape library from StorageTek. Shinn declined to state the specific cost of the project, which included months of classifying data sets in order to determine the appropriate type of storage for them. But he noted that the price of storage hardware was much lower than it was the last time he bought equipment. "We went from the tens of millions of dollars for our old system to the millions," he said.

Along with the addition of the switched network, Shinn said the most important aspect of the project was the human effort involved in classifying data. "If you haven't done that, then you can't move things throughout the different tiers," he said. "Automated or not automated, you don't have the policies and information to be able to judge what should go where." 49780

State Street's SAN Setup

STORAGE	SWITCHES
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

Three-Year Storage-Over-IP Project Starts to Bear Fruit

BY LUCAS MEARIAN

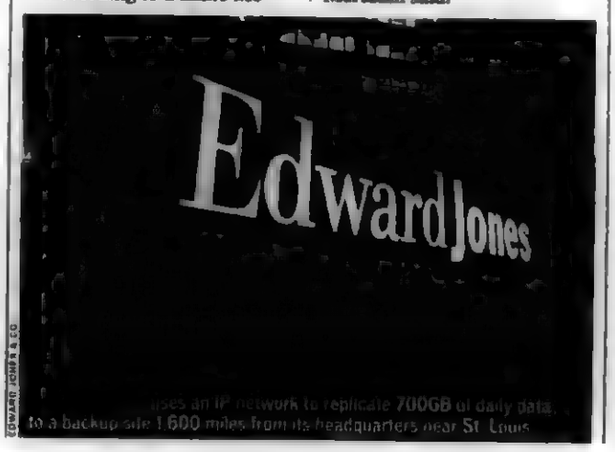
After three years of work, brokerage Edward Jones & Co. is beginning to see some benefits from an $80 million investment in a storage-over-IP network that is replicating up to 700GB of data daily to a fully redundant backup site located 1,600 miles away from its main data center near St. Louis.

Edward Jones CIO Rich Malone said last week that the Maryland Heights, Mo.-based company is still "a long way from being where we need to be" on the project. But over the past year, Edward Jones has reduced its overall data backup window from 12 hours to four, while more than doubling the amount of information it replicates to its secondary data center in Tempe, Ariz.

"At the beginning of the year, we ran 96 hours behind with our database replication," said Bill Hayden, director of data services at Edward Jones. "Four days behind is nowhere near the service level I was expected to provide."

Most of the improvements over the past year have come through software upgrades and fine-tuning the systems in the two data centers, he said.

According to Dianne McAdam, an analyst at Data Mobility Group LLC in Nashua, N.H., it's still rare for a financial services firm the size of Edward Jones to be using a storage-over-IP network and asynchronous replication technology. Most large brokerages continue to rely on synchronous replication "because they can't afford to lose any transactions and they need the performance of a high-bandwidth fiber connection," McAdam said.



EDWARD JONES & CO.

Edward Jones, which began the storage project in 2001 [QuickLink 25699], is using the IP-based technology to link a storage-area network (SAN) in its headquarters data center to one in the Tempe facility. The network is built on Fibre Channel-over-IP switches from CNT Corp., plus data replication and mirroring tools from EMC Corp., E-Net Corp., Quest Software Inc. and Network Appliance Inc.

The project's goal is to enable Edward Jones to shift its transaction-processing activities from St. Louis to Tempe without a hiccup. "When we get to where we want to go, [disaster recovery] will become a thing of the past," Malone said. "It becomes, 'OK, I've got trouble at one data center. I'm going to shift the load to the other center.' "

The asynchronous replication approach has proved to be reliable, Malone said. But some technical issues remain. One major challenge is synchronizing all 450TB of data at both sites to ensure that the information is fully updated. "It's something that becomes more difficult when you're sitting 1,600 miles from your backup center," Hayden said.

Another problem is that the company's mainframe-based VSAM flat files are on a four-hour replication cycle, matching the length of the current backup window. "We simply reached a limit on the current technology," Hayden said, adding that the bottleneck stems from Edward Jones' use of older versions of EMC's Symmetrix disk arrays and replication software. Upgrades by the fourth quarter of next year should help correct the problem, he said.

Malone said DB2 database replication has also been problematic because the replication engine that the company uses doesn't allow incremental updates on the target database and supports only one update at a time. He added that he's considering IBM's upgraded DB2 Propagator tool to help speed up the replication process. 49828

BRIEFS

CA Plans to Trim Workforce by 5%

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Cisco Systems Inc. said Bank of America Corp. plans to install about 180,000 of its IP telephones over the next three years. The deployment by the Charlotte, N.C.-based bank will also include centralized call control and voice-mail systems from Cisco. Electronic Data Systems Corp. will work with the bank on the project. Financial details weren't disclosed.

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Intel Drops Plans For Wi-Fi in Chips

Citing a lack of interest among PC vendors, Intel Corp. has dropped plans to build wireless access point technology into the Grantsdale chip sets it announced in June. Intel said the decision wasn't related to any technical issues.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



For Xerox, the Color of Money . . .

. . . is color. Xerox Corp. has seen better than 40% growth in unit sales of its color printers and multifunction systems (those that print, fax and scan) over the past 12 months, leading to a 24% profit growth during that period. Not bad for a company whose name is synonymous with black-and-white paper copies. But betting on color's long-term success to continue brightening Xerox's balance sheet has some potentially dark spots. Color printing, while dramatically cheaper than it was only a few years ago, still costs more than the 1.5 cents per page for black and white. So that means businesses will likely restrict the use of color to design-heavy documents and those where color is critical to their communications. There also are technical problems, one of the biggest being color consistency. L.K. Mestha, principal scientist at Stamford, Conn.-based Xerox, explains that even in the best network printers, the color saturation on a page can change in the middle of a print run. So he and other Xerox scientists have invented what they call a spectrophotometer, a device that will reduce the time it takes a printer to automatically check the color consistency on a page from 24 seconds to less than one. The device is beyond the prototype stage but probably won't arrive in printers until late 2005 at the earliest.

7¢ Additional cost for a printed color page compared with a B&W one, says Xerox

Thin clients 'same as Mac' in . . .

. . . penetration of the corporate desktop market. Which is pretty good news for Mike Deneffe, senior director of the Winterm business line at Wyse Technology Inc. in San Jose. That measly 2% to 3% market share is enough to spur Wyse to unleash a handful of thin-client systems in the coming months. Available this week, the Winterm 3150SE and 9150SE offer improved performance over the company's current products, Deneffe says. The 3150SE costs $399 and is the first thin client to ship with Windows CE 5.0, Wyse claims. Priced at $499, the 9150SE will offer Windows XP Embedded as its operating system. Also new is a $349 S-Class device, which is about as big as a VHS videocassette and uses a low-power CPU from Advanced Micro Devices Inc. that lets it run without a noisy fan. It will ship next month running Windows CE 5.0, and a Linux version is due in December. The slightly larger V-Class thin client, using a chip from Transmeta Corp., will also ship in December for $449 with Linux, CE or XPE. Linux "is the fastest-growing segment we have," DeNeffe says.



Wyse's thinner thin client



Rackable's S3116 NAS Server

Control access to distributed apps . . .

. . . via SingleKey 3.0, an appliance shipping Oct. 15 from Bayshore Networks LLC in New York. According to General Manager Francis Cianfrocca, SingleKey lets you establish application access policies at a central location, deploy the appliances in front of application servers and manage who can access your software assets. You can also link SingleKey to your enterprise directory to ease creation of an access-rights database on the appliance. Version 3.0 adds the Linux 2.6 kernel and improved performance. Prices start at $5,000.

Serial ATA NAS appliances appeal . . .

. . . to "highly sophisticated customers" in midsize to large companies, claims Geoffrey Noer, senior director for storage products at Rackable Systems Inc. in Milpitas, Calif. Whether urbane sophisticates or backcountry rubes, most systems administrators should appreciate the specs for Rackable's latest Serial ATA network-attached storage device. The S3116 NAS Server ships with 4TB of storage capacity (expandable to 100TB), plus 4GB of RAM and two 1Gbit/sec. Ethernet ports. The S3116 can handle Linux, Mac, Unix and Windows clients out of the box and starts at under $20,000.

Salesforce.com targets help desk . . .

. . . and other customer support applications with the same pay-as-you-go software model it successfully used to attack licensed CRM programs from the likes of Siebel Systems Inc. Supportforce.com includes complete customer support and help desk tools as well as knowledge management capabilities, Web self-service and other customer-support features, says Salesforce.com Inc. It's available in 11 languages, with monthly fees ranging from $17 to $125 per user, says CEO Mark Benioff. Sheryl Kingstone, an analyst at The Yankee Group in Boston, says she doesn't expect Supportforce.com to compel users to "rip and replace" customer support tools from vendors such as Amdocs Ltd.'s Clarify unit and BMC Software Inc.'s Remedy Corp. division. But, Kingstone adds, it could be ideal for companies that want to place customer service agents in their own homes or quickly ramp up support capabilities, because there's no software to install or maintain. She argues that it could also boost offshore work, since agents in India or elsewhere won't need local application infrastructures to get started. **49751**

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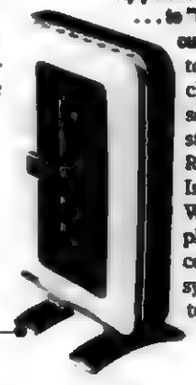
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Rackable's S3116 NAS Server

Control access to distributed apps . . .

. . . via SingleKey 3.0, an appliance shipping Oct. 15 from Bayshore Networks LLC in New York. According to General Manager Francis Cianfrocca, SingleKey lets you establish application access policies at a central location, deploy the appliances in front of application servers and manage who can access your software assets. You can also link SingleKey to your enterprise directory to ease creation of an access-rights database on the appliance. Version 3.0 adds the Linux 2.6 kernel and improved performance. Prices start at $5,000.

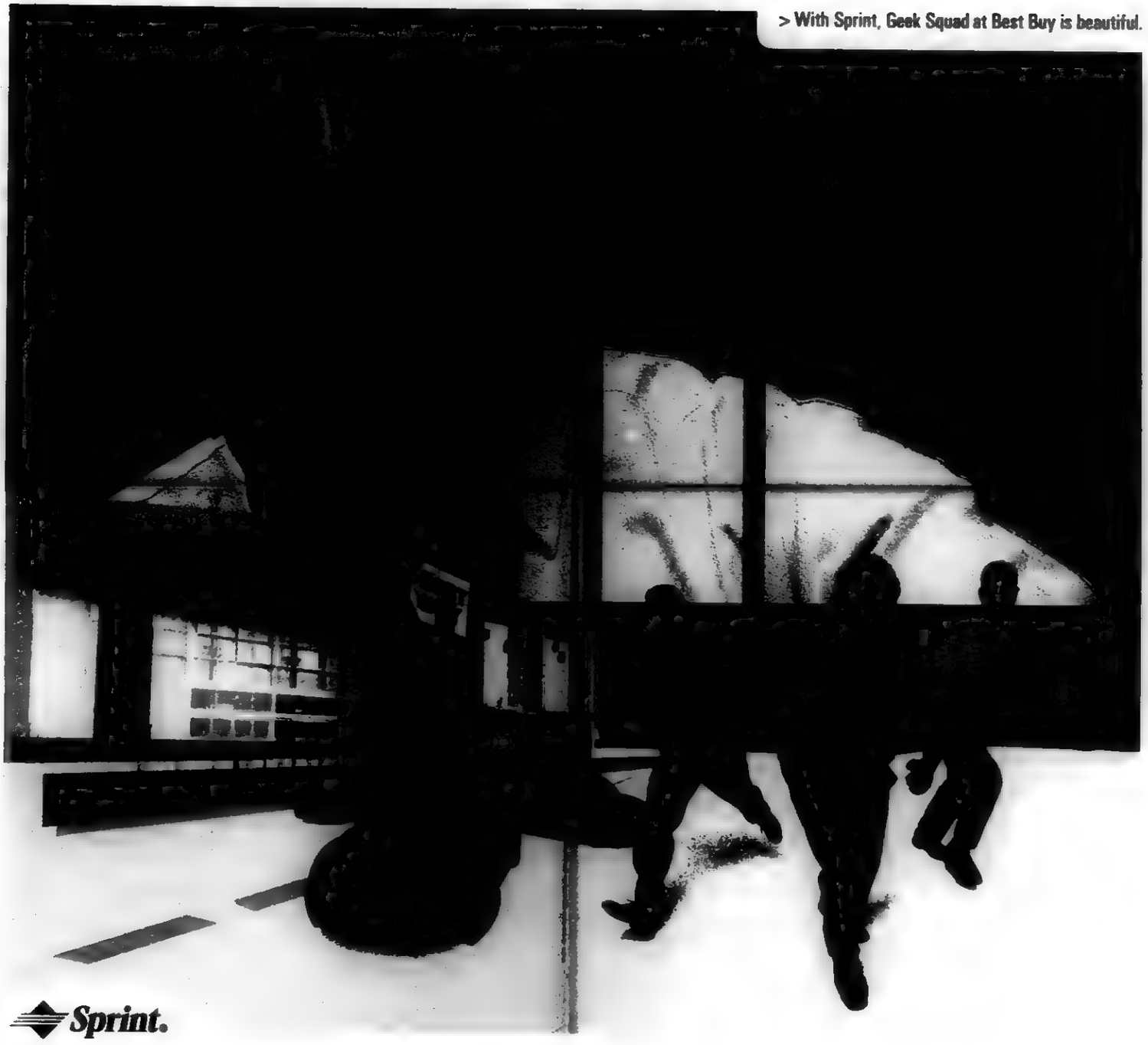
Serial ATA NAS appliances appeal . . .

. . . to "highly sophisticated customers" in midsize to large companies, claims Geoffrey Noer, senior director for storage products at Rackable Systems Inc. in Milpitas, Calif. Whether urbane sophisticates or backcountry rubes, most systems administrators should appreciate the specs for Rackable's latest Serial ATA network-attached storage device. The S3116 NAS Server ships with 4TB of storage capacity (expandable to 100TB), plus 4GB of RAM and two 1Gbit/sec. Ethernet ports. The S3116 can handle Linux, Mac, Unix and Windows clients out of the box and starts at under $20,000.

Salesforce.com targets help desk . . .

. . . and other customer support applications with the same pay-as-you-go software model it successfully used to attack licensed CRM programs from the likes of Siebel Systems Inc. Supportforce.com includes complete customer support and help desk tools as well as knowledge management capabilities, Web self-service and other customer-support features, says Salesforce.com Inc. It's available in 11 languages, with monthly fees ranging from $17 to $125 per user, says CEO Mark Benioff. Sheryl Kingstone, an analyst at The Yankee Group in Boston, says she doesn't expect Supportforce.com to compel users to "rip and replace" customer support tools from vendors such as Amdocs Ltd.'s Clarify unit and BMC Software Inc.'s Remedy Corp. division. But, Kingstone adds, it could be ideal for companies that want to place customer service agents in their own homes or quickly ramp up support capabilities, because there's no software to install or maintain. She argues that it could also boost offshore work, since agents in India or elsewhere won't need local application infrastructures to get started. **46751**

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IT Aids Florida Utility Workers

But outage management applications may fall short with guest repair crews

BY THOMAS HOFFMAN

ELECTRIC UTILITIES in Florida have been able to leverage IT to help them respond to the widespread power outages caused by the four hurricanes that have hammered the state over the past six weeks. But limitations in some of the systems are making it hard to fully automate the process of coordinating the repair work.

For instance, most power companies in the Southeast have installed new outage management systems since 2000 to help them identify the equipment that's causing a specific power disruption and dispatch work crews to the scene, said Rick Nicholson, an analyst at Meta Group Inc.

But when a hurricane hits, the companies often recruit thousands of repair workers from across the U.S. and Canada for assistance. Because those workers rarely have mobile devices that are compatible with a utility's outage management system, electronic work orders typically can't be dispatched to them, Nicholson said.

"That's a problem, and I'm not aware of any utilities that have adequately solved this," said Nicholson. In most cases, power companies have dispatchers call guest employees on cell phones to give them their work orders, he said.

Dennis Klinger, CIO at Florida Power & Light Co., said the Juno Beach-based utility gives radio systems or cell phones to transient repairmen if they don't have mobile devices that will work with its outage management system.

"Sometimes their technology is compatible with us, sometimes not," Klinger said. He added that if cellular communications have been disrupted in a particular area, guest workers fill out paper-based work orders and return them to temporary "staging sites" set up by FP&L.



Ed Wolfstein

In the aftermath of a major storm like Hurricane Jeanne, the latest to plow across Florida, "our process of getting information to the field changes dramatically," said Becky Harrison, director of distribution services at Progress Energy Inc.'s operations in North Carolina and Florida. "We know that they're not going to be able to get orders electronically in a storm like this."

After Jeanne moved out of Florida, Raleigh, N.C.-based Progress Energy assigned "feeder coordinators" — typically, local repairmen — to oversee particular areas and dispatch work orders to visiting crews, using information from its outage management system, Harrison said.

Tracking Customers

The system that the company uses in Florida is driven by an Oracle database, and Harrison said it has been "extremely valuable" for identifying customers who lost power and tallying the percentage of customers who have had their electricity restored. About 722,000 of Progress Energy's Florida customers lost power as a result of Jeanne, but the utility expected to have all of them back online by the end of the day this past Friday.

Outage management systems have other strengths as well, Harrison said. For instance, Progress Energy can use its system to determine an estimated time of repair for a particular area. It then can provide callers to customer service centers with an automated response telling them when power should be restored.

"One of the things we've found very critical in storms is that it's just as important to keep customers informed about restorations as it is about making the restorations themselves," Harrison said. **48798**

MORE NEWS ONLINE

FEMA is using a new intranet-based system to help support hurricane relief efforts.

Quick Link 48796
www.computerworld.com

Technology Moves Close to Crews

TO HELP it respond to the hurricane-induced power outages in the Sunshine State, Florida Power & Light has set up "staging sites" at empty fairgrounds and parking lots and is using IT-equipped trailers to coordinate the distribution of work orders and supplies to hundreds of repair workers.

The staging sites are also being used to find hotel rooms for transient workers, said Dennis Klinger, the utility's CIO. The sites typically consist of four to eight trailers that are outfitted with workstations, copiers and fax machines, Klinger said. Diesel generators and satellite dishes are brought in if there's no power or communications service in the area.

Sometimes the utility installs multiple T1 lines to support an individual staging site and facilitate communication about power restoration efforts with FP&L's central command center. "Satellite communications has really helped us, since the telecommunications providers are typically hit just as badly as we are," Klinger said.

Both FP&L and Progress Energy use modeling tools to estimate the number of customers who are likely to lose power during a storm and the number of repair crews that will be needed to restore electricity. The tools gather data about the damage caused by hurricanes, as well as the track of approaching storms.

FP&L relies on a combination of Unix and Windows systems to do the modeling, while Progress Energy has developed a set of homegrown applications in Visual Basic.

The modeling applications aren't completely accurate, said Becky Harrison, director of distribution services at Progress Energy's operations in North Carolina and Florida. But, she added, "they give us a relative range and a scaling factor that we can use to start acquiring external resources to help us."

– Thomas Hoffman

Panel Prefers Carrots to Sticks on Cybersecurity

BY GRANT GROSS
WASHINGTON

Despite the indifference that many corporate executives show about IT security threats, now isn't the time for the U.S. government to mandate cybersecurity standards to private industry, a panel of government officials said last week.

Instead of using a "stick" approach, Congress could develop some "carrot" incentives for companies looking to upgrade their cybersecurity efforts, said Bob Dix, staff director of the technology and information policy subcommittee of the House Government Reform Committee.

The subcommittee is considering several incentives for cybersecurity efforts, including an investment tax credit and a limit on liability for companies adopting cybersecurity best practices, Dix said.

Even though Dix and Chrisan Herrod, chief security officer at the Securities and Exchange Commission, both expressed concern over the state of cybersecurity in the U.S., they stopped short of advocating government-defined standards. Instead, best practices should be defined by the private sector, Dix said.

Lack of Consensus

Part of the problem is that there's little agreement on what cybersecurity best practices should be, Herrod said. "I don't think it's possible to mandate something when you don't have agreement on what that something is," she said.

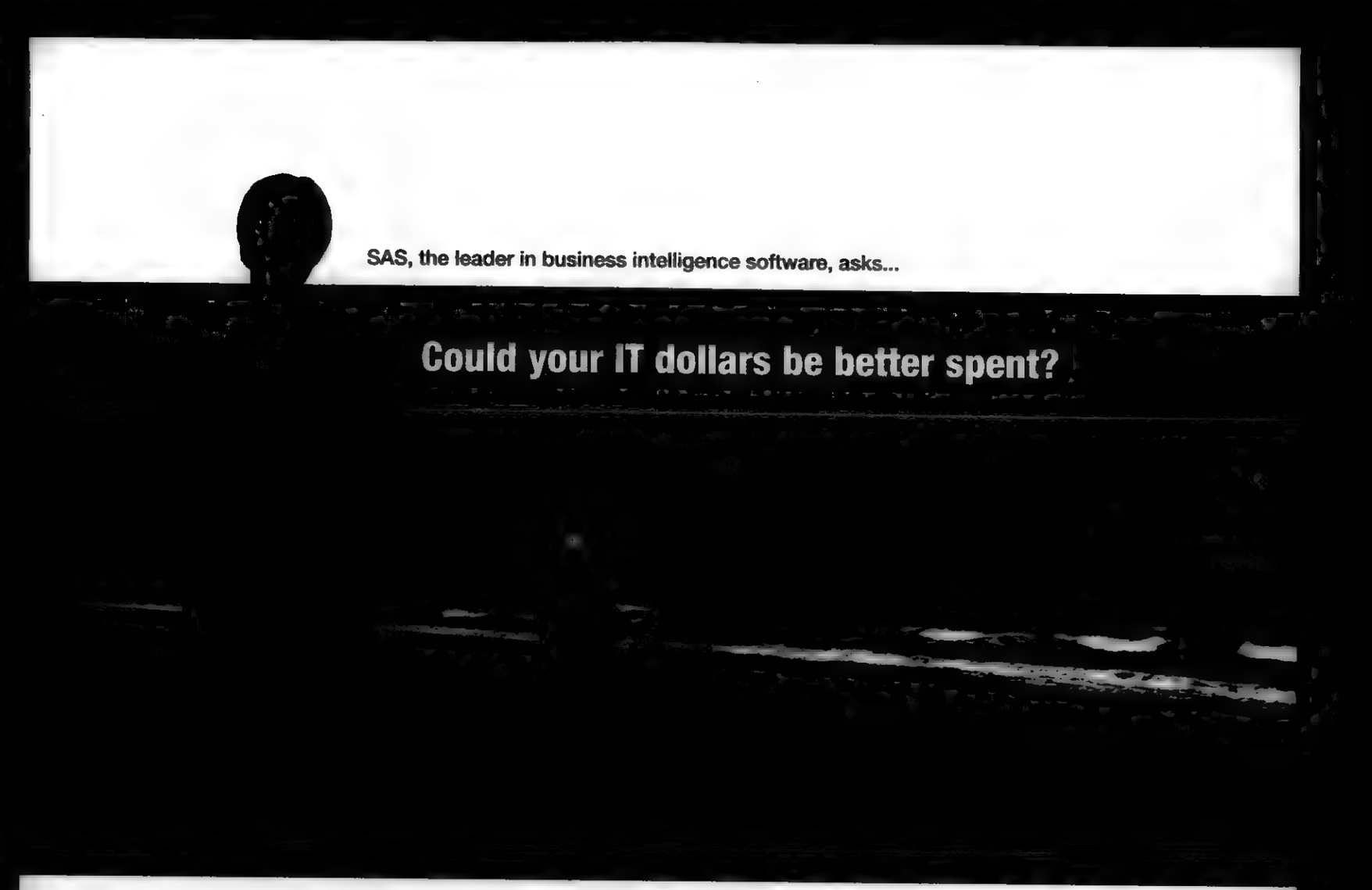
One industry may require different standards than another, and a small business may have different cybersecurity requirements than a large company, said Laura DeMartino, legal adviser for cybersecurity at the Federal Trade Commission. "A broad [government] mandate may not be needed for a company that doesn't maintain sensitive consumer information," she said.

Panelists said many CEOs still don't view cybersecurity as an important corporate governance issue. "The threat is real, and the time for action is now," Dix said.

Herrod said she's "very disappointed" in the lack of effort among businesses and the government to develop agreed-upon best practices.

"It's a lot of talk and little demonstrable action," she said. "CEOs in corporate America still don't get it — they still don't concern themselves with information security . . . as much as you would think they would." **48793**

Gross writes for the IDG News Service.



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BRIEFS

Microsoft Seeks Stay on Ruling

Microsoft Corp. asked a judge in Luxembourg to suspend the European Commission's antitrust ruling against the company, arguing that any technical secrets it's forced to reveal can't be retracted if an appeal succeeds. Microsoft made its case during a hearing at the European Union's second-highest court, the Court of First Instance. The court could take up to two months to issue a decision.

Red Hat Acquires Netscape Software

Red Hat Inc. has agreed to buy the assets of Netscape Communications Corp.'s Security Solutions unit from America Online Inc. for up to $23 million in cash. The deal, which is due to be completed by Nov. 30, includes Netscape's directory server and user authentication tools. Raleigh, N.C.-based Red Hat said it will add the software to its open-source product portfolio within six to 12 months.

Munich to Proceed With Linux Rollout

City officials in Munich have decided to go ahead with a desktop Linux migration project involving 14,000 PCs, despite concerns that legislation being considered by the EU could create patent-infringement problems for users of open-source software. The plan to equip the city government's PCs with Linux and open-source desktop applications had been put on hold in August.

Nortel Trims Plan For More Layoffs

Nortel Networks Ltd. said it has reduced the number of jobs that will be cut in a new round of layoffs from 3,500 to 3,250. The cutbacks are due to completed by June and will affect about 1,400 workers in the U.S. and 950 in Canada, the Brampton, Ontario-based company said.

BI Projects Pose Big Hurdles for Companies

IT execs contend with technical, cultural challenges

BY MARC L. SONGINI
PALM DESERT, CALIF.

COMPANIES can use business intelligence tools to make big improvements in their operations, but numerous technical, cultural and internal-process challenges must be overcome first, according to IT managers at *Computerworld*'s Business Intelligence Perspectives Conference here last week.

The people and process issues can be even more daunting than the technical ones, said Bubba Tyler, CIO at Quaker Chemical Corp. in Conshohocken, Pa. For the past 10 years, Quaker Chemical has used software from SAS Institute Inc. to do data analysis and reporting. But the project wasn't a simple matter of installing the applications and giving workers access to them, he noted.

"It was a nine- to 10-year process and a heck of a big investment for a company of our size," said Tyler, who spoke at the conference. He noted that the chemical company moved ahead slowly and had to continually re-examine the BI model it was putting in place.

The addition of the SAS 8 software also required Quaker Chemical to collaborate and share information on a global basis, prompting it to tie employees' pay to their level of cooperation on the project.

In addition, the company had to create a common business intelligence language — a time-consuming task — and speed up the collection of data, Tyler said. It also developed a homegrown query tool to make SAS 8 palatable for widespread use, although Tyler has said he might replace that with a set of simplified user interfaces built into a SAS 9 upgrade released last spring [QuickLink 45897].

During a user roundtable discussion, Andy George, senior vice president of technology at ProfitLine Inc. in San Diego, recommended that companies phase in their BI implementations.



REED HEDGES

ProfitLine, which manages billing and other administrative functions for telecommunications companies, uses Business Objects SA's WebIntelligence software to analyze and audit customer bills. George said that during ProfitLine's rollout, ensuring the validity of data was a big challenge because so many people were accessing information and inadvertently corrupting it. That prompted the company to put a "data czar" in charge of maintaining the integrity of data, he said.

Information security was a major issue for the municipal government of Falls Church, Va., said panelist Shirley Hughes, the city's chief financial officer and general manager. When Falls Church moved from 2,200 separate spreadsheets to a more consolidated business intelligence system, it required all employees to read and sign a document that explained proper procedures, such as not sharing passwords. In addition, access to the BI system is "tightly controlled," Hughes said.

Proper maintenance of data being used in BI applications is so crucial that companies should seek legal advice about what can and can't be stored on a long-term basis, said Al Brill, senior managing director of technology services at Kroll OnTrack Inc.

The Eden Prairie, Minn.-based company uses homegrown analytical systems to help collect and present data to lawyers for use in court. But Brill warned of "vampire" data that could linger in a system for years and then "come back to bite you in the neck." As an example, Brill cited the possibility that old e-mail messages could be subpoenaed during litigation.

End-user access to BI systems has to be monitored regularly and kept current, Brill added, noting that workers who change jobs within a company might retain the ability to access data they should no longer be able to see.

Brill described business intelligence as potentially the most important technology investment that a company can make. "It deserves the kind of planning and thinking that a project that potentially means life and death for a company should have," he said. "I don't think there are any recipes for success, but there are a heck of a lot for failure." 48796

Users Seeking Ways to Analyze Unstructured Data

PALM DESERT, CALIF.

For some attendees at the Business Intelligence Perspectives Conference, the next big challenge involves trying to exploit various types of unstructured data to help improve corporate performance.

Several IT managers at the event said they're pursuing ways of using information such as paper documents, text files, and e-mail and voice-mail messages for business intelligence purposes – even though the information isn't formatted in data warehouse tables.

For example, Nils/Apex Group Holdings plans over the next year to start using SAS Institute software and a homegrown tool to mine medical claims records for information, according to Jody Porrazzo, director of econometric risk strategy at the insurance services company in Princeton, N.J.

The company already uses a SAS 9.3-based system for applications such as creating pricing models for insurers. But Porrazzo said specially trained staffers have to manually cull data from medical claims, which can be hundreds or even thousands of pages long. To simplify that process, Nils/Apex is developing a tool that will work with the SAS software and include a set of built-in rules for automating the process of parsing the information in claims.

H&R Block Inc.'s Option One Mortgage Corp. subsidiary plans to custom-develop a system that can convert inbound and outbound calls into searchable data, said Matt Slonaker, director of business information at the Irvine, Calif.-based lender.

Option One already uses a mix of software from Oracle Corp. and Microsoft Corp. to help employees assess and manage the risks on loans, Slonaker said. Now, he added, it hopes to convert recordings of phone calls into a text format that can be used to study the behavioral patterns of delinquent borrowers and try to identify customers who plan to file lawsuits against the company.

For instance, the application will be able to track how many times a borrower says the word *litigate* during a call and then help Option One employees score the likelihood that he will take the company to court, Slonaker said.

–Marc L. Songini

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Ex-CIO Promotes Rural U.S. Alternative to Offshoring IT

Low-cost services firm does work in Arkansas facilities

BY PATRICK THIBODEAU

KATHY BRITTAIN White, a former big-league CIO, is capitalizing on her connections to win clients for her tiny, rural IT services company, which she hopes will eventually compete with offshore development firms.

White's firm is getting interest and IT work from marquee companies such as Mattel Inc., Sarnoff Corp. and Cardinal Health Inc., where White was CIO from 1999 to March 2003.

That's not bad for a year-old business based in Jonesboro, Ark., that has two development centers, each with 15 employees. White, founder of Rural Sourcing Inc. (RSI), is a longtime supporter of using low-cost IT workers in rural areas of the U.S. instead of sending technology work to India or China.


says the "ongoing challenge is to provide a quality product."

People who know White, such as Rich Kurowski, vice president of IT at Cardinal in Dublin, Ohio, said her IT savvy gives her model the potential to work. "Kathy can make things happen, and does make things happen," he said.

Kurowski, who is considering a pilot IT project with RSI, said he sees White's model as an alternative to offshoring.

"She knows how high the bar is for really putting this in place," said Joe Eckroth, CIO at Mattel. "She understands what the end result has got to be." White is on the board of directors at the El Segundo, Calif.-based toymaker.

White's approach is to build development centers, linked to local universities, that are professionally managed and feature rigorous development methodologies and training. "The ongoing challenge is to provide a quality product, just like any company would," White said.

Cost is a major consideration. RSI charges $38 to $60 per hour, depending on the skills required. Eckroth, who has been using RSI workers for about a year, said the cost is about a third of what it is in major metropolitan areas. He said RSI is ideal for projects that "you want to keep near you, like business intelligence."

Business Connection

In the past few weeks, Sarnoff CIO Tim Mitchell assigned RSI some intranet development work that would otherwise have gone to his offshore provider. But he's known White from professional CIO organizational work, and that connection opened the door.

Mitchell said he's especially interested in RSI as a potentially reliable and stable source of U.S. workers, a requirement for some government contracts. Sarnoff is a Princeton, N.J.-based defense and electronics company and the successor to RCA Laboratories.

Wooed by state officials, RSI will open a facility in New Mexico in January and one in North Carolina by June, White said.

Other firms are trying the low-cost domestic model, too. Jeff McCaskey, president and CEO of Aurora Consulting Group Inc., a 51-employee IT contractor on the outskirts of Buffalo, said pricing below major-market costs "is exactly how we survive."

McCaskey said he pays his Web developers $60,000 to $80,000 per year, while similarly skilled workers in the New York metro area can earn six figures. He added that he's convinced he can compete with offshore firms. Mattel's Fisher-Price division is among his customers.

Big IT services firms also use workers in low-cost areas of the U.S., not just at offshore sites. Capgemini U.S. LLC, for instance, operates 22 service centers worldwide, including a 500-employee site in Kansas City, Mo., a low-cost area.

Kansas City employees supplement offshore development by working on projects that don't require additional customer interaction and rely heavily on repeatable development processes, said Terry Jost, vice president of outsourcing services at Capgemini. He said he questions whether a rural facility can truly scale up to handle big IT projects.

But White said she doesn't see a problem. She noted that a recent help-wanted ad for a program manager drew 360 applicants from all over the U.S. "I haven't been a little operator," White said. "I've been at very, very big companies. I don't intend to stay small." 48795

Compuware Expands Analysis Tools for Visual Studio Users

BY HEATHER HAVENSTEIN

Looking to help Microsoft developers purge bugs earlier in the development cycle, Compuware Corp. last week said it plans to add a pair of tools for eliminating security vulnerabilities from applications and testing their ability to withstand processing errors.

The unnamed products are designed to work with Microsoft Corp.'s Visual Studio development tools and will be released as part of Compuware's DevPartner performance analysis software line. Compuware also said the next release of its DevPartner Studio Professional Edition tool set is due in mid-2005, after Microsoft's planned launch of Visual Studio 2005.

Peter Varhol, DevPartner product manager at Detroit-based Compuware, said the plans for adding new functionality to DevPartner Studio haven't been finalized. But, he noted, the upcoming release will provide more advanced performance analysis plus built-in advice for improving application performance.

"We're taking a more holistic view of application performance," Varhol said. "We're not only presenting [developers] with information on many different aspects of their applications' performance, we're also advising them on what they can do about it."

Compuware's first new tool, expected to be available by year's end, will simulate attacks on applications to help developers identify security vulnerabilities. The second product is being tailored to help developers ensure application reliability when handling errors, something that Varhol said is typically difficult to test. That tool, expected to be out early next year, will leverage fault simulation technology to emulate real-world errors.

The new products are designed to corral application errors early in the development process, when they can be fixed at less cost and more quickly than if they move further along in the development cycle, said IDC analyst Melissa Webster.

Compuware hasn't set pricing for either of the upcoming products. 48801

H-1B Visas Nearly Gone

WASHINGTON

THE CAP ON H-1B VISAS granted to foreign workers, set at 65,000 for the 2005 fiscal year that began Oct. 1, is expected to be reached within weeks.

Applications can be filed six months before the fiscal year begins, and by August, the U.S. Citizenship and Immigration Services agency had received 45,900 H-1B petitions. Based on that pace, immigration experts expect the cap to be reached at its earliest point ever in the fiscal year.

The fiscal 2004 cap, also set at 65,000, was reached in about five months.

There has been a push in both houses of Congress to increase exemption limits for foreign-born individuals who have earned Ph.D.s or master's degrees from U.S. universities. But action before the scheduled Oct. 8 congressional adjournment is seen as unlikely.

Vic Goel, an immigration attorney in Greenbelt, Md., said a quick closing of the cap would leave employers unable to hire highly educated foreign professionals for nearly a year. "If we are making that [educational] investment, we need to reap the return of that investment," Goel said.

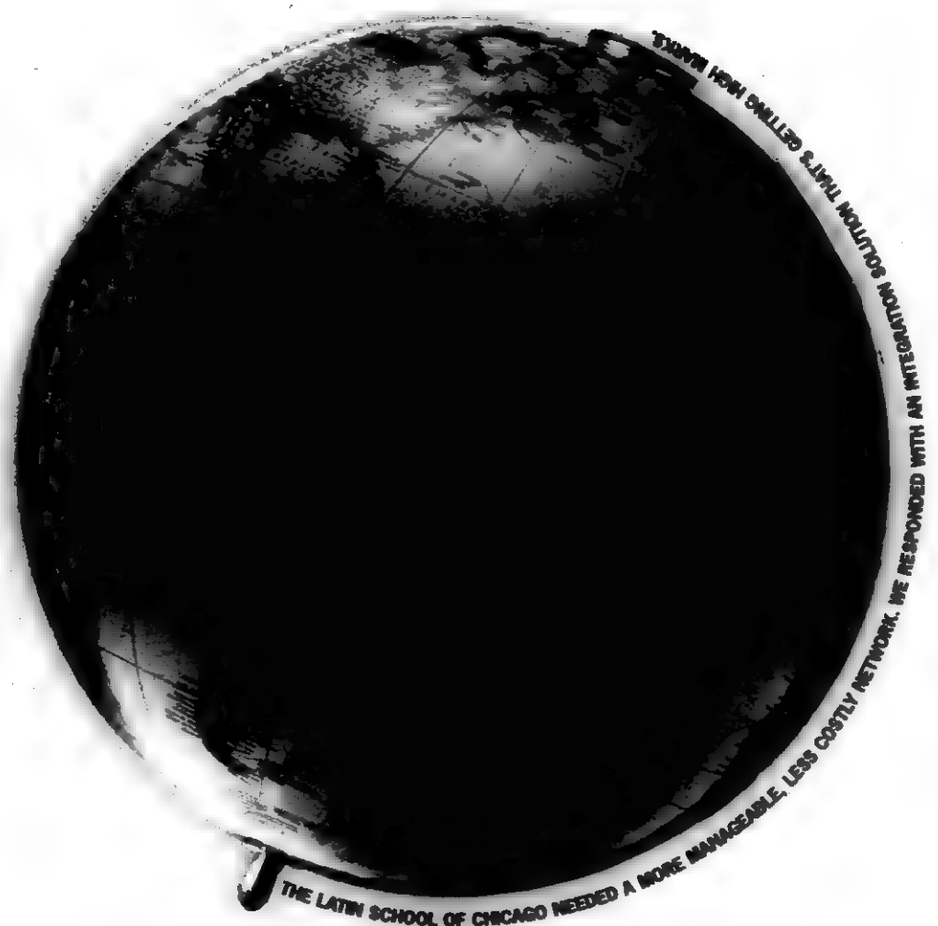
But Russ Harrison, legislative representative for the IEEE-USA, said the visa program "creates a strong incentive to push down wages and discourages employment of American workers."

– Patrick Thibodeau

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Physical, IT Security Converging, Users Say

Trend increases effectiveness, cuts costs at companies

BY JAIKUMAR VIJAYAN
DALLAS

THERE IS a growing need for companies to unify the management of IT and physical security functions, despite the challenges involved in doing so, said users and analysts at the ASIS International 2004 trade show here last week.

A closer integration of the two functions can yield significant cost benefits and improve an organization's ability to detect and respond to problems, said Lew Wagner, chief information security officer at Clarian Health in Indianapolis.

"You have enhanced responsiveness [to security incidents] because you don't have to worry about cross-coordinating your efforts," Wagner said.

The increased awareness and information sharing that are enabled by a more integrated security operation also help cut costs by eliminating duplicate efforts, he said.

Underscoring the trend, Alexandria, Va.-based ASIS International and the International Information Systems Security Certification Consortium, known as (ISC)², last week announced that they have agreed to mutually endorse each other's professional certifications. ASIS administers the Certified Protection Professional credential, which is largely for physical security practitioners, while (ISC)² administers the popular CISSP program for IT workers.

Driving the need for unified security management is the increasing use of IT in physical security products and services, said Greg Holliday, regional director of security at Crescent Real Estate Equities Ltd. in Dallas.

"The biggest trend here at the show is how computers and IT as a whole are improving the delivery of security services," Holliday said.

Improvements in computer memory, storage, networking and processing capabilities have made technologies such as physical access control and video monitoring more powerful than ever before, said Glenn Sandford, vice president of Whelan SFI, a provider of physical security services in Columbia, Md.

"The traditional security folks are very challenged by the rapid pace of information technology being used in physical security products and services," said Ray Bernard, principal consultant at Ray Bernard Consulting Services in Lake Forest, Calif.

Companies also increasingly view IT and physical security as part of a broader set of operational-risk management issues that need unified oversight, said Steve Hunt, an analyst at Forrester Research Inc. in Cambridge, Mass. That trend is further blurring the traditional lines that have existed between the two functions, he said.

Areas such as user provisioning, access control and access monitoring in particular can benefit from the integration, Bernard said.

Another example is smart cards that use identity information in an integrated directory server to control both facility and network access, Wagner said. "Just imagine the number of keys you wouldn't have to worry about losing or tracking down," he noted.

But companies have to be "careful in defining the touch points between IT and physical security," Sandford said.

Because of the specialized nature of each function, the integration has to take place more at the management level than at the technology level, he added.

Departmental turf issues and the vastly different backgrounds in which the two security functions have evolved also pose a challenge to integration, Wagner said.

Bernard agreed, saying that rather than letting technology issues be the focus of integration, it is more important to "collaborate and strategize" at the management level.

"The technology integration follows where it fits that strategy," he said. 49786

Converged Security Management

The factors that are driving the need for unified management of IT and physical security include the following:

EVOLVING regulatory compliance requirements.

INCREASING use of IT in physical security service delivery and products.

THE TREND toward viewing IT and physical security as part of a broader set of operational risk management issues.

THE NEED for lowered costs and improved responsiveness.

Continued from page 1

RFID

in Easton, Pa., that makes crayons and other products.

At the same time, Siegfried noted that he's optimistic about the long-term ROI potential from an increased flow of information, which is expected to help his company improve forecasting and planning with its suppliers.

A manager of e-commerce at a midsize producer of consumer goods said, "We were looking for some more definitive ways to get ROI. The [speakers] were either keeping it to themselves, or it's not there yet.

"We see benefits to this. We see it coming. But it's not there yet, and we don't have the resources of Procter & Gamble," added the manager, who asked not to be named.

Efrain Barreiro, director of operations at Elan-Polo Inc. in Nashville, said the footwear maker and distributor faces a January 2006 deadline to comply with a directive from Wal-Mart to put RFID tags on pallets and cases shipped to the retailer's Dallas-area distribution centers. He said the ability to press a button and get an accurate inventory count would provide great benefits.

High Tag Costs

But Barreiro said that as much as 70% of Elan-Polo's shoe business involves high-volume, low-price products. When he runs the numbers, he needs 5-cent tags to make the RFID investment pay off.

However, Gartner Inc. analyst Jeff Woods estimated that RFID tags typically are still selling for 40 to 50 cents apiece.

In many ways, the pros and cons of adopting RFID haven't changed substantially since the technology became a hot-button issue last year, after Wal-Mart directed that its top 100 suppliers begin tagging pallets and cases by the start of 2005. The retailer updated its plans in June, saying it expects the next 200 suppliers to be on board at the start of 2006.

"The faster payback is really going to be upstream, in working with our raw materials and finishing-goods suppliers and looking at how we manage our materials within our operations," said Mike O'Shea, director of corporate RFID strategies and technology at Kimberly-Clark Corp., which started conducting RFID field trials in 2002.

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Despite the encouragement of early adopters, launching RFID pilot projects isn't always possible. Greg Vick, director of distribution systems and Web development at Unified Western Grocers Inc., a Commerce, Calif.-based food wholesaler and cooperative, said he went to the conference to try to find a manufacturing partner with which to pilot RFID technology. But he found no takers.

"The reaction was, 'No, we're not going to do this because it costs a lot of money,' and 'We're only doing it because we have to,' " Vick said. "I understand the tags are expensive. But there's a lot of talk here that 'we don't want to do slap and ship. We want to look upstream. We want to find that value.' But people aren't ready to act yet." 49799

Physical, IT Security Converging, Users Say

Trend increases effectiveness, cuts costs at companies

BY JAIKUMAR VIJAYAN
DALLAS

THERE IS a growing need for companies to unify the management of IT and physical security functions, despite the challenges involved in doing so, said users and analysts at the ASIS International 2004 trade show here last week.

A closer integration of the two functions can yield significant cost benefits and improve an organization's ability to detect and respond to problems, said Lew Wagner, chief information security officer at Clarian Health in Indianapolis.

"You have enhanced responsiveness [to security incidents] because you don't have to worry about cross-coordinating your efforts," Wagner said.

The increased awareness and information sharing that are enabled by a more integrated security operation also help cut costs by eliminating duplicate efforts, he said.

Underscoring the trend, Alexandria, Va.-based ASIS International and the International Information Systems Security Certification Consortium, known as (ISC)², last week announced that they have agreed to mutually endorse each other's professional certifications. ASIS administers the Certified Protection Professional credential, which is largely for physical security practitioners, while (ISC)² administers the popular CISSP program for IT workers.

Driving the need for unified security management is the increasing use of IT in physical security products and services, said Greg Holliday, regional director of security at Crescent Real Estate Equities Ltd. in Dallas.

"The biggest trend here at the show is how computers and IT as a whole are improving the delivery of security services," Holliday said.

Improvements in computer memory, storage, networking and processing capabilities have made technologies such as physical access control and video monitoring more powerful than ever before, said Glenn Sandford, vice president of Whelan SFI, a provider of physical security services in Columbia, Md.

"The traditional security folks are very challenged by the rapid pace of information technology being used in physical security products and services," said Ray Bernard, principal consultant at Ray Bernard Consulting Services in Lake Forest, Calif.

Companies also increasingly view IT and physical security as part of a broader set of operational-risk management issues that need unified oversight, said Steve Hunt, an analyst at Forrester Research Inc. in Cambridge, Mass. That trend is further blurring the traditional lines that have existed between the two functions, he said.

Areas such as user provisioning, access control and access monitoring in particular can benefit from the integration, Bernard said.

Another example is smart cards that use identity information in an integrated directory server to control both facility and network access, Wagner said. "Just imagine the number of keys you wouldn't have to worry about losing or tracking down," he noted.



But companies have to be "careful in defining the touch points between IT and physical security," Sandford said.

Because of the specialized nature of each function, the integration has to take place more at the management level than at the technology level, he added.

Departmental turf issues and the vastly different backgrounds in which the two security functions have evolved also pose a challenge to integration, Wagner said.

Bernard agreed, saying that rather than letting technology issues be the focus of integration, it is more important to "collaborate and strategize" at the management level.

"The technology integration follows where it fits that strategy," he said. 49788

Continued from page 1

RFID

in Easton, Pa., that makes crayons and other products.

At the same time, Siegfried noted that he's optimistic about the long-term ROI potential from an increased flow of information, which is expected to help his company improve forecasting and planning with its suppliers.

A manager of e-commerce at a midsize producer of consumer goods said, "We were looking for some more definitive ways to get ROI. The [speakers] were either keeping it to themselves, or it's not there yet.

"We see benefits to this. We see it coming. But it's not there yet, and we don't have the resources of Procter & Gamble," added the manager, who asked not to be named.

Efrain Barreiro, director of operations at Elan-Polo Inc. in Nashville, said the footwear maker and distributor faces a January 2006 deadline to comply with a directive from Wal-Mart to put RFID tags on pallets and cases shipped to the retailer's Dallas-area distribution centers. He said the ability to press a button and get an accurate inventory count would provide great benefits.

High Tag Costs

But Barreiro said that as much as 70% of Elan-Polo's shoe business involves high-volume, low-price products. When he runs the numbers, he needs 5-cent tags to make the RFID investment pay off.

However, Gartner Inc. analyst Jeff Woods estimated that RFID tags typically are still selling for 40 to 50 cents apiece.

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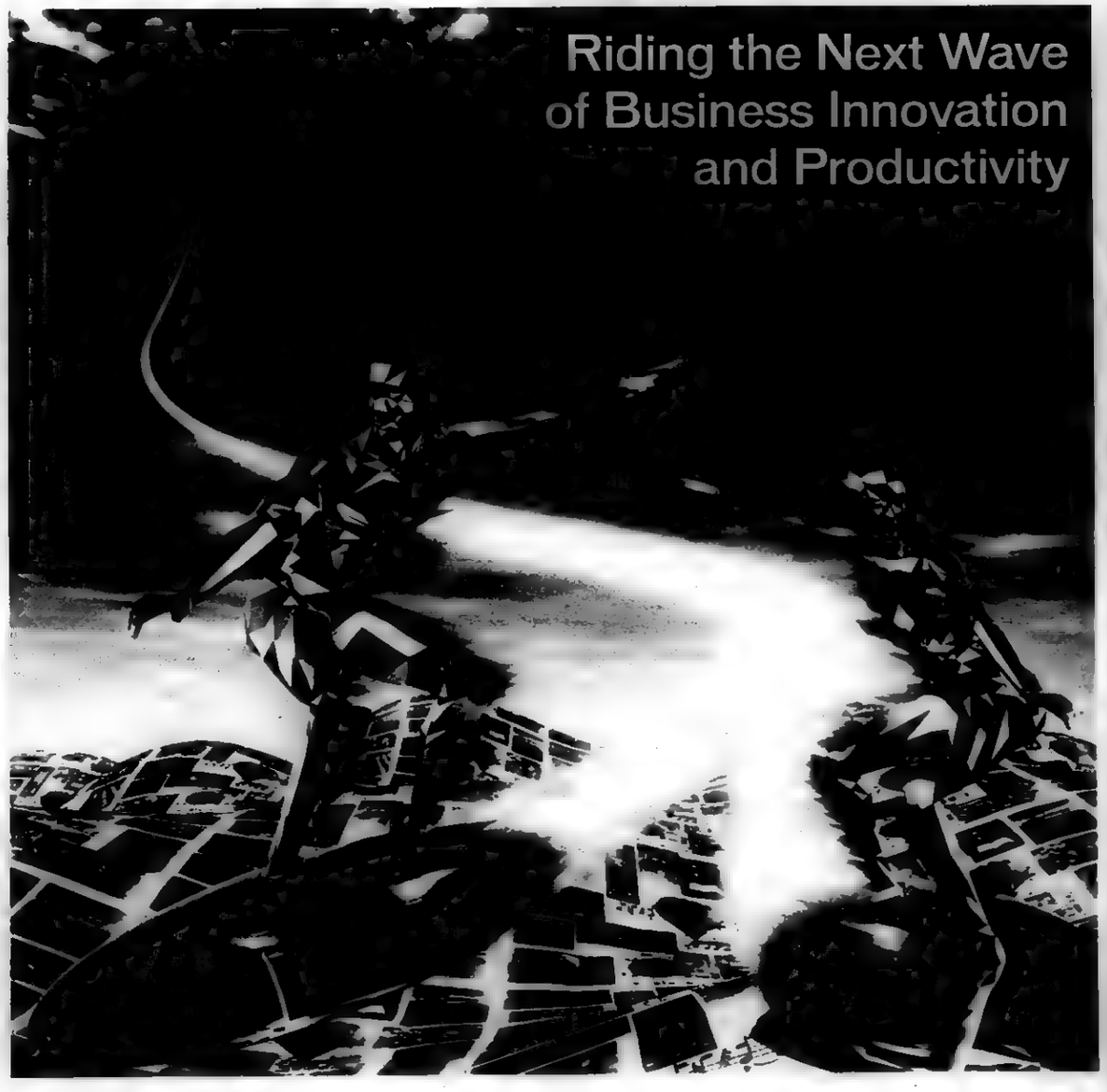
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IDC
Analyze the Future

Dynamic IT

Riding the Next Wave of Business Innovation and Productivity





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Dynamic IT

Over the past two decades, $10 trillion in information technology investment has unleashed a wave of business innovation – in everything from the way companies deal with customers and suppliers to the way they conduct meetings, count paper clips and send correspondence. For years there have been questions over the degree to which IT actually increases business productivity, but since the mid-1990s it's been clear that the contribution is substantial. There are now enough studies to fill a bookcase on the impact of IT on both enterprise and country-level productivity.

Figure 1 actually shows the correspondence between U.S. productivity growth and IT investment as measured by the U.S. government – with the growth in IT investment shifted by three years on the assumption that it takes some time for the investments to pay off.

As you can see, in almost every instance where IT investment has gone up (or down), productivity growth three years down the line has followed. The data does not prove a cause and effect, but the correspondence is clear. Increased



IT spending and increased productivity go hand in hand.

Of course, this is a picture of the macrocosm. In the microcosm, we have plenty of other evidence that IT has generated improved corporate performance.

In spring 2004, IDC surveyed 500 CEOs and CIOs on the relationship between IT investment and sales performance. That study found that companies with high sales performance are also likely to be leaders in IT. Additionally, these businesses tend to increase IT spending faster than the market average, while keeping an eagle eye on costs. Moreover, these sales and technology leaders concentrate their investment in areas that give them more insight into their customers.

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true if they invest in the right technology at the right time; manage their investment and implementation well; and manage their non-IT investment to maximize their IT investment.

And it goes without saying that companies that do increase productivity through IT do not do so in a vacuum. Their peers and competitors will be investing in IT as well. You can't just improve a business process and stop there. Innovation needs to be ongoing.

To sustain this innovation – continually improving business processes while simultaneously engineering out costs – IDC envisions a new generation of information technology that we call "dynamic IT."

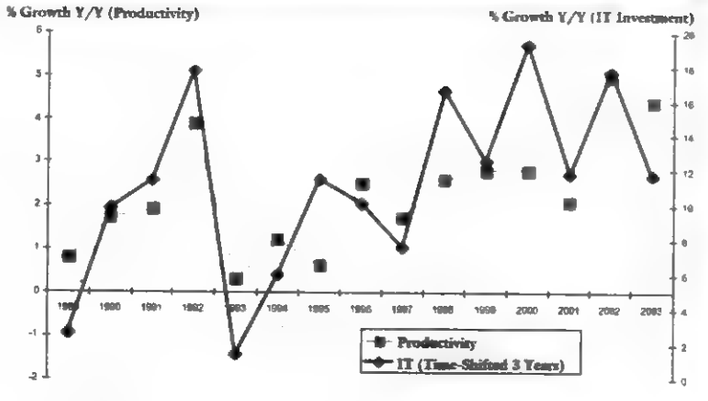
The concept is simple. Dynamic IT is about creating a high-performance IT capability that can support the rapid pace of business change. The dynamic IT framework untangles the patchwork of isolated, under-leveraged infrastructure, data and applications that today are common in many companies. It turns hard-wired point solutions into shared services.

The goal of dynamic IT is not to make an enterprise merely a little more responsive to changing business needs, but rather an order of magnitude more responsive. It's a lofty goal, to be sure, but as we will show, many of the technologies and business practices required to meet it are already here.

Why dynamic IT?

In a controversial article published in the May 2003 "Harvard Business Review," Nicholas Carr argued that IT is now a commodity that no longer offers sustainable competitive advantage. Too many companies have access to the same packaged solutions for any IT-driven advantage to last for long. IT, Carr contends, is like electricity or steel – critical to a company but not a source of differentiation. Business and IT executives have been arguing since the article appeared with Carr's basic premise, but they agree that IT is critical to business (Figure 2).

Figure 1. Growth in U.S. productivity follows growth in IT investment



Source: IDC 2004

One sign of the importance of IT is the amount of time line-of-business executives and CEOs spend on IT issues: 20%! This includes planning, evaluating, reviewing and testing. Over 25% of respondents expect their involvement with IT to increase over the next year (none thought it would decrease), and over 50% say their company should be more aggressive in using IT to attack business problems.

In another survey of large U.S. enterprises, top business and IT executives told IDC the biggest problems they face aren't technological in nature. Rather, the top challenges are related to cutting waste and inefficiency in the company; reorganizing to better face the market; and doing a better job of dealing with customers, partners and suppliers.

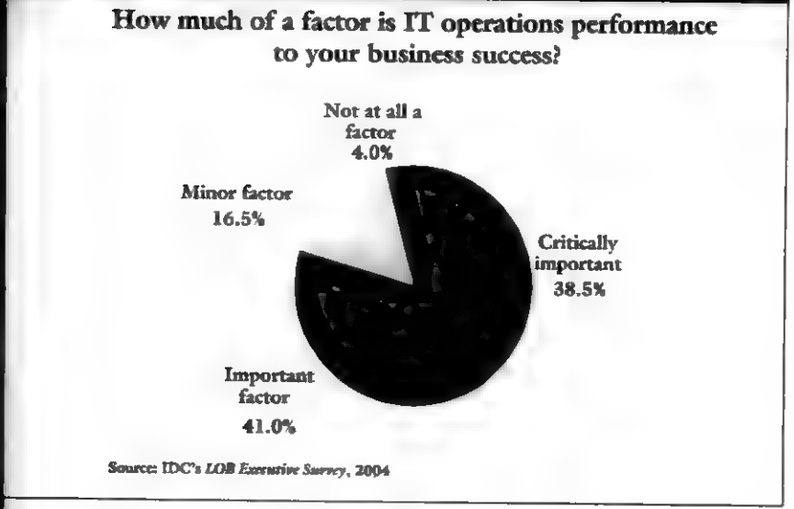
Can IT help address these business problems? How?

This is where dynamic IT comes in. Even if author Nicholas Carr is wrong, it's clear that the days of long-lasting market stability and

competitive advantage are over (if they ever existed at all). Management priorities are increasingly driven by the need to respond quickly to fast-moving market dynamics. A sharp rise in oil prices. The demise of a key supplier. An acquisition. A new law or court decision. A dock strike. Offshore competitors.

Indeed, the only way to gain sustainable competitive advantage is to continually establish and re-establish temporary competitive advantage.

Figure 2. Over 79% of business executives say IT is critical or important



That's why companies as diverse as 3M and Best Buy are continually searching for IT-borne advantages. 3M has a "2X/3X initiative" intended to double the number of products it creates every year – a task that leans heavily on IT. Best Buy has a "customer-centric stores initiative" that seeks to tailor store replenishment to the shopping patterns found in individual stores. And why do you think Wal-Mart is pushing radio frequency identification (RFID) so heavily? It's all in the quest to keep store shelves stocked at all times.

But using IT to support such real-time adjustments to changing business conditions is no easy task. While organizations face growing pressure to become more dynamic, IT has historically responded slowly to business change. In many industries, the speed of business cycles outstrips the speed at which IT can react.

Two key goals of replacing the numerous hard-wired connections among dedicated IT resources with many more "virtual" connections among shared resources are improving operational efficiency through resource sharing and reduced redundancy; and improving the adaptability of business operations with a layered, service-oriented IT environment that allows changes to be made in individual parts of a business solution without impacting the rest of the solution.

Adding to the challenge of building dynamic IT is business executives' perception that IT costs are too high and IT asset utilization too low. As a result of this perception, much of the build-out of dynamic IT will have to be self-funded.

The path to dynamic IT

IDC sees the transformation to dynamic IT unfolding on two parallel paths. First, there's business strategy and execution. To respond faster to changing business needs, dynamic IT needs to improve the organization's ability to develop and integrate applications, data and workflow, as well as to monitor business performance and speed operational adjustment to market changes.

The second path is IT operations management and automation. Dynamic IT needs to deliver on higher service-level performance and lower IT infrastructure costs. It must also link, monitor and manage all IT operational elements in the enterprise. The latter imperative includes automating labor-intensive tasks; developing end-to-end management capabilities; reducing hard-wired inflexibility through virtualization; and adopting flexible sourcing and



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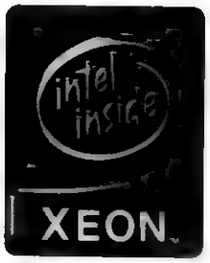
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The real payoff will come when the transformations down these two paths are intimately linked. The left side of Figure 3 illustrates how dynamic IT delivers value, but the right side shows where the real leverage comes from.

In most enterprises, the two domains (business strategy execution and IT operations and management) have historically been segregated. But for a company to become a truly dynamic enterprise, it's vital that these barriers be breached. Business executives need to understand how IT can be applied to improve their operations. IT personnel need to have a clear view of the entire IT value chain and how it supports business processes.

These may seem like pie-in-the-sky goals, but there is no doubt that existing technologies can be employed in an orchestrated effort to help create this linkage.

Hinge technologies

What are the critical building blocks that organizations need to create a dynamic IT capability? IDC has identified 12 specific technologies, six for each major component.

We'll start with the "business strategy automation and execution" component.

Business monitoring and analytics: measuring business performance to trigger dynamic change. Think management dashboards, portals, real-time analytics. Think store reporting systems that automatically trigger supplier shipments of hot selling items.

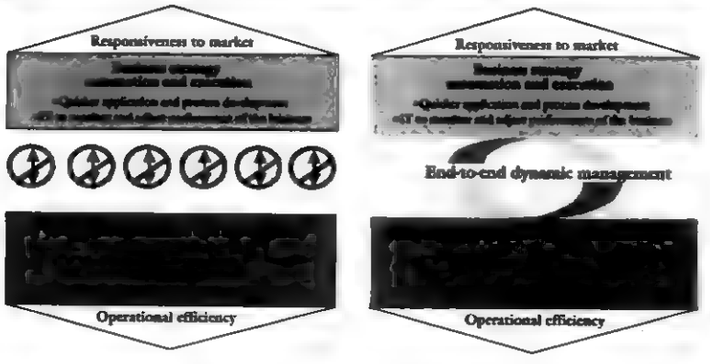
Business process management and applications automation: quickly configuring applications and workflow to support the business. Business process-focused solutions using reusable application logic, business rules and workflow are the order of the day – not large, inflexible packaged applications.

Information and data services: defining and accessing relevant information as needed. Technologies that support integration, transformation and quality of information in a time-sensitive manner are critical. This means advances in modeling and meta-data management; better contextual analysis of data; the combination of structured and unstructured data; advanced search and discovery; and federated data management.

Integration, event and deployment services: connecting, processing and managing end-to-end messages, events, information and application logic. This technology supports concurrent, asynchronous and synchronous message streams with contextual and state awareness. Discrete technologies include agents and brokers; application servers for service provisioning; and integration tools that, to take one example, can help companies gain a single view of their customers.

Collaboration and communication services: supporting human interaction in the business process. These technologies coordinate resources for interaction, especially those enabling workforce productivity and linking the organization to the outside world. To date, many of

Figure 3. Dynamic IT delivers value in both the business realm and the IT operational realm. The real payoff comes when the two are interconnected.



Source: IDC 2004

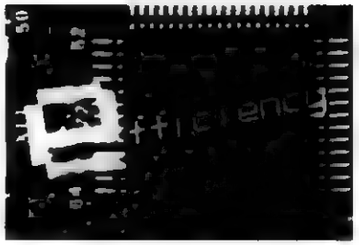
these technologies have led to applications that remain isolated from the automated functions of a business. That must change.

Access and interface services: providing navigation and interactive experience inside and outside the enterprise. Given the growing complexity and tremendous volume of systems and sources in today's computing environments, navigating and accessing them in the context of role and function has become increasingly difficult. Consolidating sign-on and standardizing procedures is just a first step in addressing the user experience.

Now we'll note technologies supporting the "IT operations management and automation" component.

Service-level management and automation: triggering deployment of IT resources. These include the emerging automation or orchestration engines that trigger the provisioning of enterprise systems from virtual resource pools. Automated provisioning is what finally achieves "on-demand" or "utility" IT. This requires the setting of service level agreements and setting priorities for different workloads and services.

Metering, measurement and chargeback: charging for IT use by business group or activity. This area is focused on leveraging metering metrics for usage measurement and billing to departments and customers that use a shared resource



pool governed by service-level management and automation.

Security: protecting the entire IT environment. Security runs through all layers of dynamic IT and ensures privacy between customers and departments in a shared-resource environment. Its many facets include authorization, access, protection and managing identity throughout and beyond the enterprise.

Infrastructure virtualization: creating efficient virtual resource pools. The partitioning of servers is the most commonly used aspect of virtualization today; the practice must be extended and refined so that all enterprise systems can be allocated and reallocated to different workloads depending on service-level agreements and priorities.

Infrastructure provisioning: enabling rapid and consistent deployment of IT resources with improved change control. Here are the tools that provision a platform with operating systems, patches, applications and services that allow it to be a resource for a given workload. Provisioning tools may be automated (and therefore controlled) by the service level management and automation engine; alternatively, they may be more manual, in which case they may help IT managers seeking to deploy patches or upgrades to groups of servers remotely.

Platform management and monitoring: enabling system monitoring, inventory, alerting, group management and capacity management. These technologies contribute the individual node and group systems management that lets IT administrators manage the hardware and software elements of storage, server and network equipment.

Making dynamic IT happen

Merely knowing what technologies lead toward dynamic IT doesn't ensure their implementation will go smoothly. But a number of design principles apply.

For one thing, point products or solutions with little connection to other parts of the IT value chain are clearly of limited value. Applications that lack business rules or service level requirements as key design inputs won't make the grade. In turn, service-oriented architectures incorporate layers of abstraction that allow for the rapid changing of IT system behavior – which, in turn, allows for rapid re-architecting applications and solutions.

Dynamic IT is also heavy on modular design, the use of standards when possible and multiple levels of virtualization. Dynamic IT simulta-

neously increases the number of logical connections among IT resources and cuts (or masks) as many physical interdependencies as possible. While virtualization has been available within IT systems for decades, its application is spreading to a much broader range of hardware and software systems.

Finally, dynamic IT comes with a flexible internal/external sourcing model and a flexible operating cost model. One major benefit of dynamic IT is the flexibility it brings to internally source or outsource various components as business conditions require. A flexible cost model that supports usage-based pricing or on-demand access to resources is also a key ingredient.

Measuring the value

Naturally, enterprises must rigorously track both the cost and contribution of dynamic IT. This can be difficult to envision. How is IT supposed to improve a business process? Faster response time? Around-the-clock coverage? Fewer errors? How will improvement be measured? What did the IT behind that improvement cost?

Because IT investments may support multiple business processes, and because a business process improvement may come from multiple IT investments, matching costs to improvement is a challenge.

We find that getting the most out of dynamic IT requires two linked



measurements:

- IT costs supporting a business function.
- Improvement in that business function.

The linkage must come from detailed monitoring on both sides. This is where the service level architecture and metering and monitoring technologies in dynamic IT come in – dynamic IT helps monitor and report on itself to enable optimal use of IT resources. The same goes for business monitoring and business analytics.

IDC, in its IT Value Metrics and Measurement research practice, closely studies the way leading U.S. and global companies justify, monitor and optimize their IT investments (see sidebar) – but let's face it, there are no silver bullets. The most important requirement is that there be some ongoing monitoring of improvement and costs.

The roadmap

Building a dynamic IT capability is a large and complex undertaking. Where should CIOs start the journey? The answer will vary by organization, but in a recent IDC survey of U.S. business executives it was clear that the dynamic IT areas most directly connected to enabling business process improvement (flexible applications; integrated data and information; and improved communication and collaboration) are the most urgent.

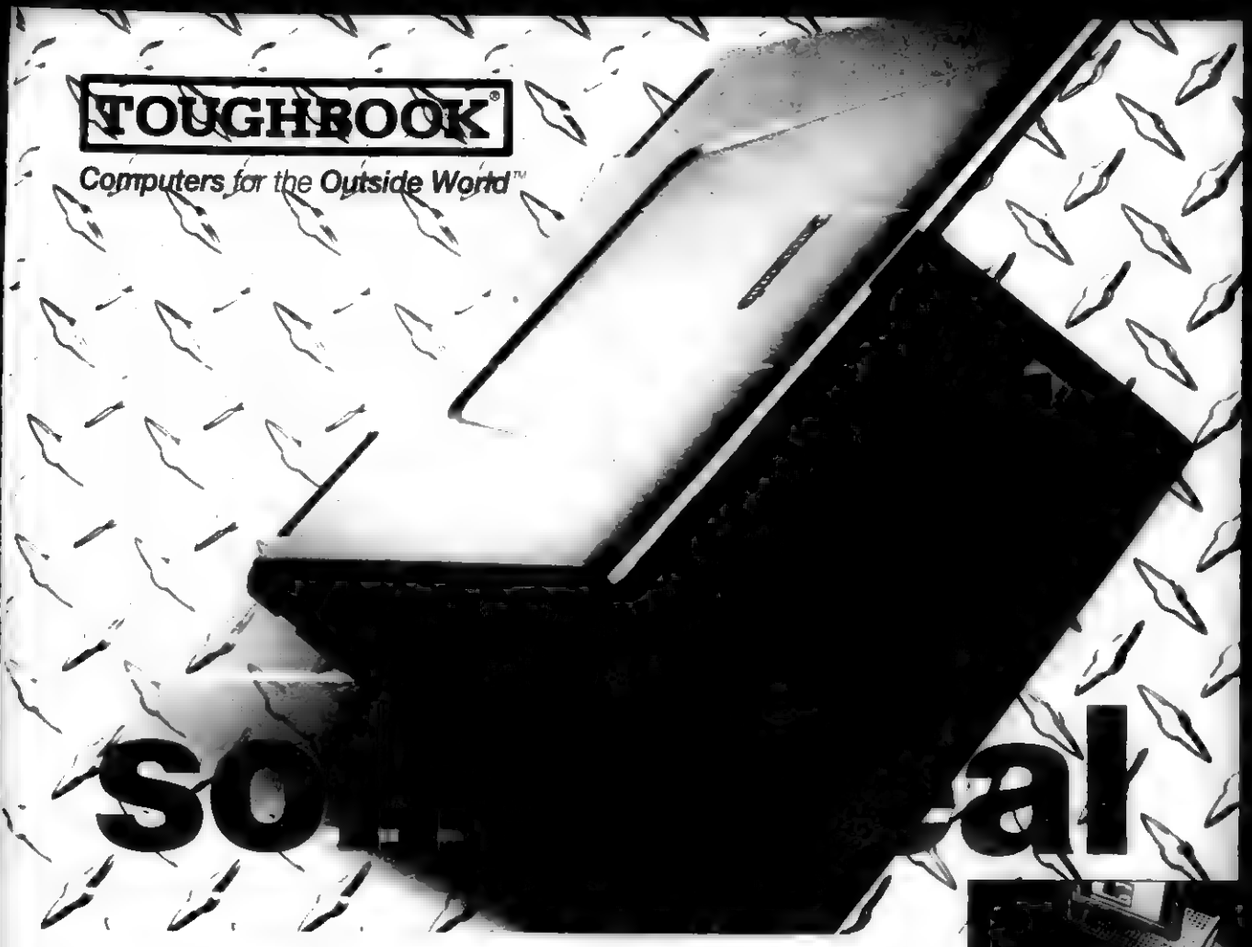
On the other hand, dynamic infrastructure investments, largely invisible to business executives, are considered lower priority. This is a big challenge (and opportunity) for CIOs, who must connect the dots between infrastructure investments and business performance.

For CIOs trying to develop and prioritize steps toward a dynamic IT environment, here are some key findings from our research:

- Business executives' priorities will focus on business processes. This seems self-evident, but IT execs must remember that their business counterparts will always see IT through the lens of their own operations.
- There are mixed messages about process visibility. In surveys, real-time monitoring of business ranks low. This may be an anomaly, but it may reflect a growing realiza-

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Accounting for Dynamic IT Value

A dynamic IT organization is always measuring and monitoring itself. To help businesses do so, IDC's IT Value Metrix and Measurement research practice recommends the following:

• Track IT consumption costs to collect data for controlling IT costs and showing IT usage volume/patterns. Businesses should set parameters through joint efforts by business functions (such as finance, engineering and IT); model IT service costs on key metrics that are highly correlated cost drivers; and report cost data in a way that is meaningful to constituents.

• Track IT-enabled business process performance to collect data for directing IT dollars to areas of greatest impact and for maximizing process performance. Companies should focus on what must happen in order for processes to be considered successful (e.g., expected benefits, impacts, outcomes); identify key performance indicators with quantifiable markers of how IT is expected to impact process performance; and ensure the tracking process has an internal logic that takes into account the potential impacts of one part of the process on others.

• Use the data from both initiatives to more closely manage enterprise activities to strategic objectives. For example, enterprises should undertake interventions to improve process performance through adjustments to IT capabilities and services or through process adjustments that improve the way people work with technology and conduct the process itself; focus on net benefits to the organization by comparing cost and usage data to related business process performance data; and plan for future IT-enabled directions more confidently on the basis of data that exposes costs and usage patterns, process outcomes, dependencies and non-IT factors that affect performance.

tion that visibility into processes – analytics and business intelligence – can be useless without the wherewithal to act on what's learned.

• Infrastructure improvements are less urgent to line-of-business executives. IT investments and capabilities are less directly visible to business executives, which creates an internal marketing challenge for CIOs.

• Connecting the dots is critical. CIOs must be able to articulate and measure the business impact and value of planned investments.

• Improving IT capabilities trumps lowering IT costs. In our research, three of the four top-rated priorities involved improving IT capabilities (functionality, speed, flexibility); only one involved lowering costs. Business executives are not so skeptical of IT value that they simply want to squeeze down costs. This is valuable equity that IT must conserve through well-managed projects and high-quality service.

With dynamic IT applied to the process of measuring its own impact, companies can get a jump on creating a succession of temporary advantages that, over the long run, equal sustainable competitive advantage.✱

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Vendor Group Looks to Win Grid Computing Converts



BY PATRICK THIBODEAU

The Enterprise Grid Alliance was formed six months ago by a group of IT vendors to accelerate the adoption of grid computing technology by corporate users. In addition, the EGA is now developing standards and specifications designed to make it easier for IT managers to deploy products in grid installations. EGA President **Donald Deutsch**, *who is vice president of standards strategy and architecture at Oracle Corp., discussed the alliance's goals during an interview with* Computerworld *on Sept. 24.*

What business problem is the EGA trying to solve? The EGA is focused on two classes of applications: commercial applications — the guts of the organization, which includes highly transaction-oriented applications such as ERP, CRM, general ledger and business intelligence — and a second class of applications, which, for a lack of a better term, we call technical applications. These are the things that might not be as transaction-oriented but are still fundamental to the business, such as portfolio analysis in the financial sector.

The ability of grid technology to handle technical applications is well known. But in terms of applications like CRM and ERP, what kind of role will grid play? Grid will play a fundamental role. These companies came together because their products are being applied today to address these sorts of mainline business applications. They recognized it as a business opportunity. They came together with the fundamental purpose of bootstrapping the market.

So, is this a marketing organization? That is an interesting question. Clearly, the objective of EGA is to speed up the time to market for grid technology and grow a market to the mutual benefit of the founding members. Toward that objective, EGA is focused on identifying real or perceived inhibitors to the adoption of grid technology in the enterprise and then addressing those inhibitors in whatever way is required. If this requires the development of specifications and creation of standards, then EGA will do that. If, in fact, one of the inhibitors is really a lack of knowledge in the marketplace or maybe a misunderstanding of the current state of technology, then EGA is positioned to address those through marketing. Is EGA a marketing or standards technology group? My answer is it's 60/40, and I'm not sure which is 60 and which is 40, because it depends on what people identify as the inhibitors.

There are a number of grid standards efforts, such as the Global Grid Forum, under way. Won't your effort create conflicts? EGA does not want to invent something that we can acquire from another consortium. If there's a solution available from another forum to a problem identified by EGA, we'll work with that forum to adopt their solution. In the absence of such a solution, if there's another forum that is able or better able to create a solution, we'll establish a relationship with that organization to assist them with that.

There are some big companies missing from your membership list. Can you be successful without IBM and Microsoft, for instance? We continue to talk with Microsoft and IBM. They or others can decide whether it's an appropriate forum. EGA is a level-playing organization, [a] one-company, one-vote organization. **49752**

E-voting Lawsuit Can Proceed in Fla., Judges Rule

BY TODD R. WEISS

With the presidential election just a month away, a federal appeals court last week ruled that a challenge to the use of some electronic voting machines in Florida can be heard by a U.S. District Court judge there — even though a parallel case is already moving through the state court system.

Judge James Cohn had abstained from hearing the case earlier this year, citing the state-court fight as the basis for his decision. But in its ruling, a three-judge panel at the U.S. Court of Appeals for the Eleventh Circuit in Atlanta ruled that Cohn had erred.

The federal lawsuit, filed in March by Rep. Robert Wexler (D-Fla.) and several co-plaintiffs, alleges that 15 of the state's most populous counties use e-voting machines that don't produce a paper trail of the votes being cast. Machines in 52 other counties do generate paper records that can be used to verify vote totals in case of recounts. The lawsuit claims that by using different types of machines across the state, Florida has created "a nonuniform, differential standard" that violates the constitutional rights of due process and equal protection.

Wexler and his fellow plaintiffs filed a separate lawsuit in a state court in January. The appeals panel wrote in its ruling that the parallel proceedings "do not present the 'undue interference' in state court proceedings" that Judge Cohn cited in his abstention decision.

In a statement, Wexler applauded the ruling. "I hope that as a result of this federal lawsuit, Florida will adopt the most secure and fair voting procedures possible, so that a means for a recount is available and that every voter will know that their vote is being accurately counted," he said.

Jenny Nash, a spokeswoman for Florida Secretary of State Glenda Hood, called the appeals court decision a procedural step and said the state is confident that its e-voting systems are up to the job at hand. "We continue to have the highest level of confidence in the voting systems being used in Florida," Nash said.

She added that even after being hit by four hurricanes in the past six weeks, the state's counties have successfully held elections using the systems. "We expect no less in the general election," she said. **49753**

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Robert Wescott
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DON TENNANT

Sage Advice

ONE DAY in February 2002, I was standing in Sanjay Kumar's modest office at Computer Associates' headquarters. The then-CEO of CA was recounting a story about his first day of school in the U.S. — it was 1977, and he had emigrated with his family from Sri Lanka at the age of 14. He said that when he went to the cafeteria for lunch, he found there were two serving lines — one full of black kids, and the other full of white kids. The problem was, he couldn't figure out which line to get in. So he didn't eat. That evening, he told his mom about his dilemma, and he asked her which line he should choose. His mom gave him the kind of sage advice only a mother can give: "The shorter one."



I don't know why this country just can't seem to get the race thing right. But I do know one thing: Sanjay Kumar is innocent. That's right. He's innocent of every single one of the 10 charges brought against him in a grand jury indictment two weeks ago [QuickLink 49647]. He's innocent of securities fraud and of obstruction of justice. How do I know? Because he pleaded innocent to all of the charges. And he hasn't been tried, let alone found guilty. That means he's innocent. That's the way the system works, remember? That's one thing this country has gotten right.

That's why it strikes me as peculiar that CA has abandoned Kumar the way it has. Not only has the company revoked some of his benefits, but it appears to be going out of its way to distance itself as far from Kumar as it possibly can. And all of this comes less than six months after Mark Barrenechea, CA's executive vice president of product development, defended Kumar's shift from CEO to chief software architect and called Kumar a "brilliant, innovative, motivating individual" whose service in his new capacity was "a wonderful thing for customers" [QuickLink 46426].

Regardless of whether Kumar is eventually found to be guilty of wrongdoing, the fact remains that CA owes him a debt of gratitude it will never be able to adequately repay. As many of the CA users we have interviewed throughout this ordeal will attest, Kumar almost single-handedly transformed that company from what was unquestionably the most despised software vendor on the planet to one that routinely receives accolades for its customer-centric focus. There was a merciful end to the user-be-damned days under the oppressive hand of Charles Wang, when so many of the customers of the software companies acquired by CA were left dangling in the wind with no support or upgrade path for their products. No longer were users demanding, as a condition for doing business with a particular vendor, that they would be paid three times the value of the contract if the vendor was ever acquired by CA. An almost universally feared, widely hated adversary had become a trusted business partner. All under the watch of Sanjay Kumar.

The real tragedy here is that if Kumar is found guilty, that monumental contribution to the betterment of corporate IT will be largely forgotten. I have a hunch that his mom gave him some more sage advice when he was a kid: If you goof up, acknowledge it, make amends, be forgiven, and move on. If you didn't goof up, stand up for yourself.

So if Kumar was thinking of his mom when he said, "Not guilty," I'll believe him. And CA should too.

49761

Don Tennant



DAN GILLMOR

A Patent Strain on Innovation

SOME THINGS ARE patently ridiculous. One is the U.S. patent system, an institution in desperate need of reform.

The reason for patents is to encourage innovation. We give inventors exclusive rights to their creations for a limited period, after which the inventions enter the public domain.

In the real world, patents are also about politics, mismanagement and slippery behavior. The results may be damaging to our economic and cultural health. Patents are supposed to be issued for actual inventions — for new methods and machines that are, crucially, not obvious. Too many patents are being awarded for "inventions" that aren't new or are blatantly obvious.



The technology business is rife with bad patents. A couple of years ago, BT Group claimed to own a patent on hyperlinking, a concept that long predated the company's application. This bizarre notion was, thankfully, shot down in a U.S. courtroom, but not before SBC Communications spent a lot of money defending its right to use the technology.

Microsoft lost a trial in which a small Illinois company, Eolas Technologies, claimed to own fundamental technology for browser plug-ins. The U.S. Patent & Trademark Office (PTO) is re-examining that case, which many in the Web community believe is an example of a patent that should never have been issued in the first place.

Then there are the "business method" patents — essentially, online translations of analog activities. The most infamous is Amazon.com's "one-click" shopping patent, but there are lots of other egregious examples.

There's plenty of blame to go around on this. But the chief culprits are the

PTO, which by nearly every credible account doesn't sufficiently analyze the applications it gets, and Congress, which allows this to persist.

To be fair to the PTO, it is laboring under handicaps. For example, Congress doesn't let the agency use all the money it generates in fees to improve the patent process. But the PTO's attitude has been compared, accurately, to that of a polluter. The agency, which considers patent applicants — not the public — to be its main constituency, hands out patents willy-nilly and lets the courts sort out the mess that results.

IT has a serious stake in this. The intellectual property dust-up over Linux seems likely to be the tip of a nasty iceberg, with patent holders (especially Microsoft, I suspect) potentially using threats about alleged infringement to scare people away from open-source software. And companies developing their products are increasingly filing for patents on everything that moves, mostly for defensive reasons. Wouldn't you rather see high-tech firms hiring engineers instead of lawyers? I would.

The Electronic Frontier Foundation, working with universities and other organizations, has launched the Patent Busting Project (*www.eff.org/patent*), aimed at persuading the PTO to invalidate some of the worst patents. IT should support this in the short term, and it should lobby for serious reform of the overall system. Innovation needs everyone's help. **48800**

MICHAEL H. HUGOS

In Real-Time Enterprises, Keep It Simple

MORE AND MORE, I see references to the "real-time enterprise" or the "agile, sense-and-respond enterprise." It might sound like just another IT fad, but I think it's actually something big. It's where IT can really show its value to business.

So, what is the real-time enterprise? At its core, it means continually improving key business processes and adapting them to constant change. This way, we can deliver better value to customers and more profit to the company.

In other words, the real-time enterprise is not so much about any specific technology or system as it is about how people use technology to continually deliver business improvements and adapt to change.



I find that the most effective way to employ real-time technology is to automate routine transactions and empower people to deal with all the exceptions. In my company, I'm keeping the automated systems relatively simple. They handle only the 70% to 90% of business transactions that are standard and well defined. I don't try to have automated systems handle everything. Unnecessary cost and complexity are avoided by keeping systems simple. And keeping systems as simple as possible also reduces the high failure rate that plagues IT projects.

"But wait!" you say. "The world is a complex place. How will simple systems help me deal with it?" The answer, my friend, is that computer systems are better at handling the simple, rote, routine work, and people (not computers) are better at handling the complexity. I don't need lots of fancy artificial intelligence (and complexity and expense) in my systems if I use the natural intelligence of people instead.

I define complexity as any transaction that's an exception to the standard business rules built into my automated systems. When exceptions occur, the automated systems just flag them, trap the related data and send alerts to the appropriate people to examine this data. The systems then return to handling the vast majority of routine business transactions.

There is a lot of power in handling complexity this way. An exception to a standard set of rules will either be because of an error in the data or because the data reflects something out of the routine. The people who are alerted will decide whether the nonstandard data is the result of an input or process error or if it indicates something new in the environment. Either way, it's best to have people, not complicated and hard-to-understand computer systems, making these decisions.

If the data or the business process shows an error, people do root-cause analysis (like Six Sigma) and fix errors at the source. This makes the standard business processes even more efficient, and value is gained from that. If the data shows a new development, then early detection allows more time to create business processes to respond effectively. Big wins can come from this.

I've begun deploying real-time systems like this in my own company. The systems are relatively cheap and quick to build, since they're designed to handle only the standard, routine transactions. And people now have time to do more valuable work. They aren't worn down doing the boring, routine stuff, and they have time to focus on the exceptions, learn from experience and find ways to increase their efficiency. A process of continuous improvement is starting to take hold.

Could it be this simple? Am I missing something? I'll keep you posted. **48853**

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READERS' LETTERS

Electronic Voting Is More Efficient in India

AS AN INDIAN, I was mildly amused by the article "Effort Afoot to Address E-voting at Convention" [QuickLink 48368].

As you may be aware, India has just had an election in which all votes were cast using electronic voting machines (EVM).

The election was hailed by everyone as being free and fair, and voting went off smoothly, with hardly a glitch in the equipment. The effectiveness and efficiency of EVMs was clearly apparent, since the results could be announced much faster and administration was also easier.

Reading this story made me realize that:

- The electorate (generally considered to be illiterate) adapted to the new technology extremely well.
- Indian political parties demonstrated a high level of maturity, since there were no questions raised about e-voting as such.
- The Election Commission and administrative machinery (generally thought to be inefficient and corrupt) carried out the exercise flawlessly and took the new technology in stride.

I would have thought that the U.S., with its smaller and more educated electorate, better technological penetration and a cleaner political system, should find it easier to handle e-voting.

But the debate going on makes me sense one more offshoring opportunity for Indian IT!

Hemant Mainkar
Saud Bahwan Group, Muscat, Oman, hemantmainkar@yahoo.com

Weighing Freedom Against Security

I HAVE FOUND a U.S. government Web site aimed at emergency response teams that freely distributes a software package that could help terrorists calculate wind dispersion in a chemical or biological weapons attack ["Online Data a Gold Mine for Terrorists," QuickLink 48662].

S.W. Bradley
Dayton, Ohio

SO WHAT DO YOU PROPOSE? That the feds clamp down on information even more? Haven't we lost enough freedom as a society already?

Jose R. Pardinas
Miami

Review the RFP During Negotiations

IT IS AN EXCELLENT suggestion to review the RFP while negotiating a contract to make sure that topics that reflect performance and milestones are discussed again, since the vendor now has significantly more information than it did when it wrote the RFP response ["Attorney Says Sloppy IT Deals All Too Common," QuickLink 48923].

Information that is revealed during the negotiations can materially change the answers that vendors made earlier in the process, and the sooner that these discrepancies are identified and discussed, the better the relationship will be in the long term. Not every RFP has this problem, but many of the complex implementations that we see in IT asset management suffer from this problem.

Jenny Schuchert
Vice president of program development, International Association of IT Asset Managers, Pittsburgh, JSchuchert@iaitam.org

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Automating the 40 Monkeys
Companies are increasingly using software tools instead of human users to test applications before they are deployed in actual business situations. **Page 24**

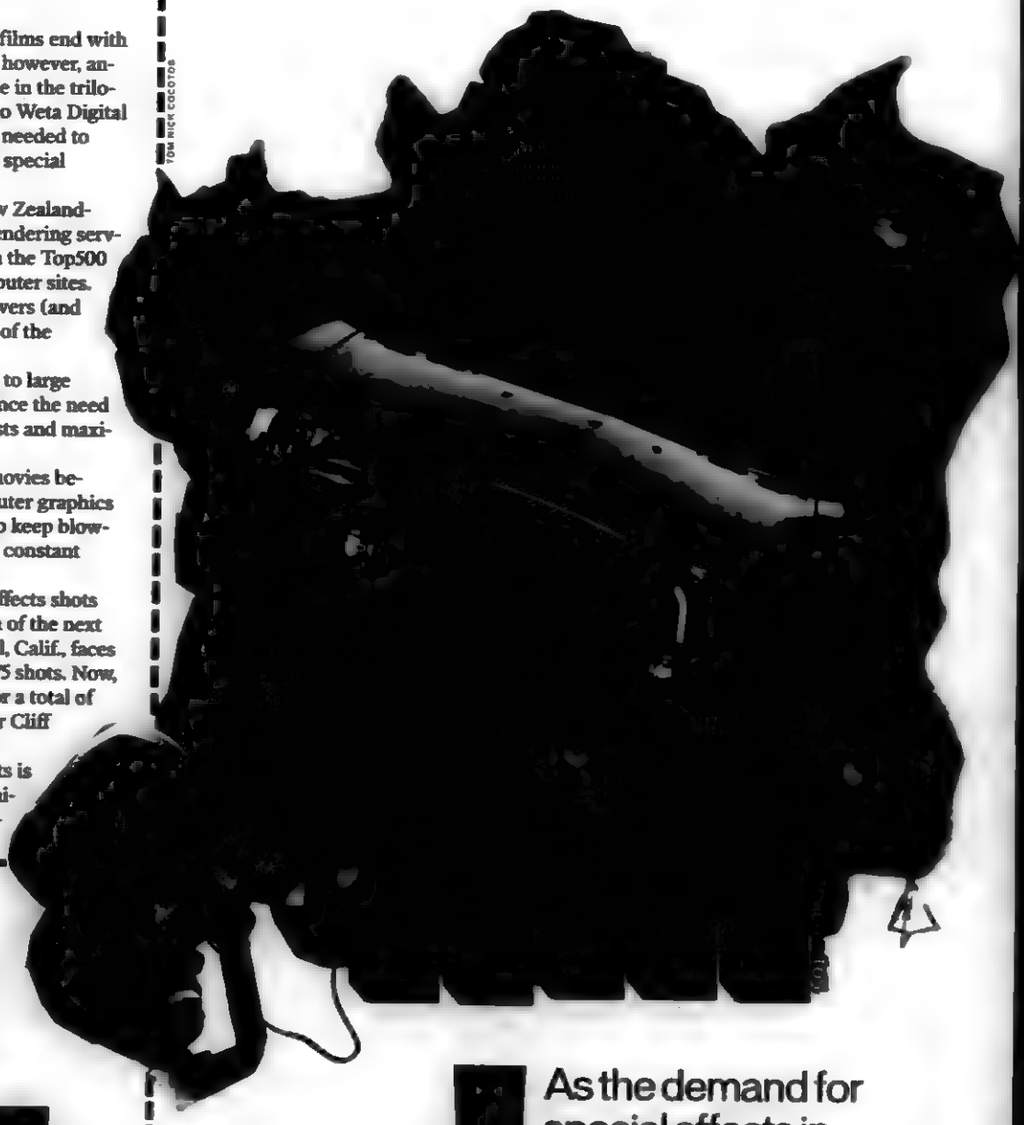
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Topic Maps
This is a way to represent knowledge structures and their relationships to information resources. Based on XML, topic maps are related in concept to, but more powerful than a book index. **Page 26**

OPINION
The Coming Battle of the Titans
Paul A. Strassmann says Google is using a whole new rule book to take on Microsoft in the battle to be the dominant company in the IT industry. **Page 30**

BLADES, CAMERA, Action!

As the demand for special effects in movies soars, studios are turning to massive blade server farms to render the images.

By Robert L. Mitchell



TOM RICK COCOTOS

DIRECTOR PETER JACKSON'S *Lord of the Rings* films end with an epic battle on-screen. Behind the scenes, however, another struggle was under way. As each movie in the trilogy went into production, visual effects studio Weta Digital Ltd. scrambled to add the processing power needed to render an increasing number of computationally intensive special effects shots.

By the end of the three-part project, the Wellington, New Zealand-based company had built a massive, 3,200-processor 3-D rendering server farm to cope with the load. The installation is ranked on the Top500 supercomputer list as one of the world's largest supercomputer sites. With some 2,400 of those processors residing on blade servers (and the remainder on 1U, or 1.75-in.-high, servers), it's also one of the most compact.

Weta and other visual effects studios are rapidly turning to large clusters of blade servers, often running Linux, as they balance the need for more processing power with the desire to minimize costs and maximize the use of valuable floor space.

Special effects are playing an increasingly large role in movies because audiences want them, says Greg Butler, digital computer graphics supervisor at Weta. "Film audiences expect visual effects to keep blowing them away. The only way this is possible is through the constant upgrading of our infrastructure," he says.

With the *Lord of the Rings* trilogy, the number of visual effects shots started at 540 in the first film and roughly doubled for each of the next two movies. Industrial Light and Magic (ILM) in San Rafael, Calif., faces similar pressures. "In the first *Jurassic Park* movie, we did 75 shots. Now, with a *Star Wars* movie, every shot has some effect in it," for a total of 2,000 to 2,500 shots per film, says Chief Technology Officer Cliff Plumer.

The processing power required to render even a few shots is significant, says George Johnsen, chief animation and technical officer at Threshold Digital Research Lab in Santa Mon-

ica, Calif. "In the visual effects business, there's no end to how many computers you can use," he says. A single shot can range from a few seconds to several minutes. Each second of film includes 24 frames, each containing up to 4,996-by-3,112 pixels in 32- or 64-bit color. Separate passes must be made for each object that requires rendering in the frame and for attributes such as texture, lighting and reflections.

"In the [upcoming] movie *Foodfight!*, there is a scene with 13,000 extras, and they all have animation cycles," says Johnsen. And artists often repeat the rendering process to improve quality. As many as 150 passes may be required — a frame can be processed on only one CPU at a time and takes 48 to 72 hours to complete, he says. Threshold Digital already has 512 processors in its render farm and plans to double that using IBM eServer BladeCenters equipped with dual-processor HS20 server blades in the next three months.

The move to blades has been swift. Like many other studios, ILM was using stand-alone workstations from Silicon Graphics Inc. to render images three years ago. Today, it has a 2,000-processor render farm, affectionately named Death Star, and half of the processors in it reside on blade servers from Boston-based Angstrom Microsystems Inc. The blades are "taking over quickly," Plumer says. At night, all of ILM's desktop computers are added to the render farm as well. "Our processes are working 24 hours a day, seven days a week," he says.

As is the case in other industries, the studios are demanding more from IT while budgeting less. "Budgets aren't what they were. [Blades] allow us to be more efficient," says Johnsen.

Server blades are also more efficient to deploy and manage. "We can get a system in-house and online within two days, where historically it would take us about a week to build a rack of processors," says ILM's Plumer.

While working on *The Two Towers*, the second movie based on J.R.R. Tolkien's *Lord of the Rings* novels, Weta suddenly found that it needed more horsepower. "We put in 500 processors in about three weeks, including building a new machine room," says CTO Milton Ngan. Weta uses BladeCenters running dual-processor HS20 server blades. The server racks, fully loaded, hold 84 blades, or 168 processors — a significant improvement over the density of Weta's 1U servers.



Complex visual effects like this battle scene from *The Return of the King* can require more than 30 rendering passes per frame

Management is also more automated. "With previous systems, we'd have to physically go to each machine," Ngan says. The management software for IBM's BladeCenter, IBM Director, lets Weta use scripting to remotely configure blades, update BIOSs and other firmware, and reboot or turn individual blades on or off over the network.

Powering Up

The increased processor power and density of blade server farms has yielded significant benefits, but it has also presented some unexpected challenges. "We packed [the blades] in pretty tight, then ran into power and cooling issues," says Plumer. Individual blades use less power — for example, IBM says its HS20s are 57% more efficient than its 1U servers — but the blades are packed in much more densely, pushing power within each fully populated rack as high as 15 kilowatts for the BladeCenter and even more for some other blade server designs.

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Ripple Effect

The concentration of power created by migrating to blade server farms has also had ripple effects on the rest of the studios' IT infrastructures, which were designed to accommodate graphics workstations. "The faster processors have put a strain on our storage systems, which put a strain on the backup systems, which put a strain on our network," says Plumer. "On an average day, we push 75TB of data across our network." ILM's new data center, due to open next year, will include a 10 Gigabit backbone. Weta has already moved to 10 Gigabit Ethernet.

As for storage, Weta has more than 60TB of network-attached storage (NAS) on 1,100 disk drives under the control of 17 filers. But processing many similar frames in parallel created bottlenecks. "When you have a couple of hundred processors wanting the same data, a single file server can't handle that," says Ngan. Weta spreads the files across multiple filers and developed a "virtualized global file system" to improve performance.

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All three studios are looking for ways to get even more out of render farms. ILM plans to double the size of its data center to more than 12,000 square feet next year. As Weta begins production on a remake of *King Kong*, Ngan says he is contemplating phasing in blades that use Advanced Micro Devices Inc.'s 64-bit Opteron chips or Intel Corp.'s Extended Memory 64 Technology. He expects the larger memory space afforded by the 64-bit CPUs to speed processing times.

Threshold's Johnsen says the ultimate goal is to break the cycle of using one processor to render each frame. "This is why we are desperately developing multithread and relational grid strategies for our rendering," he says. Johnsen sees blades as a key part of the company's 10-year plan. "The natural progression is to some form of 3-D grid computing . . . and blades are the next logical step," he says. 49526

RENDERING ON DEMAND

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Rather than adding blade servers, however, Threshold recently began experimenting with the idea of renting processor cycles as needed from IBM's Deep Computing Capacity on Demand center in Poughkeepsie, N.Y. "On-demand is a cool thing, especially for a cyclical business like ours," Johnsen says.

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ica, Calif. "In the visual effects business, there's no end to how many computers you can use," he says. A single shot can range from a few seconds to several minutes. Each second of film includes 24 frames, each containing up to 4,996-by-3,112 pixels in 32- or 64-bit color. Separate passes must be made for each object that requires rendering in the frame and for attributes such as texture, lighting and reflections.

"In the [upcoming] movie *Foodfight!*, there is a scene with 13,000 extras, and they all have animation cycles," says Johnsen. And artists often repeat the rendering process to improve quality. As many as 150 passes may be required — a frame can be processed on only one CPU at a time and takes 48 to 72 hours to complete, he says. Threshold Digital already has 512 processors in its render farm and plans to double that using IBM eServer BladeCenters equipped with dual-processor HS20 server blades in the next three months.

The move to blades has been swift. Like many other studios, ILM was using stand-alone workstations from Silicon Graphics Inc. to render images three years ago. Today, it has a 2,000-processor render farm, affectionately named Death Star, and half of the processors in it reside on blade servers from Boston-based Angstrom Microsystems Inc. The blades are "taking over quickly," Plumer says. At night, all of ILM's desktop computers are added to the render farm as well. "Our processes are working 24 hours a day, seven days a week," he says.

As is the case in other industries, the studios are demanding more from IT while budgeting less. "Budgets aren't what they were. [Blades] allow us to be more efficient," says Johnsen.

Server blades are also more efficient to deploy and manage. "We can get a system in-house and online within two days, where historically it would take us about a week to build a rack of processors," says ILM's Plumer.

While working on *The Two Towers*, the second movie based on J.R.R. Tolkien's *Lord of the Rings* novels, Weta suddenly found that it needed more horsepower. "We put in 500 processors in about three weeks, including building a new machine room," says CTO Milton Ngan. Weta uses BladeCenters running dual-processor HS20 server blades. The server racks, fully loaded, hold 84 blades, or 168 processors — a significant improvement over the density of Weta's 1U servers.



Complex visual effects like this battle scene from *The Return of the King* can require more than 30 rendering passes per frame.

Management is also more automated. "With previous systems, we'd have to physically go to each machine," Ngan says. The management software for IBM's BladeCenter, IBM Director, lets Weta use scripting to remotely configure blades, update BIOSs and other firmware, and reboot or turn individual blades on or off over the network.

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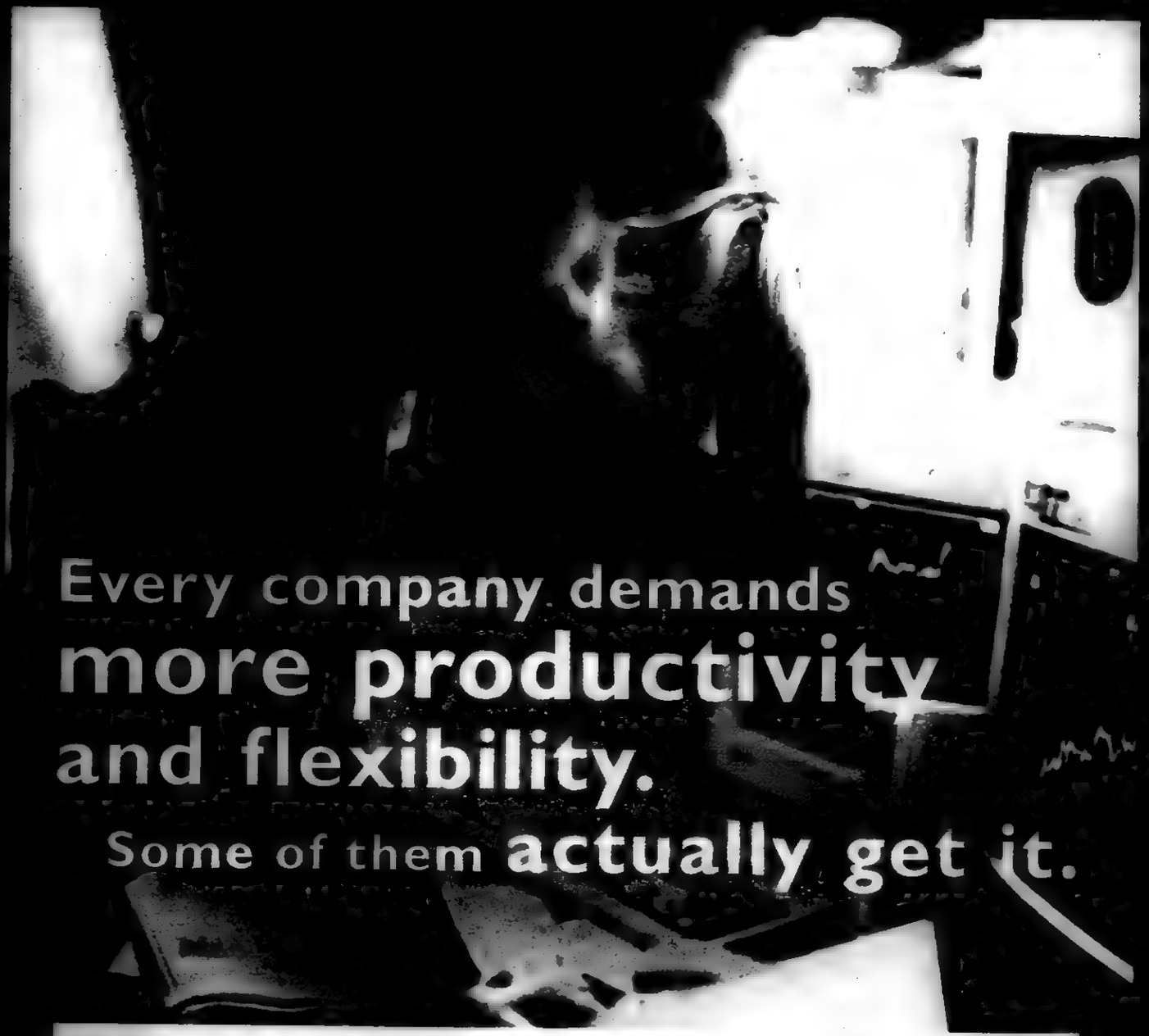
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AMD



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Five of Wall Street's most prestigious financial institutions knew exactly what they wanted from an enterprise solution. More productivity, to keep up with an ever-changing global market. And real-time flexibility, to go from 32- to 64-bit applications without disrupting their business. They found both in the AMD Opteron™ processor with Direct Connect Architecture. It powers the world's highest performing x86 2-way and 4-way servers. And it helps speed up millions of financial transactions every day in trading stations and server farms. At AMD, we believe it's critical that technology should migrate on your terms to help you realize your unique vision. It's one of the reasons why HP, IBM and Sun offer enterprise-class solutions powered by AMD Opteron processors. Would you like to learn just how much of a difference they can make to your company? **Go to www.amd.com/enterprise**

AUTOMATING THE 40 Monkeys

Increasingly, companies are turning to software tools for predeployment application testing. By Sue Hildreth

SOME CALL IT "THE 40 MONKEYS TEST." Others prefer the more diplomatic "Friday night pizza party." Whatever the name, it's the traditional method for predeployment software testing: coercing a few dozen employees to come in after hours and beta-test an application to uncover bugs and performance problems before it's rolled out to customers and employees.

Unfortunately, it doesn't always work. "You ask a guy to run a hundred tests, he's eventually going to miss something," says Arthur Povlot, business development manager at Tescom Software Systems Testing Ltd. in London.

It's also virtually unrepeatable. "If 50 people find problems, which I fix and then want to do another test . . . well, it just isn't easy to get everyone back again," says Dave Wollin, managing group director of IT at AXA Financial Inc. The New York-based finance and insurance company used Mercury Interactive Corp.'s testing tool before deploying a Web application to field agents.

The desire for repeatability and accuracy is one reason organizations are moving to automate testing, both to uncover bugs and ensure that they meet performance standards.

Melissa Webster, research director at IDC in Framingham, Mass., says worldwide sales of automated testing tools rose by 8.5% in 2003 and are expected to grow at an annual compound rate of 9.3% through 2007. "This sector has recovered faster than the overall IT market," she says.

The increasingly integrated nature of IT systems is another factor pushing companies toward automated testing. Human testers can't always accurately recreate the flow of transactions between applications. That's why Varian Medical Systems Inc., a Palo Alto, Calif.-based maker of medical devices, opted to purchase an automated functional testing tool, SilkTest, from Segue Software Inc. last year.

"Our applications pass data like treatment and patient information, so there is a real-time flow between them. We could only test the whole system effectively with automation," explains Ashish Katrekar, quality assurance manager at Varian.

Also, manual testing added as much as six months to Varian's development cycle, seriously lengthening the time to market for its products. "Our test suites had grown so big that we couldn't run them quickly. We needed automation to achieve a quicker turnover of products," says Katrekar.

Vendors such as Mercury, Segue Software, Compuware Corp., IBM's Rational unit, RadView Software Ltd. and Empirix Inc. offer products for testing client/server and Web-based applications, as well as mainframe and other legacy systems. Most of these products provide an interface for programming test scripts, as well as a capture-replay tool or visual scripting option for nontechnical users. Also included are reporting tools, and many vendors are starting to offer diagnostics capabilities, as well as monitoring tools for tracking application performance after deployment.

When to Automate

Of course, manual testing still has value, particularly in functional testing, where it's useful to have an actual user try out an application. "If you are using an automated test tool and your testers don't lay a hand on the system, your users will be turning up bugs you had no idea were there — because you never thought to test for them," observes James Lyndsay, principal consultant at Workroom Productions, a software testing and development company in London.

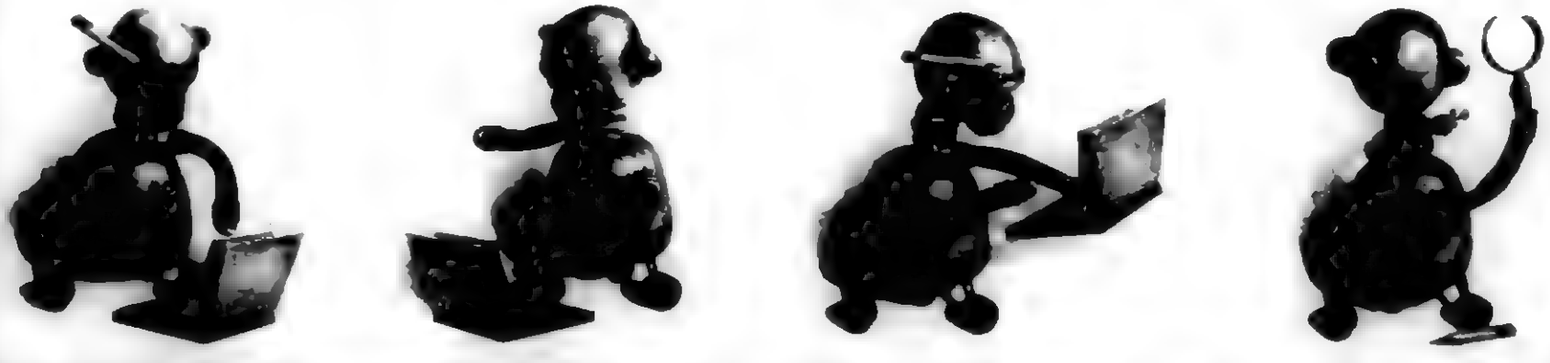
Human testers may also be appropriate for tests that won't be repeated. Automated tools take time to set up and learn, so one-time tests are often done faster manually. But for repeated use, automation is usually quicker and more accurate.

For instance, NASA uses Empirix's e-Test Suite and FarSite testing service for regression and performance testing on its Web-based grant management application. "There are always new rules and requirements, so this is not an application that we'll finish and never touch again," explains Idriss Mekrez, senior software quality architect for NASA's Peer Review Services. "Automated testing allows us to define the basic functionality the system needs to deliver and test those processes automatically."

For mission-critical applications, automated testing is usually well worth the effort, given the consequences of failure. "The applications that most need testing are those with the biggest impact on the business," says Dan Koloski, product manager at Empirix. "If an application is customer-facing and revenue-generating, it is ripe for substantial testing."

While functional testing tools typically cost $5,000

RICHARD BORGE



to $10,000, performance tools can cost $50,000 to $200,000. Renting a performance tool is less expensive — around $10,000 to $20,000 for a couple of weeks, according to Povlot. Some tool vendors rent their products, as do testing consultants.

There are also open-source tools available. "They're not as polished as commercial tools, and you have to be a programmer to use them," says Elisabeth Hendrickson, president of Quality Tree Software Inc., a testing consultancy in Pleasanton, Calif. "But anyone doing testing ought to know how to code anyway."

Open-source tools aren't as mature as commercial products, warns Danny Faught, owner of Tejas Software Consulting in Fort Worth, Texas. However, he says, "if somebody has programming expertise, they should definitely consider open-source. If it's going to save you $100,000 or more, it's worth a little work upfront."



Choosing a Tool

Regardless of whether you rent or buy, here are three key factors on which to evaluate any tool:

- **Protocol support.** Not all tools support every platform or protocol. Some support a range of protocols but charge extra for each one. As Povlot explains, "Most [of the tools] handle basic Web applications, but the selection narrows when you look at the different operating systems, databases and interfaces that are included."

That was a deciding factor for Time Warner Inc. when it evaluated performance testing tools in early 2003. "With most of the tools, if you wanted to test under SSL, ODBC and Oracle, you have to buy those components separately," says Robert Caruso, senior business systems analyst at Time Warner in New York. The company decided on Compuware's QACenter Performance Edition, which bundled all of the required protocols into its basic suite.

Protocol support was also a consideration for Apollo Group Inc., parent company of Phoenix University. "We were testing EJBs, RMI [Java's Remote Method Invocation], Oracle, PeopleSoft, [BEA Systems'] Tuxedo transaction monitor, and Web applications," says David Pinkus, senior director of software at Apollo Group. Pinkus opted to go with Mercury's tool and pay extra for the protocols because he felt "they had a richer history with more diverse protocols."

- **Maintainability.** The ability to easily update scripts when the tested application's user interface changes is a concern. "Maintainability is a huge issue," says Hendrickson. "What the high-end tools do is provide a GUI map, or test frame, which is an abstract layer between fields [on the interface] and the test script, so that if the name of a field is changed, then you only have to make that change in one place and all of the scripts will work. They centralize the references to the user interface in one place."

Componetization of scripts also helps. If one part of a script, such as the log-on process, changes, only the component dealing with that process needs updating, not the entire script. Mercury says that in its products, that's part of the "business process testing" feature for creating application workflows by assembling the process components. It also enables nontechnical managers to change a test case or create a new one.

"When a business process changes, the business analyst knows immediately, whereas a QA engineer may not. Now the analyst can just create a new test case," says Rajesh Radhakrishnan, senior director of product marketing at Mercury.

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That also allows you see how easy the product is to use. When Time Warner evaluated performance testing tools, it invited vendors to demo products using Time Warner's applications. "We wanted to see whether we could take it out of the box and get it working," says Caruso. "We don't have a dedicated QA staff, so we needed something our developers could bolt onto their development process."

A trial also lets you see if the product lives up to its marketing claims. When the Apollo Group brought two load-testing products in to evaluate, it found that one didn't have the capabilities that were claimed in the product literature. From the perspective of the Apollo Group, the product "just didn't work," says Pinkus, noting that his company went with the higher-priced Mercury product. "At the end of the day, if it doesn't work, who cares if it's cheaper, or even if it's free." 40548

MONITORING TOOLS: The Next Step

PREDEPLOYMENT TESTING obviously isn't the last word in ensuring the performance of an application. After deployment, many organizations turn to monitoring tools to keep track of system performance and pinpoint problems faster.

"Five years ago, none of them had monitoring. With the advent of Web applications, people realized they could monitor how they work under real usage," says Arthur Povlot, business development manager at Tescom Software Systems Testing.

Many companies that sell testing tools also offer monitoring products. Mercury Interactive sells its Diagnostics and Monitoring (formerly Topaz for J2EE). Empirix has its OneSight Web application performance management product and FarSite Web monitoring service, Segue Software has the SilkCentral Performance Manager, and Compuware sells its Vantage products.

"Instead of having to wait for someone to report a problem, we catch it very, very quickly with the monitoring tool," says Idriss Melrez, senior software quality architect for NASA's Peer Review Services, which uses Empirix to monitor its grant management application. "It gathers statistics on the performance of the system," he says, noting that downtime can have serious repercussions.

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Topic Maps

DEFINITION

Topic maps are a way to represent knowledge structures and their relationships to information resources. Based on XML, topic maps are related in concept to but more powerful and inclusive than book indexes.

BY RUSSELL KAY

COMPUTERS have so overloaded us with data, it's become increasingly difficult to find the information we seek. Beginning in the 1990s, powerful search engines like Yahoo, AltaVista and Google made the Web an incomparably valuable information resource, but the growth of available information has rendered even those remarkable tools far less useful. Google currently indexes more than 4 billion pages, and queries often return tens of thousands of pages, but they are arranged in no discernable order.

One promising approach, still in its infancy, is called topic mapping.

Consider the traditional nonfiction book. The care with which its index is created can make the difference between it functioning as a reference work or being a nearly useless compilation of facts. A good index shows what topics are covered, where to find them and how they are organized; offers subcategories and cross-references; and provides pointers to related topics.

But even the best such indexes have limitations. Each covers just one work, and books' very nature restricts the types of information an index can reference. If we want to encompass more than the ideas in a single book — say, a company's accumulated store of documents and its knowledge base — we need to include more than words on paper. We can find pieces of this knowledge in e-mail messages and headers, individual calendars and schedules, spreadsheets, and structured and unstructured documents in a variety of formats. It can also be found in databases and data warehouses of various types; libraries of images, including audio and video; and data and business rules contained inside application programs and data files. And we must always be aware of security and privacy concerns — who can access what information? Where do we begin?

QUICK STUDY

In contrast, a topic map is a kind of data structure, just as an outline or a set of categories is. In practice, topic maps were standardized by the International Standards Organization in 2000 (ISO/IEC 13250) as XML Topic Maps, or XTM. XTM provides a basic model using XML tags to represent the structure of information resources, concepts and the relationships between them.

How It Works

Let's start with a subject, a real-world entity or an idea that we're representing in our map by topic. A subject can be almost anything, from an abstract concept to a specific document section, and the terms *subject* and *topic* are often used interchangeably.

The topic map model lets us attach three elements (called characteristics) to any given topic: its names, its associations with other topics and its occurrences (also called resources).



Names are mainly useful to people in dealing with topics, and a topic doesn't actually need a name: A typical cross-reference (e.g., "see page 12") points to an unnamed topic. Also, we typically group topics according to some notion of type.

For example, if we're mapping an IT installation, we likely have topics for specific pieces of equipment, homegrown and purchased applications, data storage information and the like. Thus, our map would also include categorical topics such as hardware, software and data structures.

Associations are the conceptual heart of topic maps, indicating how one topic relates to another. For example, Book A (a topic) is written by (association) Author B (another topic).

Occurrences are the actual references — pointers to relevant information resources. Occurrences could include articles, books, images, audio and video segments, application code routines or even people. Typically, we refer to occurrences with uniform resource identifiers (URI), an Internet Engineering Task Force standard for addressing and referencing resources. Web address URLs are a type of URI.

These characteristics of topics aren't universal. They exist within a limited context (called scope), where they are regarded as valid.

The final concept is identity. Ideally, there should be one topic for each subject, and vice versa. In practice, multiple topics can represent a single subject, as when different topic maps are merged. And in a single topic map, we might find "William F. Bonney" and "Billy the Kid" as separate topic names referring to the same subject, a historical person.

But the topic name "Billy the Kid" might also refer to the ballet about the outlaw's life for which Aaron Copland composed the music. To get around these problems, we can unambiguously define the identity of a subject through resources called subject indicators.

The promise of topic maps is clear. Charles Goldfarb, one of the creators of Generalized Markup Language, the progenitor of XML and all of today's markup languages, has called topic maps "the GPS of the information universe."

Unfortunately, the idea of topic maps is still well ahead of its time. Tools for creating topic maps do exist, along with some implementations in specific subject areas, but these are primarily oriented toward representing and organizing content, and they don't yet adequately address the task of content creation.

The biggest job in building a topic map lies in defining the set of topics and relationships, finding the relevant occurrences and then examining the data for cross-references, aliases and other helpful tools. While some pieces of this job, as with book indexing, can be automated (especially for structured data), the biggest part still requires a human imagination to sort out.

But in a few more years, as Moore's Law continues to expand our computing capabilities, we may well see topic maps come into their own. An application programming interface specification for topic maps (*http://xml.coverpages.org/ni2004-04-09-a.html*) was released in April, so development in this area is proceeding. For now, topic maps are something to be aware of, even if they're not quite ready for prime time. **49527**

Kay is a Computerworld contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.

HISTORY AND RESOURCES

Go online for a history of topic maps.
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Topic Maps

DEFINITION

Topic maps are a way to represent knowledge structures and their relationships to information resources. Based on XML, topic maps are related in concept to but more powerful and inclusive than book indexes.

BY RUSSELL KAY

QUICK STUDY

COMPUTERS have so overloaded us with data, it's become increasingly difficult to find the information we seek. Beginning in the 1990s, powerful search engines like Yahoo, AltaVista and Google made the Web an incomparably valuable information resource, but the growth of available information has rendered even those remarkable tools far less useful. Google currently indexes more than 4 billion pages, and queries often return tens of thousands of pages, but they are arranged in no discernable order.

One promising approach, still in its infancy, is called topic mapping.

Consider the traditional nonfiction book. The care with which its index is created can make the difference between it functioning as a reference work or being a nearly useless compilation of facts. A good index shows what topics are covered, where to find them and how they are organized; offers subcategories and cross-references; and provides pointers to related topics.

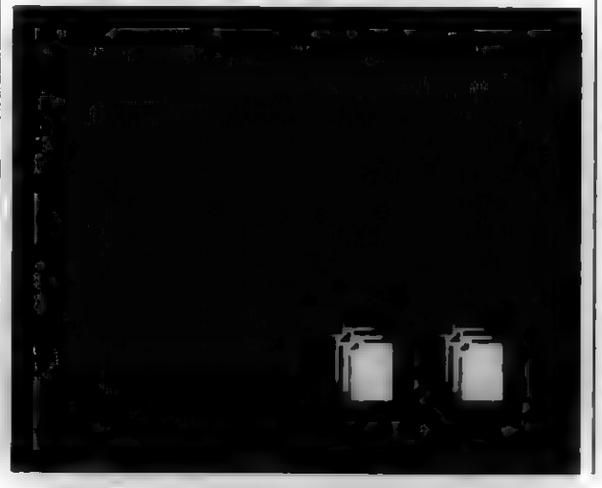
But even the best such indexes have limitations. Each covers just one work, and books' very nature restricts the types of information an index can reference. If we want to encompass more than the ideas in a single book — say, a company's accumulated store of documents and its knowledge base — we need to include more than words on paper. We can find pieces of this knowledge in e-mail messages and headers, individual calendars and schedules, spreadsheets, and structured and unstructured documents in a variety of formats. It can also be found in databases and data warehouses of various types; libraries of images, including audio and video; and data and business rules contained inside application programs and data files. And we must always be aware of security and privacy concerns — who can access what information? Where do we begin?

In contrast, a topic map is a kind of data structure, just as an outline or a set of categories is. In practice, topic maps were standardized by the International Standards Organization in 2000 (ISO/IEC 13250) as XML Topic Maps, or XTM. XTM provides a basic model using XML tags to represent the structure of information resources, concepts and the relationships between them.

How It Works

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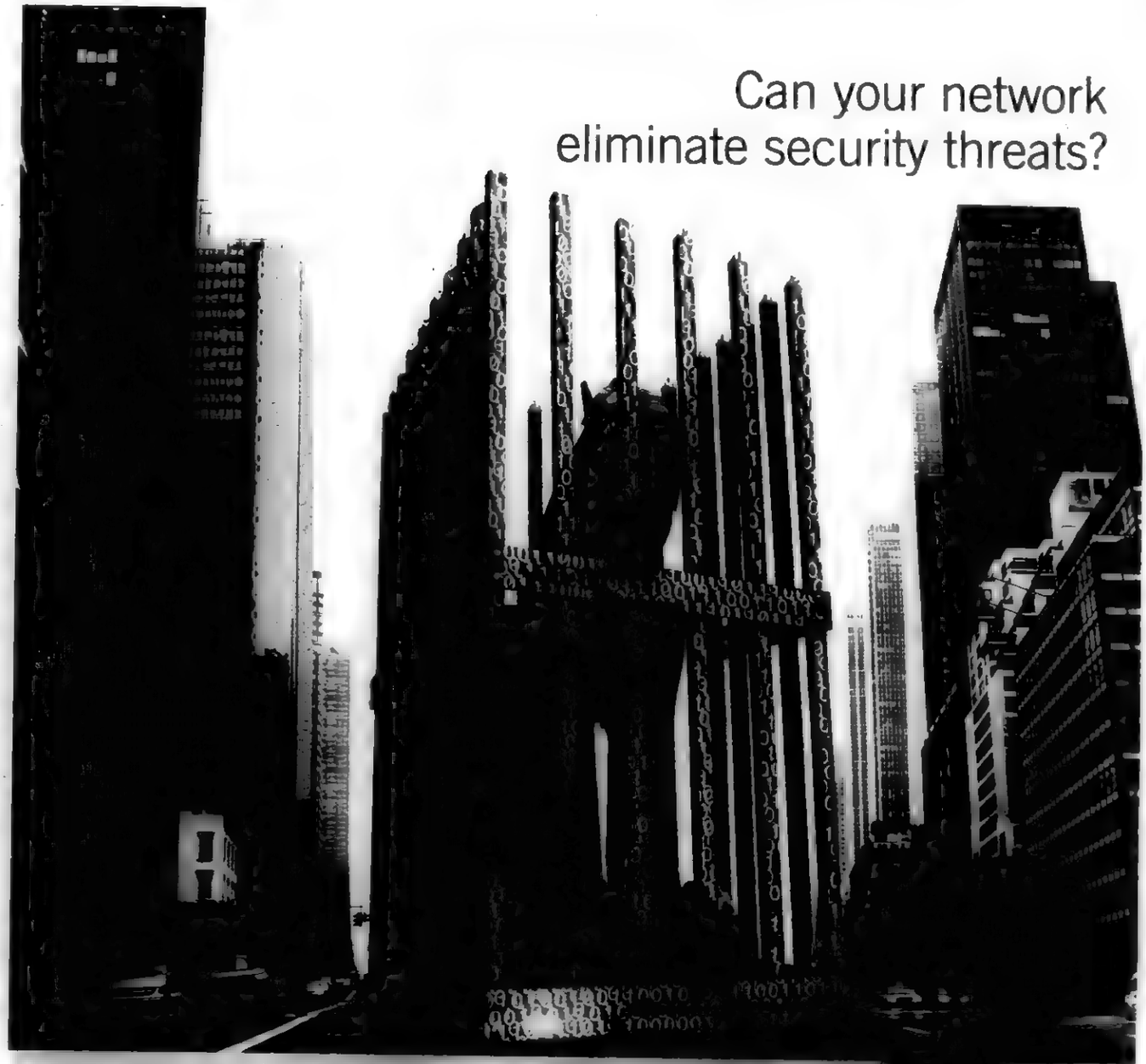
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Expanding Responsibility For Incident Response

Including other departments in a comprehensive plan can be critical to success – and bog down the process. By Roger Foix

I'VE RECENTLY been working on an IT security incident response plan for a multinational financial services company. A good plan helps you respond calmly, carefully and quickly to a security breach. It covers how a breach is detected and analyzed, how the response work is managed and communicated, and how to learn from the breach and make sure it doesn't happen again.

My main problem with the evolving plan is that the more I think about it, the more people and departments I ask to be involved, which means more input must be included in any response. Even HR is in the picture.

SECURITY MANAGER'S JOURNAL

One group that is not yet on the list of parties to call after a security breach — but perhaps should be — is the facilities team. That's because in my favorite security breach ever, it was the facilities team's pest-control skills that fingered the culprit.

I'd arrived at work to hear that $8 million in unauthorized trades had been executed on the foreign exchange markets at 3 a.m. The terminals that had been used had no access control, since speed is of the essence in that type of transaction. Any access control that slows down a response to a trade could lose us large amounts of money. The trader had failed to log out when he left. The traders know they should log out, but most resolutely ignore this, and they earn far too much money to be easily forced to comply.

We investigated everything: trading system logs, system logs for surrounding PCs, network traffic to those trading systems, cleaning personnel who had been nearby at the time, closed-circuit TV tapes — the works. But nothing helped, until one of the facilities staff noticed mouse droppings on an adjacent desk. The only answer we could come up with was that a mouse had run across the trader's keyboard and pressed the button to accept an $8 million trade. In the end, the mouse was duly trapped by the facilities team, christened For-Ex Freddie and kept as a pet.

The worst bit about the investigation was that the $8 million worth of trades were backed out that morning by the dealers for a $4,000 profit, so when we asked the traders to stop this sort of thing from happening again, they just waved the profit figures in our face and laughed. But their terminals did get upgraded soon afterward to a model capable of time-delay log-outs.

Having several departments involved at some level can pay off in the long run, and everything in our security incident response plan is there for a good reason. But now that we're nearly finished, we have an extremely large document that sets out a great theoretical approach but bears no resemblance whatsoever to how I've successfully dealt with security breaches in the past.

We're told that when someone discovers a security breach, they should call HR first and IT security second.

Adding Complexity

For example, there is the issue of forensics, or gathering and preserving evidence. Forensics is a specialized area, and the more we research, the more we find that needs to be done. Take into account the number of legal jurisdictions this multinational company covers, and you end up with an extremely complicated set of rules to follow during your response work. This adds a massive extra layer of complexity to the response at a time when you want your technical staff to be able to think clearly and quickly. If you try to follow forensics best practices, you slow down your response and potentially expose yourself to more risk. If you don't do it by the book, your data is likely to be of little use if you ever go to court.

Many people address this problem by calling in specialists. You need to call them in early if they're to be of much use, but you need them only if the breach is likely to go to court. I'm having trouble finding people willing to make that decision, since it's a hard call to make early in the process.

Take Clifford Stoll's semi-legendary discovery of a 57-cent discrepancy in his IT accounting records, detailed in his book *The Cuckoo's Egg*. A few cents seem like a very small concern indeed, and most people would never have bothered to investigate. But Stoll did, and he unraveled a tale of international espionage. But had you been in his shoes, when in the process would you have decided to call in the forensic specialists? If you did so when you first discovered the 57-cent discrepancy, you'd get laughed at.

We also have an ongoing issue with the HR department. They want to be involved in every response, right from the beginning. In fact, we're told that when someone discovers a security breach, they should call HR first and IT security second. HR reasons that every security breach involves staff, so their expertise is essential.

At one level I can understand this argument, and in some cases their help is invaluable. I once had to investigate a Swiss employee who was searching for pedophile porn. But because of the strict nature of Swiss employment laws, our investigation was hamstrung. In that case, the HR department stepped in and resolved the situation brilliantly.

But I've also had HR staff looking over my shoulder while we were trying to contain a virus that infected our network six hours before the antivirus companies brought out the antivirus signatures we needed. Most of my team in that incident were dyed-in-the-wool techies, with the stereotypical techie's scathing disregard for the HR staff's rather softer skills. Trying to stop the two camps from fighting took up more time than I could afford. Hopefully we can find a middle ground with HR, but I think that's going to owe more to internal politics and diplomacy than it will to common sense.

Despite these issues, it's worthwhile to include other departments in our incident response plan. Indeed, as I review the processes and procedures we're putting in place, I've been asking myself one question: How would this have helped us deal with Freddie? ▶

WHAT DO YOU THINK?

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SECURITY LOG

Mail Cruncher Service Debuts

FullScaleCommerce.com Inc. in Jamestown, R.I., has announced Mail Cruncher, an antispam service for businesses that uses a "business trust rating database" to rank and sort e-mail for review by the user. To make reviewing potential spam easier, the service color-codes types of e-mail based on whether previous messages have been sent to the user and whether those messages were accepted or rejected. It also groups messages by domain. The service is priced at $3 per user per month.

IronPort Upgrades Security Appliance

IronPort Systems Inc. in San Bruno, Calif., has released a new version of its C-Series e-mail security appliance. The device, which performs antivirus, antispam, encryption and content-scanning functions, now includes a dashboard interface. It also comes with Email Security Manager, a peer-to-peer management tool that doesn't rely on a central management server. In addition, the appliance features a virus outbreak filter, which blocks infected e-mail messages based on updates from the vendor's database of new virus attacks.

Smart Door Lock Announced

Locknetter Axon Ablev AB in Stockholm and cryptographic technology start-up CoreStreet Ltd. in Cambridge, Mass., have announced a new line of door locks that combine physical and logical access. The locks use CoreStreet's KeyFast technology to transmit user access permissions between wired and disconnected doors. The technology will help companies use a single digital credential to secure both logical and physical access. The reader and lock, slated to ship in the first half of next year, will cost about $1,000.

Expanding Responsibility For Incident Response

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BRIEFS

Aurema Launches Tool for VMware

Aurema Inc. in Cupertino, Calif., has released a workload management product for VMware Inc.'s virtualization software. Aurema's ARMTech workload management tool helps optimize CPU and memory use. The price is $595 per CPU for servers and $59.99 per seat for desktops and workstations. No-cost, 30-day evaluation versions are also available.

ADIC Upgrades StorNext Software

Advanced Digital Information Corp. in Redmond, Wash., announced a new version of StorNext, policy-based data management software for information life-cycle management. StorNext 2.4 features interoperability with an expanded range of operating environments and storage systems from leading vendors, including Hewlett-Packard Co. and EMC Corp. A four-client system with 10TB of data is $67,000.

Cray Unveils XD1 Supercomputer

Seattle-based Cray Inc. has announced the availability of its XD1 supercomputer line, which starts at $100,000. Cray added the XD1 system to its lineup through the acquisition of OctigaBay last April. It's aimed at the computer-aided engineering market and is capable of running more than 23 precertified commercial CAE applications, the company said.

Centage Updates Budget Maestro

Centage Corp. in Houston has introduced Version 5.8 of its Budget Maestro business performance management software. It includes a comprehensive library of Crystal Report templates and tighter integration with Microsoft Excel. A single-user desktop edition is $2,495; the enterprise edition is $12,995.

PAUL A. STRASSMANN

The Coming Battle of the Titans

HISTORY TEACHES US that a challenge to a superior power can succeed only by changing the rules under which any confrontation takes place. Head-on attacks on strong, entrenched positions are easily repelled. That's why RCA, Honeywell, Xerox, GE, Burroughs, Univac, Amdahl and many others failed when they tried to compete with IBM. That's why the computing landscape over the past 15 years has become littered with so many gravestones of firms overcome by Microsoft.



Now a new Microsoft challenger is emerging on the horizon: Google. What makes Google different is that it follows innovative rules as it carves out a share of the IT business. Google's emerging strategy may give us a clue as to who may be bidding for IT leadership in our uncertain industry by the end of this decade.

Microsoft's power is based on selling customers software that becomes a sequence of increasingly sticky entanglements. Once you've installed Microsoft operating software on a desktop, laptop or cell phone, the steadily increasing inclusiveness of features will raise your costs for choosing any alternative. Google, on the other hand, relies on a generic browser to gain access to a rapidly growing menu of services.

Microsoft's business model is based on mass distribution of software, where economies of scale generate high profit margins. Revenue growth depends on extending software functionality, and the customer pays for each upgrade. Google's business model is based on offering added services based on economies of scale in operations and on innovation. Revenue growth results from extending the economic utility of services that the customer can add at low cost.

Microsoft's superior profits are based on passing on just about all the costs — including those of support labor and capital — to the customer. When you adopt the Microsoft environment, you can't ever budget for the total costs of ownership in the long run. Google is a network services provider. Google owns and operates perhaps the world's largest computer complex, consisting of a rapidly growing population of 100,000 servers that manage petabytes of data with unprecedented reliability and response time. Google pays for all of its labor and capital out of its pocket. You pay only for what you get.

Microsoft can expand its business by leaving to the customer the job of tending to most of the burdensome tasks of integrity, interoperability, reliability, security and maintainability. These tasks now absorb perhaps as much as 75% of the total cost of user ownership. This overhead baggage is slowing down the implementation of new applications. Google removes the customer overhead altogether by delivering defined services, with a predictable performance.

Microsoft leaves the management of knowledge capital, which is represented by the data and the files spinning on disks, largely in the hands of users. Enterprise knowledge management is now almost entirely dominated by IBM and Oracle (and, arguably, by SAP). Microsoft has recognized that this is the source of its greatest competitive vulnerability. It has now targeted the extension of its dominance from desktops (where it has a near monopoly) to dominance over servers (where it is behind). This would be achieved by making server and desktop software functionally inseparable.

Google's view is that what matters is not data but the content that clusters of information arrayed with intelligence may convey. Google is committed to extracting meaning (not data) by means of nonproprietary standards from files that may be scattered but are nevertheless accessible.

The transfer of data from paper to computers has characterized the first 50 years of computing. The next era will deal with the transfer of intelligence from computers to people. The proliferation of data and the inability to extract information from it is the problem we must overcome. Consider the inefficiencies in the prevailing practices. My first computer used a 160KB floppy disk to store everything. Now I need two 160GB disks just to keep up. That scales up by a factor of a million, and I see that headed for a billion. Yet everything I put on my computers prior to 1997 has been lost as I migrated hardware and software configurations. At the enterprise level, the losses of institutional memory are even more severe. This sort of memory failure has become a characteristic of all computer-based organizations, as millions of disk drives fill up with redundant, and unretrievable, information stashed away in proprietary formats.

As we evolve toward data-centric architectures (see "Why IT Will Continue to Matter," QuickLink 49169), the management of systems for collaboration and for knowledge sharing will be central to profitable investments in IT. Judging from Google's research and its current marketing probes, it appears to be focused on competing for this opportunity. How Microsoft proposes to address this challenge is yet to be seen. **49697**

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Microsoft can expand its business by leaving to the customer the job of tending to most of the burdensome tasks of integrity, interoperability, reliability, security and maintainability. These tasks now absorb perhaps as much as 75% of the total cost of user ownership. This overhead baggage is slowing down the implementation of new applications. Google removes the customer overhead altogether by delivering defined services, with a predictable performance.

Microsoft leaves the management of knowledge capital, which is represented by the data and the files spinning on disks, largely in the hands of users. Enterprise knowledge management is now almost entirely dominated by IBM and Oracle (and, arguably, by SAP). Microsoft has recognized that this is the source of its greatest competitive vulnerability. It has now targeted the extension of its dominance from desktops (where it has a near monopoly) to dominance over servers (where it is behind). This would be achieved by making server and desktop software functionally inseparable.

Google's view is that what matters is not data but the content that clusters of information arrayed with intelligence may convey. Google is committed to extracting meaning (not data) by means of nonproprietary standards from files that may be scattered but are nevertheless accessible.

The transfer of data from paper to computers has characterized the first 50 years of computing. The next era will deal with the transfer of intelligence from computers to people. The proliferation of data and the inability to extract information from it is the problem we must overcome. Consider the inefficiencies in the prevailing practices. My first computer used a 160KB floppy disk to store everything. Now I need two 160GB disks just to keep up. That scales up by a factor of a million, and I see that headed for a billion. Yet everything I put on my computers prior to 1997 has been lost as I migrated hardware and software configurations. At the enterprise level, the losses of institutional memory are even more severe. This sort of memory failure has become a characteristic of all computer-based organizations, as millions of disk drives fill up with redundant, and unretrievable, information stashed away in proprietary formats.

As we evolve toward data-centric architectures (see "Why IT Will Continue to Matter," QuickLink 49169), the management of systems for collaboration and for knowledge sharing will be central to profitable investments in IT. Judging from Google's research and its current marketing probes, it appears to be focused on competing for this opportunity. How Microsoft proposes to address this challenge is yet to be seen. 49667

WANT OUR OPINION?

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Think Tank
It's no secret that IT and marketing departments have trouble understanding each other. But Forrester Research says the communication gap can be bridged by putting IT staffers inside the marketing group and having a chief marketing officer who sits at the executive table with the CIO. **Page 37**



Career Watch
Hacking for the home team; how politics shortchanges federal CIOs; tough times for contractors; plus, the top 10 offshoring companies. **Page 38**

OPINION
To Each His Own
There's no IT playbook that works for everybody, and forced uniformity is counterproductive, says Paul Glen. His suggestion: Let IT workers find their own paths to productivity. **Page 39**



MICHELE ARDONIAN

Eric Litt of General Motors is one of a small but growing number of chief security officers entrusted with more influence within the company than ever before.

Rise OF THE CISO

Chief information security officers have more influence – and greater challenges – than ever before.

BY JAIKUMAR VIJAYAN

AS THE chief information security officer at General Motors Corp., Eric Litt is in charge of integrating security into every aspect of the company's vast $186 billion business. It's a job that has given him a spot at the executive table, support from the board level down and a chance to implement far-reaching decisions related to information security at the company.

"I get plenty of attention, which is a very good thing," Litt says. When it comes to security at the automaker, "resources are not an issue," he says.

Litt is one among a small but growing number of executives who say that heightened concerns are driving a gradual evolution of the security function and investing it with more influence than ever before.

"Security folks have often been viewed as a necessary evil who always get in the way of your doing business," says Howard Schmidt, CISO at eBay Inc. in San Jose and former White House cybersecurity adviser. But regulatory compliance issues and the increasing losses related to worms, viruses and other hacker attacks are making security a part of the core business process, he says.

Kim Milford agrees. "Security is now viewed as a critical requirement in the purchase, design, development and deployment of applications and services," says Milford, information security manager at the University of Wisconsin-Madison. "There seems to be a shift from the emphasis on predominantly technical controls to risk assessment, policies and user education," she adds.

For instance, Litt has crafted a model under which all security planning at GM starts with an analysis and understanding of the specific threats and risks faced by a business unit. A central security team evaluates and analyzes everything from regulatory requirements to intellec-

CISO

tual property protection, inappropriate use, access control and threats such as denial-of-service attacks, worms and viruses.

The group then architects a detailed security implementation requirement for each of the business units based on its specific risk profile. Each of the business units is responsible for implementing the needed technology and process measures and is periodically audited for compliance against its requirements. A color-coded security dashboard for senior management at GM rates the performance of each business unit, with green representing full compliance, yellow showing partial progress and red indicating a total lack of compliance.

It's an evolving holistic approach to security that includes "the people, the organization, governance, process and, lastly, technology," Litt says.

Strategy, Not Tactics

A similar focus on high-level concerns such as regulatory compliance, digital rights management, intellectual property protection and application coding standards defines the evolution of the security organization at the Bank of Montreal in Toronto.

"Implementing firewalls and hardening systems are not really security issues any longer but operational issues," says Robert Garigue, the bank's CISO. Those are being approached in the same manner that configuration management or capacity management is, he says.

Years of fending off worms, viruses and hacker attacks have allowed Bank of Montreal to implement technologies and automate its responses. The bank is now at a point where it's increasingly offloading those tasks to network and system operations teams.

The security function is no longer just about "exceptions management" and responding to emergencies, Garigue says. The focus instead is "about understanding where the new risks are coming from and not getting blindsided by them," he says.

It's a task that requires security managers to wear several hats, says Christofer Hoff, director of enterprise security services at Western Corporate Federal Credit Union, a San Dimas, Calif.-based company with $25 billion in assets. It means being a "magician, oracle, facilitator, accountant, psychiatrist, stuntman, public relations consultant and prophet," Hoff says. It requires a background that melds "ditch digging and trench warfare with board presentations and business-based strategy planning," he adds.

Much of the organizational influence that such security managers have begun to garner is tied to the business value delivered by the information security function, Hoff says. There's a growing realization in the corporation that "information security is not about technology [but] about rational risk management," he says.

That shift in perception is resulting in more authority and influence being invested in the security manager or CISO function, University of Wisconsin's Milford says.

An increasing number of CISOs are being asked to participate in crucial business decisions at the highest level, eBay's Schmidt says. For instance, in many cases, the CISO's input and approval is required at the very inception of any large IT project, as companies try to build in security instead of bolting it onto business processes as an afterthought, Schmidt says. "There are many projects that just don't kick off without security guidance in the requirements stage," he says.

Because responding to security risks is beginning to be viewed as a cost of doing business, the security manager is also being consulted more to help assess costs and benefits, Milford says. And security funding is also getting easier to come by, she says, pointing to her own organization's success in securing funds for an array of worm and attack mitigation technologies soon after a wave of malicious attacks last year.

"This shift has, in some cases, moved the security manager function into the highest levels of the IT organization chart and sometimes even completely outside the realm of IT," Milford says. Although CISOs typically report to CIOs, as companies begin taking more of an operational-risk management approach to IT security, some security managers have been advocating functional parity with the CIO. It's not unusual to find CISOs reporting to chief financial officers and CEOs, Milford says.

Lagging Behind

But the changes aren't happening at all companies. And corporate inertia and political turf battles continue to make the evolution a painful one, security managers readily acknowledge.

At many companies, the security organization still remains "out of sight and out of mind" unless there is some sort of a cyber emergency, says Dennis Treece, director of corporate security at the Massachusetts Port Authority in Boston.

"Private-sector managers simply want what they've always wanted from their security program — keeping the company out of trouble and [out of] the papers and doing it for as little money possible," he says.

As one of the executives in charge of securing Boston's Logan International Airport, three seaports and a major toll bridge, Treece is focused primarily on physical infrastructure protection. But he oversees the information security side as well.

"The physical security folks still don't know much about network security, and network people who are given the security mission think of themselves as IT people, not security people," he says.

A divide also exists between network operations teams, which are focused on ensuring optimal performance, and network security teams, which are often viewed as a barrier to that goal, Treece says.

A more powerful security function also raises political issues at a higher level, Treece says. "Anytime there's a new player at the table, others have to move aside and cede a little turf," he says. And the person who stands to lose the most turf in the battle is the CIO, who has traditionally been responsible for security, he says.

The amount of authority the security manager has depends a lot on the organizational culture and structure, Milford says. In top-down, heavily centralized organizations, the authority stems from the CISO's placement within the organization and who he reports to, she explains.

"In less heavily structured organizations, the security manager must gain the trust of the decentralized management and technologists," Milford says.

Companies that have adopted process maturity frameworks such as the Software Engineering Institute's Capability Maturity Model are also more likely to be ready culturally to integrate security into every aspect of their business, Garigue says.

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The IT Connection

Over the next few years, the main role of chief information security officers will be to communicate security risks and threats to business managers and infrastructure teams, according to a recent report from Cambridge, Mass.-based Forrester Research Inc.

But a failure to keep IT in the security equation could result in operations teams eventually "setting [technology] policy and creating their own [technology] standards," the report says.

Increasingly, security professionals will need to be able to deliver "on-demand, business-driven security services" throughout the enterprise, says Christofer Hoff, director of enterprise security services at Western Corporate Federal Credit Union.

"The ability to perform proactively and also respond in real time to threats, to measure risk, defend and recover from attacks, and gain a solid foothold on business impact is paramount," he says. "Leveraging technology to simplify and consolidate information into actionable intelligence is critical."

Such a security manager will need to be functionally on par with or even above those in the organization – such as the CIO – who might oppose him, says Dennis Treece, director of corporate security at the Massachusetts Port Authority.

This will allow the security organization to perform more efficiently while also enabling it to compete better with other functions for money and influence, he says.

"You need a security leader who works for the CEO and who acts as the policy wonk, budget overseer, training overseer and performance overseer," Treece says.

At a very high level, such a manager's role would be to identify root causes of risk for business process owners to fix, says Robert Garigue, CISO at Bank of Montreal. At the same time, it's also important to preserve the direct responsibility line leaders have for the security of their own business units, he says.

"If you don't keep this link, then they will soon begin to consider security as an increased cost that will not cost them politically if it fails," Treece says.

– Jaikumar Vijayan

Rise OF THE CISO

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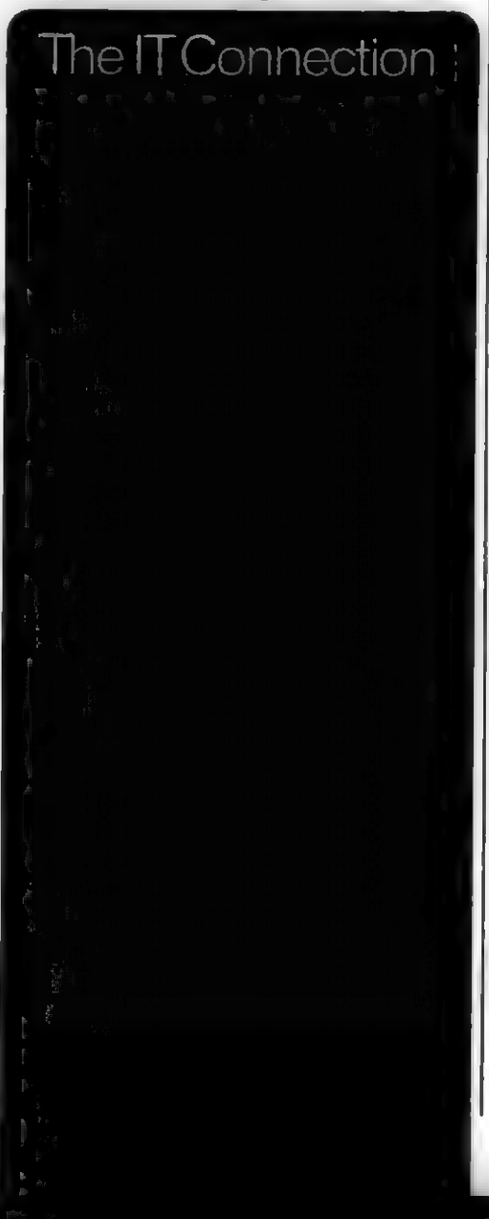
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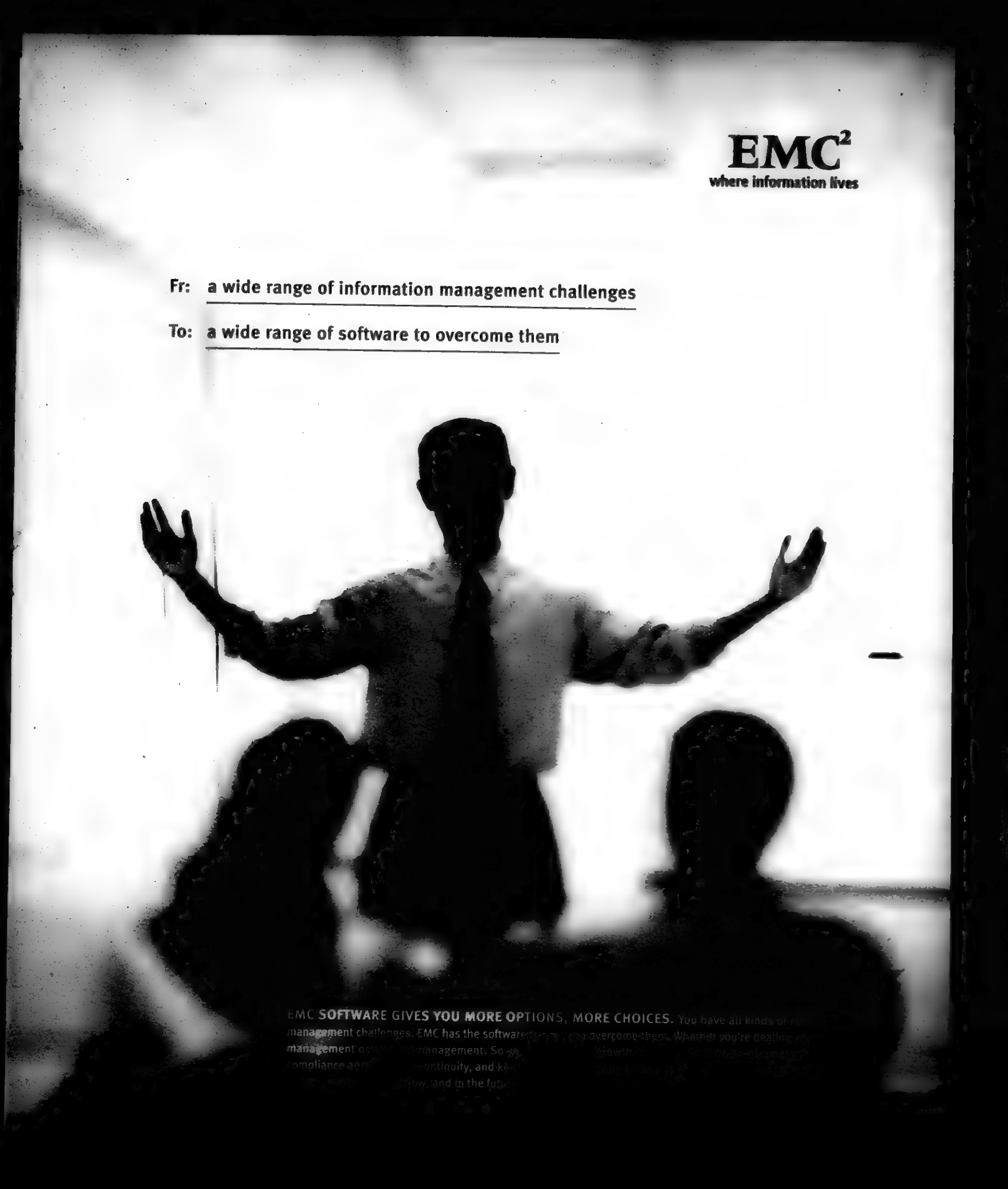
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Negotiating CHANGE

Aligning your IT investments with your industry's change trajectory may be the key to success.



Q&A

"You can't make intelligent investments within your organization unless you understand how your whole industry is changing," writes **Anita McGahan** *in October's* Harvard Business Review. *McGahan, author of* How Industries Evolve: Principles for Achieving and Sustaining Superior Performance *(Harvard Business School Press, 2004), bases her theories on more than a decade of research on four trajectories of industry change. She told Kathleen Melymuka how CIOs can align IT investments with those changes.*

How do I recognize that my industry is undergoing radical change? Radical change occurs when everything you do is eventually going to become irrelevant because of some new technology or way of doing business. Take overnight letter delivery. When I ask students, they all agree that it will be gone in 100 years. What they differ on is how soon. Another example is landline telephone. We probably could agree that in 100 years, telephone communication will not occur over copper wire. The question is how long that infrastructure will stay around.

You say progressive change is the most common type. What does that look like? Progressive change is occurring in many transportation and retail industries. The challenge during progressive change is understanding that the way to make money is to improve incrementally through careful analysis and reacting to feedback. Unless your strategy is deeply flawed, the Hail Mary attempt to achieve breakthroughs will not work.

You say creative change is more nuanced. Tell me about that. Creative change occurs when the underlying resources or architecture or assets in a business are becoming obsolete: legacy systems, old database architectures that don't allow you to connect with customers as you'd like to. Many organizations, such as pharmaceutical and film production companies, are also challenged with threats to their resources. Blockbuster drugs go off patents, and revenue is fundamentally challenged as a result. Or you need a new hit film regularly. You need to constantly renew.

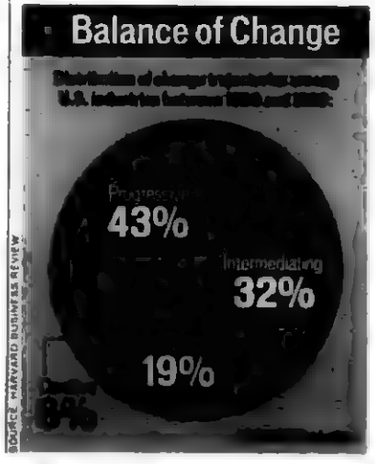
So some industries by their nature are constantly in creative change? Yes. The idea is that the assets that lie underneath the revenue structure of the business are constantly being challenged.

How does that differ from radical change? Under creative change, the customer is satisfied with how you're dealing with that. The difference between the movie industry and the overnight letter industry is that the movie industry is dealing effectively with renewal of underlying resources, so the customer is not looking for better alternatives.

That brings us to intermediating change. What's that all about? Under intermediating change, your customer relationships are threatened but your assets retain value. It's harder to deal with than radical change because you've got to figure out a new way to make money out of assets. If you're running a telephone service provider, you know that the challenge is managing down the land-line infrastructure. But if you're running an organization going through intermediating change — like an auto dealership — you've got a fundamental strategic problem: How do you redeploy assets into new ways of doing business for which you can get paid while ramping down your commitment to an old way of doing business? It's very challenging, because often you're making more money under the old way, and that may continue for many years. That creates civil wars within organizations.

What does all this mean to me as a CIO? The IT world is so incredibly complex. There are many, many different trajectories of change within the IT sector. And for CIOs in non-IT companies — the CIO of a bookseller is facing a fundamentally different challenge then the CIO of a telephone company. If you're a CIO, the right way to use this is as part of a broader strategic process in which you envision how your company is going to compete in five years. The right way to manage IT depends on how your organization intends to navigate this change.

As a CIO whose industry is in radical change, what sorts of IT investments should I consider? If you're running an overnight letter delivery company confronting radical change, you might want to augment your systems to support account managers in evaluating which customers are willing to work with you in new ways — say, in document management or expanded logistics services — so you can diversify from overnight letter services into related businesses.



What if I'm a CIO in progressive change? If you're running a business undergoing progressive change, like Home Depot or Wal-Mart, you should be vigilantly focused on incrementally expanding IT services for efficiency, and strategic IT would deal with managing links to suppliers and customers.

And if I'm in intermediating change? The challenge is in finding new ways of transacting business. Developing a system for capturing information about the costs associated with offering products in new ways is going to be central to the future of an organization. If you're an auction house, for example, how do you deal with the stress of online auctions? Well, you have appraisal capability; how will you sell that in a new way? Understanding how much it costs to offer appraisal services to sellers on eBay is an example of how IT could be used to help you deal with intermediating change.

How does IT play in creative change? The goal under creative change is to keep these Hail Mary projects isolated. A pharmaceutical company developing a new drug doesn't want to bring down the whole company if the drug fails. The same goes for a movie studio or a company in oil and gas exploration. They need to keep projects isolated. But most leading companies are trying to manage risks across a portfolio of projects. IT is effective if it provides management with information about programmatic success without overcontrolling the individual programs.

What's the hardest thing about getting all this right? Each of these trajectories plays out over decades. And even when change carries the potential to blow away old systems and make them obsolete, often in the short run, staying the course generates a higher return on investment. So the hardest part is figuring out how to take these insights about the trajectory of your industry and integrate them into your daily decisions about how to run the business. **ID 49634**

This is the latest in a series of monthly discussions with Harvard Business Review authors on topics of interest to IT managers.

ThinkTank

BRAIN FOOD FOR IT EXECUTIVES

Building Bridges: Marketing and IT

It's no secret that the IT and marketing departments have trouble understanding each other. That's a shame, because marketers are striving to integrate vast sources of data, present targeted messages to consumers and increase the measurability of marketing – all of which require technology. Yet a study conducted by Alpharetta, Ga.-based Aslora Corp. last year found that only 61% of marketing projects succeed, a record that the IT services firm says could be improved by an average of 15% through a better relationship between marketing and IT.

Marketers typically say that IT is slow, inflexible and clueless about customers, while technologists say marketing types do a poor job of explaining what they need. In a recent bulletin, Elana Anderson, an analyst at Forrester Research Inc., went so far as to call the relationship dysfunctional – but not irreparable.



Anderson identified the following ways beleaguered companies can improve their marketing/IT relationships:

- Move some IT staffers into the marketing group for dedicated IT support.
- Create a marketing services team that fulfills ad hoc requests for data and custom reports.
- Make technology decisions through a cross-functional committee.
- Have a chief marketing officer who sits at the executive table with the CIO.
- Develop a strategic technology road map for marketing.

– *Mitch Betts*

Thought Leader

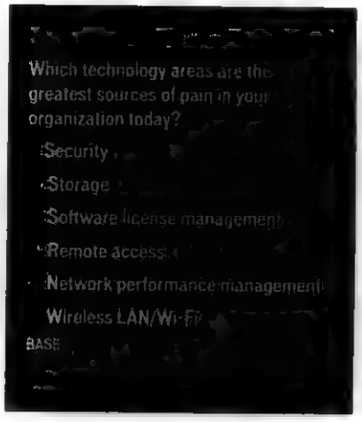
In a recent interview published on Gartner Inc.'s Web site, Intel Corp. CIO Doug Busch expresses some exasperation with IT's reputation for boondoggles: "IT has been the poster child in the media for failed business projects," Busch says. "But name another function that's done better. Acquisitions delivering forecasted financial return? New products making it to market on time and on budget? Executive hires who turned out as anticipated? IT is not that bad in comparison."



Busch also says in the wide-ranging interview that every group within the IT department needs to have "a forward-looking R&D component. If you don't look downstream at opportunities in front of you, you choke off the path of continuous improvement."

Things to Ponder

- Press release: "Judy Ravin, director of English Communications Services LLC, an accent-reduction firm in Ann Arbor, Mich., has produced a new system to help foreign nationals lose their accents. 'Lose Your Accent in 28 Days' combines a CD-ROM with an audio CD and a book to help professionals lose their accents in just one month."
- The average CIO tenure has improved from 18 months to 30 months in the past two years, says Meta Group Inc. analyst Jonathan Poe.
- IT spending averages 7.4% of revenue at companies where top executives view IT as a significant enabler of the company's growth, but only 4.7% of revenue at companies where executives view IT as a growth inhibitor, according to a survey of 203 executives by New York-based Bain & Co.
- Forrester Research predicts that the next boom in IT spending will start in 2008 and continue through 2016.
- Enterprise IT architecture typically focuses on technology and business processes but almost never focuses on the social aspects of work and the workplace, says Meta Group analyst Mike Gotta. So in the near future, companies will need to hire "social architects" to find out how people really work, communicate, collaborate, innovate and solve problems, he says. **49502**



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How does that differ from radical change? Under creative change, the customer is satisfied with how you're dealing with that. The difference between the movie industry and the overnight letter industry is that the movie industry is dealing effectively with renewal of underlying resources, so the customer is not looking for better alternatives.

That brings us to intermediating change. What's that all about? Under intermediating change, your customer relationships are threatened but your assets retain value. It's harder to deal with than radical change because you've got to figure out a new way to make money out of assets. If you're running a telephone service provider, you know that the challenge is managing down the land-line infrastructure. But if you're running an organization going through intermediating change — like an auto dealership — you've got a fundamental strategic problem: How do you redeploy assets into new ways of doing business for which you can get paid while ramping down your commitment to an old way of doing business? It's very challenging, because often you're making more money under the old way, and that may continue for many years. That creates civil wars within organizations.

What does all this mean to me as a CIO? The IT world is so incredibly complex. There are many, many different trajectories of change within the IT sector. And for CIOs in non-IT companies — the CIO of a bookseller is facing a fundamentally different challenge then the CIO of a telephone company. If you're a CIO, the right way to use this is as part of a broader strategic process in which you envision how your company is going to compete in five years. The right way to manage IT depends on how your organization intends to navigate this change.

As a CIO whose industry is in radical change, what sorts of IT investments should I consider? If you're running an overnight letter delivery company confronting radical change, you might want to augment your systems to support account managers in evaluating which customers are willing to work with you in new ways — say, in document management or expanded logistics services — so you can diversify from overnight letter services into related businesses.

What if I'm a CIO in progressive change? If you're running a business undergoing progressive change, like Home Depot or Wal-Mart, you should be vigilantly focused on incrementally expanding IT services for efficiency, and strategic IT would deal with managing links to suppliers and customers.

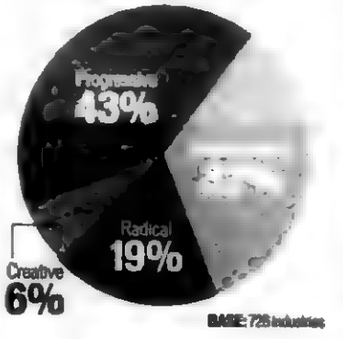
And if I'm in intermediating change? The challenge is in finding new ways of transacting business. Developing a system for capturing information about the costs associated with offering products in new ways is going to be central to the future of an organization. If you're an auction house, for example, how do you deal with the stress of online auctions? Well, you have appraisal capability; how will you sell that in a new way? Understanding how much it costs to offer appraisal services to sellers on eBay is an example of how IT could be used to help you deal with intermediating change.

How does IT play in creative change? The goal under creative change is to keep these Hail Mary projects isolated. A pharmaceutical company developing a new drug doesn't want to bring down the whole company if the drug fails. The same goes for a movie studio or a company in oil and gas exploration. They need to keep projects isolated. But most leading companies are trying to manage risks across a portfolio of projects. IT is effective if it provides management with information about programmatic success without overcontrolling the individual programs.

What's the hardest thing about getting all this right? Each of these trajectories plays out over decades. And even when change carries the potential to blow away old systems and make them obsolete, often in the short run, staying the course generates a higher return on investment. So the hardest part is figuring out how to take these insights about the trajectory of your industry and integrate them into your daily decisions about how to run the business. ID 49634

Balance of Change

Distribution of change trajectories among U.S. industries between 1980 and 1998:



BASE: 726 industries

SOURCE: HARVARD BUSINESS REVIEW, OCTOBER 2004

This is the latest in a series of monthly discussions with Harvard Business Review **authors on topics of interest to IT managers.**

ThinkTank

Building Bridges: Marketing and IT

It's no secret that the IT and marketing departments have trouble understanding each other. That's a shame, because marketers are striving to integrate vast sources of data, present targeted messages to consumers and increase the measurability of marketing – all of which require technology. Yet a study conducted by Alpharetta, Ga.-based Aelera Corp. last year found that only 61% of marketing projects succeed, a record that the IT services firm says could be improved by an average of 15% through a better relationship between marketing and IT.

Marketers typically say that IT is slow, inflexible and clueless about customers, while technologists say marketing types do a poor job of explaining what they need. In a recent bulletin, Elana Anderson, an analyst at Forrester Research Inc., went so far as to call the relationship dysfunctional – but not irreparable.



Anderson identified the following ways bellwether companies can improve their marketing/IT relationships:

- Move some IT staffers into the marketing group for dedicated IT support.
- Create a marketing services team that fulfills ad hoc requests for data and custom reports.
- Make technology decisions through a cross-functional committee.
- Have a chief marketing officer who sits at the executive table with the CIO.
- Develop a strategic technology road map for marketing.

– *Mitch Betts*

Thought Leader

In a recent interview published on Gartner Inc.'s Web site, Intel Corp. CIO Doug Busch expresses some exasperation with IT's reputation for boondoggles: "IT has been the poster child in the media for failed business projects," Busch says. "But name another function that's done better. Acquisitions delivering forecasted financial return? New products making it to market on time and on budget? Executive hires who turned out as anticipated? IT is not that bad in comparison."


DOUG BUSCH

Busch also says in the wide-ranging interview that every group within the IT department needs to have "a forward-looking R&D component. If you don't look downstream at opportunities in front of you, you choke off the path of continuous improvement."

Things to Ponder

- Press release: "Judy Ravin, director of English Communications Services LLC, an accent-reduction firm in Ann Arbor, Mich., has produced a new system to help foreign nationals lose their accents. 'Lose Your Accent in 28 Days' combines a CD-ROM with an audio CD and a book to help professionals lose their accents in just one month."
- The average CIO tenure has improved from 18 months to 30 months in the past two years, says Meta Group Inc. analyst Jonathan Poe.
- IT spending averages 7.4% of revenue at companies where top executives view IT as a significant enabler of the company's growth, but only 4.7% of revenue at companies where executives view IT as a growth inhibitor, according to a survey of 203 executives by New York-based Bain & Co.
- Forrester Research predicts that the next boom in IT spending will start in 2008 and continue through 2016.
- Enterprise IT architecture typically focuses on technology and business processes but almost never focuses on the social aspects of work and the workplace, says Meta Group analyst Mike Gotta. So in the near future, companies will need to hire "social architects" to find out how people really work, communicate, collaborate, innovate and solve problems, he says. **49502**

Pain Points

Which technology areas are the greatest sources of pain in your organization today?

1. Security
2. Storage
3. Software license management
4. Remote access
5. Network performance management
6. Wireless LAN/Wi-Fi

BASE: 104 C-level executives at [illegible] companies with more than 100 employees

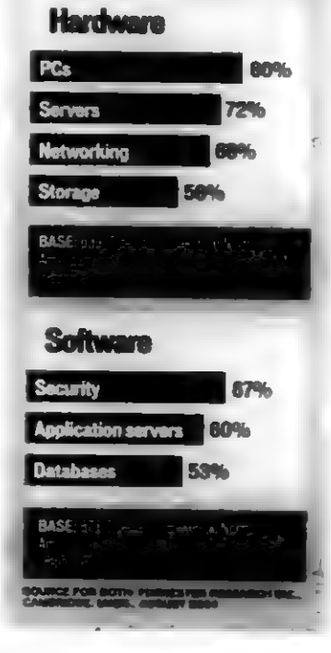
Send them to pitches@computerworld.com.

The IT Economy

- "The Lukewarm IT Recovery Continues" is the headline on a recent Forrester Research bulletin. Forrester says, "We've shaved our forecast for U.S. IT spending growth in 2004 to 5% from 6%." But lukewarm is better than the deep freeze of 2001-2003. "The moderate pace of IT spending growth in the U.S. and Canada offers IT buyers a perfect combination of low prices and minimal concerns about vendor viability," Forrester says. "While vendor consolidation is picking up . . . there still is more than enough competition for IT buyers to push for – and get – significant discounts in price, especially in software."
- There may be an uptick in year-end spending, but expectations for next year's IT spending took a dip this summer, according to a survey of 100 corporate CIOs by The Goldman Sachs Group Inc. in New York. When asked in August for their predictions, the CIOs said their IT capital budgets will grow only 1.9% in 2005, a sharp drop from the 3.6% forecast they made one month earlier.

Year-End Tech Spending Spree?

Will your company make new investments in the following technologies between now and the end of the year?



Career Watch

Hacking for the Home Team

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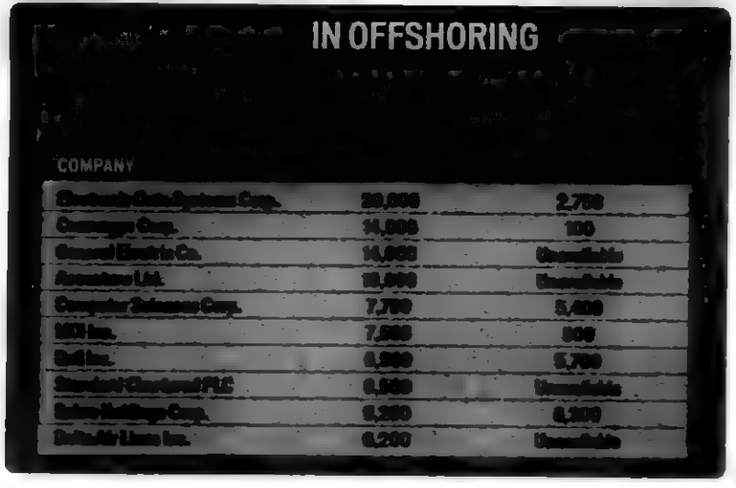
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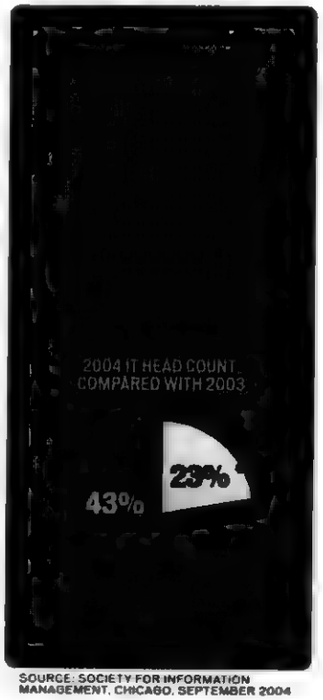
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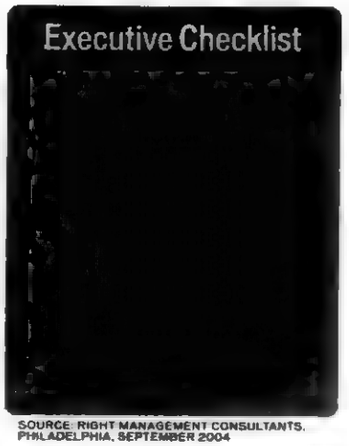


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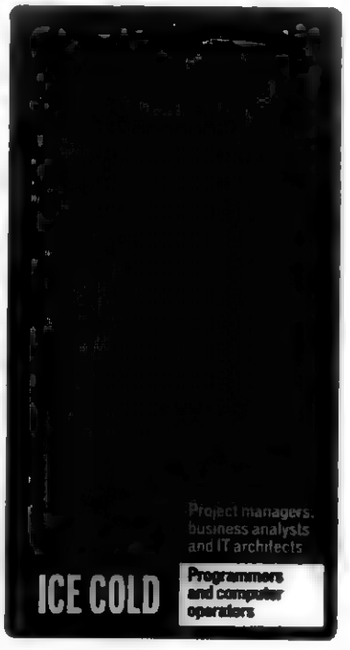


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PAUL GLEN

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TOP 10 IN OFFSHORING

According to TechsUnite.org, a Web site sponsored by the Communication Workers of America and an advocate of establishing technical employee unions, 251,332 jobs have gone offshore since January 2000, resulting in 141,235 jobs lost. Here is its list of the top 10 offshoring companies:

COMPANY	JOBS OFFSHORED	ESTIMATED JOBS LOST
Electronic Data Systems Corp.	20,000	2,750
Convergys Corp.	14,000	100
General Electric Co.	14,000	Unavailable
Accenture Ltd.	10,000	Unavailable
Computer Sciences Corp.	7,700	5,400
MCI Inc.	7,500	800
Dell Inc.	6,500	5,700
Standard Chartered PLC	6,500	Unavailable
Sabre Holdings Corp.	6,200	6,200
Delta Air Lines Inc.	6,200	Unavailable

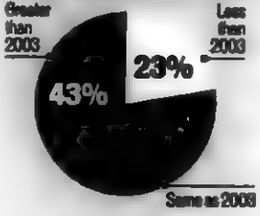
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RETAINING TALENT A TOP WORRY

Although there's not a whole lot of hiring going on, CIOs are thinking hard about how to keep the IT talent they have. At its recent SIMposium in Chicago, the Society for Information Management polled 160 senior IT leaders about their concerns. Retaining IT professionals came in near the top of the list, second only to aligning IT with the business.

2004 IT HEAD COUNT, COMPARED WITH 2003



BASE: 160 senior IT leaders

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Executive Checklist

The top management skills most valued in managers and executives today:



BASE: 133 human resources managers; multiple responses allowed.

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SALARY SQUEEZE CONTINUES

Spending on IT staff in the form of salaries, benefits and overhead is likely to be one of the weakest parts of the overall IT budget during the next five years, according to a recent report by Forrester Research. Offshore outsourcing, automated server management in the data center and increased use of packaged rather than custom applications all decrease the need for new hires and keep salaries down, Forrester says. It predicts modest growth of 3% per year in median IT salaries and benefits and staff-level growth of only 2% to 3% through 2008. ID 40558

HOT: Project managers, business analysts and IT architects

ICE COLD: Programmers and computer operators

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Advertising Supplement

IT Careers: ITAA Report Pinpoints 2004 Hiring Trends

If it feels like there's even more competition for even fewer jobs, you're right. According to the 2004 Workforce Development Survey from Information Technology Association of America, hiring managers will recruit just under 230,000 IT professionals this year. That's down from 2003 when 500,000 IT workers were hired with a net increase of approximately 200,000 new jobs.

The ITAA report echoes the latest forecast from tech hiring firm Robert Half & Associates. The Robert Half survey of 1,400 chief information officers reports a fourth-quarter hiring increase of 1%.

Despite the continued trend of holding the line on cost and productivity, the 500 hiring managers polled by ITAA in its annual survey did have sound advice and data to help IT professionals look at their own career plans.

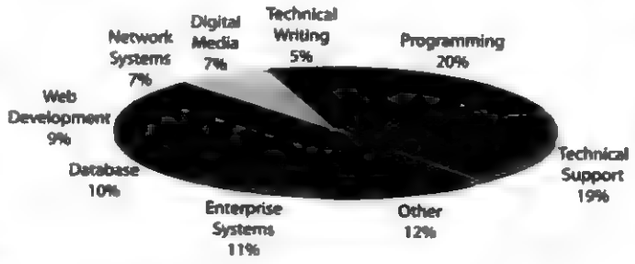
What's Driving the Hiring

Varied trends are driving the hiring for 2004. They include the opening of entirely new markets for IT products and services. Opening India, China, Africa and other countries to technologies will require newly defined products that meet requirements for harsher environments – from lack of electricity to illiteracy. At the same time, there are strident requirements on cost as the developing countries need technology that's inexpensive and easily used. Other trends, identified by ITAA, include the need to push technology to do more for business and for everyday living, new quality and value expectations, methods to simplify increasingly complex capabilities, and new demands for national and business security.

What They're Looking For

According to the ITAA report and despite repeated focus by CIOs on a blend of educational and business capability, the most important requirements for landing a job in 2004 are related job experience and a four-year degree. The hiring managers also identified certifications and other on-going learning as tickets to consideration. For the first time, the managers also pointed to interpersonal skills as critical in landing a job – more important, in fact, than team building and program leadership.

***2004 IT Workforce: Job Categories as a Percentage of Total IT Workforce**



Specifically, software programmers and engineers continue to make up the biggest segment of the job market. However, the largest increases in hiring come in other areas – technical support, network systems, and database development and mining. The hiring managers report that tech support, long the focus of outsourcing, includes everything from call center support to installation of new equipment and systems to replace aging technology.

Where the Jobs Are

Just as important as the right mix of skills and personality is the ability to go where the jobs are. The ITAA workforce survey found that hiring and IT populations continue to move across the country, bridging the two coasts.

The South, as a region, has the most IT workers with 3.1 million. In 2004, companies in the South expect to hire 71,199 additional IT professionals. The Midwest follows closely with hiring managers planning to bring on 60,413 workers.

While the geographic mix is fairly strong, so too is the mix of types of businesses and services that are hiring. According to the ITAA survey 72 percent of the jobs will be found in small business versus mid-sized or large companies. And just under 80% of the jobs will be in non-IT companies.

*Source: ITAA "Adding Value…Growing Careers Annual Workforce Development Survey," 2004

For more information about IT Careers advertising, please call: 800.762.2977

Produced by Carole R. Hedden

IT PROFESSIONALS

Manager

(Glen Mills, PA and other locations throughout the United States). Perform applications development and systems integration work utilizing Oracle E-business suite, middle ware technology and third party systems, including Web Application, Data Warehouse and legacy systems for major corporate clients in diverse industries. Engage in Software Evaluation, process reengineering, vendor planning, conceptualizing, and envisioning advanced technology solutions to meet the business needs of clients. Responsible for the delivery, implementation and support of Oracle ERP Applications modules as well as the design and development of the Custom Interfaces including receivables TCA Architecture, Accounts Payable (AP), Accounts Receivable (AR), Order Management (OM), Install Base, Service Contracts and enabling Check and invoice printing through Oracle Payables. Oversee the data conversion from the disparate systems, identify and make tuning recommendations for the performance issues related to Oracle relational database. Involved in defining the Standards for coding, error messages, performing the code reviews and ensuring the quality control of the deliverables. Participate in various practice development activities, including conducting technical screens, preparing presentations, mentoring consultants and less experienced Senior Consultants.

$81,600/year Mon-Fri 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Computer Science, Engineering (any type), Information Systems or Business Administration plus 4 years of experience in the job offered or 4 years of experience as a Senior Consultant, Consultant, Senior Systems Engineer or Programmer Analyst. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials evaluation service. Related experience must include at least one year with Oracle ERP, including TCA architecture, Accounts Receivable (AR), Accounts Payable (AP), General Ledger (GL), Order Management (OM), PL/SQL, Data Warehousing and Middle Ware Technology.

Please send your resume, referencing Job Order Number WEB468883 to the: PA CareerLink, 701 Crosby Street, Suite B, Chester, PA 19013. EOE.

Computers

Director of Consulting (Professional) Services

Manage and develop the Professional Services Department for specialized software company. Min MS/or equiv mathematics/computer science / 4 years project, personnel, operations mngt for orgs of more than 7 persons. 4 yrs. exp. document mngt, digital imaging, and Microsoft.NET. Job site: Readsoft, Inc., Metairie, LA 70002 (apply: staffing-us@readsoft.com).

Computer Support Specialist - provide tech assist, troubleshoot, security, training & support in networked web enabled business & software (Webtrends, Livestat) using VB, HTML, ASP, VB & Java Script & Cold Fusion. Investigate & resolve user's soft/hardware probs. Answer inquiries re & assist w/applics, print'g, word process'g, programm'g languages, e-mail & operat'g systems. Plan, implem't & admin info systems & back up & recovery strategies. 35 hrs. 2 yrs coll (Info Tech) + 2 yrs exp in job offd reqd. Fax resume & salary reqmts to (703) 952-0944, Attn: H.R. Remark Syst.

Omnisoft, Inc.,

Software Engineers: Research, design, develop, analyze, test, and recommend software requirements for E-commerce database applications as well as develop and perform database maintenance for automobile and insurance industry clients. Use object-oriented programming using Oracle, Java, Perl, XML, Solaris, Web logic, C++ and current Web Technologies in Windows, Unix, and Linux environments. Need Bachelor's Degree in Computer Science or related and 2 years of experience. Programmer Analysts: Design and develop Enterprise Resource Planning, Customer Relationship Management, ASP, Datawarehouse applications. Use current web technologies, web services, Stored procedures and SQL. Work in Unix Environment and Unix Schell Scripting. Need 2 years of experience in relevant field.

Send resume to: HR Manager, Omnisoft, Inc., 2215 W Russell Ave. Sioux Falls, SD 57104 or via e-mail at hr@omnisoftinc.net

Programmer Analyst – Java:

Wanted by an IT consulting firm in Keene, NH to work at various client locations throughout USA. Respond to HRD, Infowave Systems, 39 Central Square, Suite 6201A, Keene, NH-03431.

Require: Bachelor Degree in Computer Science or related field and one year experience. In the alternative will accept applicants with three years of university level education plus three years of experience performing analysis, development and testing of enterprise web applications. Primary experience must incl working with technologies such as J2EE, XML suite, BPMS, Shell scripts, RDBMS Design, Development and Tuning, Middleware on UNIX.

NE OH Software Co. seeks Software Eng. I to assist w/in designing/ developing computer sys, apply principals and tech of computer science, engineering, and mathematical analysis; analyze software req. to determine feasibility of design and to customize Web and Workflow Solutions at different customer sites. Design /implement customer solutions utilizing the application package developed with technology such as OnBase API, VB, JavaScript and Crystal Reports. Bachelor's degree in Information Systems or equiv. and 3 mos. exp. in job / job related req. exp. must include work with Visual Basic/VB .net programming exp req.; ASP/ ASP .net exp.; SQL (Oracle, Sybase, DB2, MS Access, MS SQL Server), HTML, JavaScript, ASP, PHP, Korn Shell Script, UML req. Resumes: H.R. Dept., TH 04, 28500 Clemens Road, Westlake, OH 44145 or email to nova.sluss@onbase.com. No calls. EOE.

Oracle Clinical Consultant to plan, design study in Oracle Clinical 4.0; develop DCMs, remote data entry screens, DCIs etc; design, develop validation procedures using PL/SQL in Oracle Clinical's validation module; develop SAS, SQL views using TOAD, SAS, Oracle Clinical; perform CRF designing, database building, randomization, query resolution, reporting, subject randomization algorithms using Oracle Clinical, Normlab, SAS, SPSS, Adobe Framemaker. Require: MS in CS, Computer Engg or Statistics and 6 months exp in Oracle Clinical, SAS. Competitive salary, F/T, travel involved. Resumes to Scott Bryant, Judge Technical Services, Inc. 3 Devol Square, Suite 3A, Providence, RI 02903.

SENIOR WEB DEVELOPMENT ANALYST

ADT Security Services, Inc. has an opening in Boca Raton, Florida for a Senior Web Development Analyst.

Analyze business procedures and problems to develop specifications and convert them to programmable form for electronic data processing. Confer with organizational units involved to determine specific web output requirements. Study existing data systems to evaluate effectiveness and develop new, or modify current, web systems to improve production workflow.

Must possess at least a bachelor's or its equivalent in Computer Science or a related field, and relevant work experience. Experience must include Oracle, SQL and WebSphere Administration.

Resume and/or cover letter must reflect each requirement above and specify reference code SWDAZNS or it will be rejected.

Forward resume to Theresa Mele, ADT Security Services, Inc., One Town Center Road, Boca Raton, FL 33486.

Tryarc LLC has openings for Software Engineers in CA w/ at least 2 yrs of exp. **Job Duties:** Analyze, dvlp, dsgn, test and implmt software applns using Eclipse, VSS, ANT, XDoclet, JSP, EJB, WebLogic, Tomcat, CVS, Oracle and Rational Rose on Windows platform, and Struts Framework based on multi-tier and MVC architecture. Reqs: Master's degree or equiv in Engg. or Comp. Sci. A bachelor's degree with at least 5 yrs. of exp. is acceptable. Exc pay & benefits. Fwd resumes with proof of work status to: jobs@tryarc.com.

Software Engineer. Portsmouth, NH: Design, develop, test and document EAI, B2B, B2C and Windows Applications utilizing ASP.NET, VB.NET, C#, BizTalk Server 2002, Atturity Connect, Commerce Server 2002, Content Management Server 2002, Java, JSP, JavaScript, VBScript, Visual Basic, XML, XSL, DHTML, HTML, COM and DCOM in Windows 2000 Server and Unix environment. Analyze user requirements and write design specification documents. Utilize SOAP, XML/XSL techniques for EAI Applications. Write Stored Procedures and Triggers. Perform data migration, schema design and create database objects in databases such as Oracle, SQL Server and AS/400. Assist in the preparation of technical manuals, oversee custom installation of software products and provide technical support. Masters or Foreign Eqvlt. in Comp. Science or Engg or Related and one year of exp. in the job offered. $83,998/-yr, 9am-6pm, 40hrs/wk. Send two copies of resume/letter of application to **Job Order # 2894-445**, PO Box 989, Concord, NH 03302-0989.

SAP Business Systems Analyst. Thomson, Inc. is seeking an SAP Business Systems Analyst to consult with clients regarding SAP software systems, provide SAP analysis, redesign, and configuration of clients' business procedures, policies, and processes, and act as liaison between the application developers and the business community to define business and system requirements. Must have 4 years of experience in SAP consulting and configuration. Send cover letter and resume to: Betty Moreno-Silva, Manager, Human Resources, Thomson, Inc., 3233 East Mission Oaks Boulevard, Camarillo, CA 93012. Please reference Job #AMM in your cover letter.

Information Analyst II: Develop, implement & maintain web-based Info Center using Oracle technologies; maintain Oracle database; design web pages & develop methods of info delivery using SQL, PL/SQL, HTML, JavaScript, Oracle 9iAS; migrate Cobol programs to Oracle Portal. Req BS in CS or related plus 1 yr work exp. Send resume to ACS, Kennesaw State Univ. 1000 Chastain Rd., Kennesaw, GA 30144. Ref NT

Technical Architect/Sr. Software Developer wanted. Must have Bach. deg. in Comp. Sci., Math, Physics or related field & 3 yrs. middleware, integration & web technology exper. includ exper. with IBM WebSphere Application Server & IBM WebSphere MQ & 1 yr exper. providing tech. support to customers in the energy &/or utilities industries (Exper. can be concurrent). Send cover letter and resume to Corporate Recruiting, Code EUAF, LogicaCMG, 32 Hartwell Ave., Lexington, MA 02421. No third parties or phone calls please. LogicaCMG is an EEO, M/F/V Employer.

Computer Programmer Analysts (multiple openings at various locations): Livonia, MI with foll skills

- Filenet IDM Desktop, IDM Web, Capture, Visual Workflo, IDMIS, IDMDS, ASP, Java Script, MS SQL, & Oracle on Windows & Novel Networks
- AIF usion Data Modeler, Rational Rose, Oracle, Ascential Datastage, Informatica, Business Objects, Crystal Reports, Sun Solaris, Unix, Windows NT, Oracle PL/SQL, Pro*C, & Designer 2000

Req. Bach degree in Math/Sci/Comp Sci/Engg/Electronics/MIS/Comm/Bus. Mgt/ Admin or foreign equiv & 2yrs exp in technologies & job duties. Will also accept 2 yrs college education & 3 yrs exp or any suitable combination of education, experience and/or training that meets minimum requirements. Travel and/or relocation possible

Respond by resume to: HR, Datamatics Technologies Inc., 31557 Schoolcraft Road # 100, Livonia, MI 48150-1822. OR by Fax @ 734-525-3734

Educational Software Developer

Description. Develop and maintain web based software configuration survey application for Workforce Timekeeper and HRMS Products. Develop new releases and maintain existing releases of application for creating emulations and tutorials of Company software applications. Develop installation scripts to install on Windows clients. Maintain registration application for Educational Services web based student registration system. Support system on internal and external web sites. Maintain Company Educational Services learning paths applications. Provide reporting for application as needed.

Requirements. Requires a Bachelor's degree in Computer Science or a related field or the equivalent. Requires 5 years of experience developing web and client server based applications. Requires Microsoft Applications or Solutions Development Certification. Requires solid understanding and ability to work with the following technologies: Microsoft Visual Basic 6, Active Server Pages, VBScript, JavaScript, Flash MX & Actionscript, XML & XSLT, Microsoft SQL Server (SQL, Constraints, Stored Procedures); Microsoft Access, ADO, IIS, COM, COM+, Active X technologies, Visual Source Safe, Crystal Reports 7.0 or 8.0, Windows 2000, and Windows NT. Must have ability to approach situations with energy and enthusiasm, good analytical skills, communicate effectively, gain credibility, and develop productive working relationships with others, function in a fast-paced environment under time pressure, and be a flexible team-oriented individual who shows initiative and demonstrates flexibility and can deliver in a team environment.

Please submit your resume and salary requirements to: Thomas Bertolino, Director, Corporate Staffing at corporatestaff@kronos.com or Kronos Inc., 297 Billerica Road, Chelmsford, MA 01824. Applicants must have proof of legal authority to work in US.

IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.) Design, test, develop and implement custom web applications (Ecommerce web technologies) for automated government labor exchange systems utilizing labor exchange models used in states' public systems and private-sector entities. Implement a custom developed n-tier labor exchange system using Ecommerce technologies, legacy mainframe architectures, Object-Oriented Analysis and Design, relational database design and theory, Unified Modeling Language (UML) and Object relational mapping. Conduct Joint Requirements Planning (JRP) sessions and Joint Application Design (JAD) sessions to gather system functional requirements and to present proposed designs and solicit user acceptance. Conduct unit, functional, regression and system testing to ensure system quality. Apply current Department of Labor (DOL) regulations to real systems design decisions involving knowledge of Workforce Investment Act and Wagner-Peyser Act, federal and state workforce registration guidelines and unemployment insurance profiling and sanctioning rules. Formulates job matching models adhering to federal and state regulations to meet labor market entity needs. Map DOL legacy classification systems to new specifications including Dictionary of Occupational Titles (DOT) codes to Occupational Information Network (ONET) codes and Standard Industrial Classification (SIC) codes to North American Industrial Classification System (NAICS). Utilize Section 508 Accessibility Guidelines in applying Ecommerce systems. Evaluate competing labor exchange IT design and development methodologies and use selected methodology to develop prototypes and finish labor exchange systems that meet state and federal requirements.

WAGE: $75,779.60/year
Hours: Monday-Friday 9:00am-5:00pm

MINIMUM REQUIREMENTS

Bachelor's degree in Computer Science, Math, Engineering (any type), Information Systems or Business Administration + 2 years exp on the job offered or 2 years exp as a Consultant, Systems Analyst or Developer. Related experience must include design, testing, development and implementation of custom web applications (Ecommerce web technologies) for automated government labor exchange systems. Related experience must include Object Oriented Analysis and Design, relational database design, and mainframe experience as well applying current Department of Labor regulations to real system design decisions involving the Workforce Investment Act.

Please send your resume, referencing Job Order Number **WEB466818** to the PA Careerlink, 701 Crosby Street, Suite B, Chester PA 19013-6005. EOE

Computer Systems Analyst

L'Oreal USA is seeking a Systems Analyst for New York City location to design, develop, test, implement and maintain web-enable business applications supporting retail product placement management software platforms (Intactix Space Planning Plus and Intactix Knowledge Base); using C#, Java and Microsoft ASP.NET programming as well as MS SQL and Oracle relational database design and development skills; and use knowledge and understanding of relational managed reporting, multi-dimensional database modeling, user interface and reporting principle within Cognos Business Intelligence tool suite to design report formats and generate analysis cubes. Position requires a BS in Computer Engineering, (including Cognos Business Intelligence tools, C#, Java and ASP.NET). Please fax resume and cover letter with salary history/requirements to Human Resources (212) 984-8038. EOE

Lead Network Architect Consultant wanted by a Telecommunications Network Service co. in Garden City, NY & Hurdington, NY. Providing design, engineering, planning and integrating cost effective IP network solutions in support of Network requirements for the company and 28 of its business units; researching and applying new technologies to reduce corporate costs and improve productivity and network reliability. Must have a Bachelor's degree in Comp. Sci. or related field & 5 yrs. exp. as a Network Specialist/Analyst/Communication Specialist with 2 yrs. exp. leading personnel or providing training classes, knowledge of networking including router an concentrator configuration protocol fundamentals, specialized knowledge of computer communications systems and advanced Cisco Router and routing protocols, must also have knowledge of the following: TCP/IP and protocol analyzers; Cisco Switches and/or WAN Technologies, approaches and topic for designing TCP/IP WAN Networks, (equipment selection, configuration, software, routing etc.), and understanding of Mainframe communication with a systems programming background. Other Special Requirements: CISCO CERTIFICATION or equivalent expertise. In lieu of a Bachelor's degree we will accept an additional two (2) years of progressive experience in the job offered or related occupation. Please respond to CD Telecom (Quantitude) Attn: Bill Ramsey, Ref#1618, 6801 S. Havana Street, Centennial, CO 80112.

Telcott Inc is a growing software development and consulting firm in Houston. We are looking for Computer Professionals for the following positions

Software Engineer: Research, analyze design and develop e-Internet programs for WEB based knowledge management, customer relationship management, sales force automation and e-commerce for development of SAP packages. Must have knowledge of any SAP (i.S) industry Solutions modules. Requires Masters degree in Computer Science or in a related field and 1 one year of experience in the advertised position or in a similar position and ability to use SAP industry Solutions modules. Must be willing to travel.

Programmer Analyst: Plan, test and develop internet based programs for ERP packages, CRM, Sales force automation and E-Commerce. Requires a Bachelors degree in Computer Science or in a related field and one year of experience in the advertised position or in a similar position and ability to use ERP and CRM. Must be willing to travel

Accounts Analyst: Manage multiple accounts and develop SAP Finance Modules to track revenues and expenditures. Present quarterly reports and annual projections based on revenue received and expenditures. Requires a Bachelors degree or equivalent and one year of experience in the advertised position or in a related position with the ability to use SAP Finance modules and Quick Books. Must be willing to travel

Send Resume and Cover letter to Telcott, Inc. 8201 Bonhomme Ste 470-S, Houston, TX 77036.

Corpus, Inc. has multiple openings for IT professionals to design and develop applications using Oracle, SAP, SQL, PL/SQL, COBOL, C/C++, VB, Java, XML, ERP, ASP, .NT, XSL. Min BS/MS with exp. Travel maybe required. Please send resumes to resumes@corpusinc.com. EOE. No calls.

Meridian Technologies looks for IT professionals for various positions in the area of Oracle, SAP, SQL, Java, Web applications, Unix, etc. Candidates must have BS/MS or equivalent with some IT experience. Travel required for some positions. Please contact jobs@meridiantech.net. EOE

Fast Enterprises, LLC is seeking a Senior Systems Analyst to plan, design and direct system transition to COTS solution for revenue agencies throughout the U.S. Interested, degread, experienced professionals, please respond to:

Senior Systems Analyst
Recruiting
L. Forest
800 Park Boulevard
Suite 720
Boise, ID 83712

BCC USA Inc - South Portland, ME needs experienced Programmer Analysts having a Bachelors Degree with minimum two years of progressive experience in Design, Development and Deploying multi-tiered web based applications in a distributed environment using JAVA/J2EE, Servlets, JSP, STRUTS, EJB, WebLogic, Sybase and IBM DB2. Must have experience in using UML modeling tools with Rational Rose / TogetherSoft and IDE Eclipse. Must have experience in Apache ANT for build / deploy J2EE applications. Competitive salary and benefits. M-F, 40 hours/week. Please mail your resume to BCC USA Inc., HR Department, 650 Main Street Suite 201, South Portland, ME - 04106.

Statistical Programmer. Cary, NC. Design SAS programs to manage data from clinical drug trials. Develop programs for test validation according to FDA regs. Req. degree and exp. with mgmt of clinical trial data using SAS programs. Send resumes to: George S. Besse, ASG, Inc., 2000 Regency Parkway, Suite 355, Cary, NC 27511.

Corp. IT Specialist - R & D for restaurant industry. Analyze software requirements to determine feasibility of design. Dev & direct software system testing, programming, & documentation. Purch., maintain & upgrade corp. network & related equip. Dev. training manuals & train emp. on the use of the systems. Knowledge of Positouch, Panasonic, MaitreD, Panmicro, & Novell Networking (may be gained during ed. background or through work exp). Must have MCS & 5 yrs. work exp. in job offered or 5 yrs of exp. as an instructor of Comp Sc. Submit resume to LM Restaurants, Inc., 2721 McNeil St., Raleigh, NC 27608.

Programmer-Analyst: Write program specifications, using JD Edwards World, JD Edwards One-World, JDE OneWorld, CNC Administration, RPG/400, AS/400 Administration, CLP, JDE Case tools to develop electronic commerce internet, implement Version Control Management; formulate plan outlining steps, using structured analysis and design. Req 4 yrs of work exp in related field. Send resume to Macrosoft Systems, Inc. 202 Abbey Court, Alpharetta, GA 30004. Ref KY

Graphic Designer: Design and code interactive multimedia programs and websites for trade shows, educational and marketing programs. Render 3D models for various projects using computer soft wares and free hand sketching. Design print layouts and packages. Req. Bachelor degree or Equivalent in Graphic Design or Architecture with nine months experience in job offered. Must be proficient in Adobe Illustrator, Photoshop, 3D MAX, JavaScript, Director and Flash ActionScript. 40 hours/wk, 9-5. Send resume and portfolio sample (non-returnable) to Shaw Science Partners at 4151 Ashford Dunwoody Rd, Suite 502, Atlanta, GA 30319.

Programmer Analysts, Database Administrators, Engineering Programmers, Software Engineers needed--multi openings in locations throughout the US with at least one year exp in any of the following:
- C or C++, UNIX
- Perl, Oracle, UNIX
- QA Analyst
- Oracle Developer
- Java Developer
- Visual Basic, ASP, SQL Server
- SAP
- Oracle Financials
- PeopleSoft
- Unix or NT Administrator

Unified Business Technologies, Inc. ATTN: Human Resources 41400 Dequindre Road, Suite 100Sterling Heights, MI 48314 An Equal Opportunity Employer

ProgrAnalysts to analyze, design software appls using Java, JSP, Servlets, XML, ASP, Visual Basic, EJB, JavaScript, HTML, DHTML under Windows, UNIX OSs; design APIs for backup/recovery framework; provide on site maintenance support such as debugging, modifications, fine tuning & code optimization. Require BS or foreign equiv. in CS/Engg (any branch) & 2 yrs of exp. in IT. F/T competitive salary. Travel involved. Resumes to: HR, Semistor Technologies, Inc., 3300, Holcomb Bridge Road, Ste212, Norcross, GA 30092.

BCC USA Inc - South Portland, ME needs experienced Programmer Analysts having a Bachelors Degree with minimum two years of progressive experience in Analysis, Design, Development and Implementation of Java / J2EE based applications using JSP, Servlets, EJB, JDBC, JNDI, Java Beans, WSAD, Web Logic, Struts (MVC) Framework, Vignette Content Management Suite, XML, XML Spy, XSL, Oracle, IBM DB2 and IBM MQ Series. Must have experience in implementing RUP methodology. Competitive salary and benefits. M-F, 40 hours/week. Please mail your resume to BCC USA Inc., HR Department, 650 Main Street Suite 201, South Portland, ME - 04106.

Systems Admin to work at various unspecified locations with the foll skills & technologies: Sun Solaris, Veritas Cluster/Volume Manager, Weblogic, Firewall, VPN & Clearcase. Bach or equiv in Comp Sci & 2 years exp. Sandlenet, Inc., 43288 Starr Street, #1, Fremont, CA 94539, fax: 510-291-2221, e-mail: jobs@sandlenet.com

Programmer Analysts/Database Administrators needed. Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. Duties include: develop & implement physical database design, create database objects, business rules & database authorization. Work w/ PL/SQL, Pro*C, Oracle, ETL, ClearCase, COGNOS. Fwd. resume & ref. to Software Galaxy Systems, LLC, 4390 US Route 1N, Suite 210, Princeton, NJ 08540.

Technical Lead:
(with Bachelors degree and 3 years experience), West Chester OH. Job entails and requires experience in design and development of applications using IIS Apache, Weblogic, SunOne Directory Server, SiteMinder Policy, SiteMinder Web Agent, Windows 2003, and Solaris. Attractive Compensation package. Send Resume to Madeline Rossero, 65 Water Street, Norwalk, CT 06854

Systems Administrator sought by medical diagnostics co. Req Bach or its foreign equiv in Electronics/Comp. Engg. Resume to: HR Dept., Northland Radiology, Inc., 26222 Telegraph Rd, #100, Southfield, MI 48034.

IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.). Involved in the analysis, development and implementation of systems, or business processes by utilizing technical expertise and knowledge of public sector industry as well as state and federal regulations, including the design of enterprise level Health and Human Services Systems. Utilize large systems development lifecycle experience to build and implement 3-tier client/ server application systems. Perform needs assessment and fit/gap analyses between client requirements and existing functionality, and create technical documentation. Create detailed system design specifications for program objects, and system / technical requirements (business processes, infrastructure, interfaces, reports, enhancements, and/or conversion). Develop 3-tier client/server application systems using Powerbuilder, Visual Basic and Visual Basic Script with Oracle or DB2 back-end. Create test data and write test scripts and scenarios. Design, develop, test and implement interfaces between multiple enterprise level systems. Perform data conversion from legacy to enterprise systems. Create design specifications for conversion programs, develop and test conversion programs and scripts and assist in manual conversion. Create large-scale transactional processing systems utilizing relational databases for data storage.

Salary $75,000 per year. Mon-Fri, 9:00 am to 5:00 pm. The position requires: Bachelor's degree or equivalent in Engineering (any), Computer Science, Math, Business Administration or Information Systems + 2 years of experience in the job offered or 2 years of experience as a Systems Analyst, Consultant Research/Graduate Assistant, Network & Web Server Admin. Related experience must include at least 1 year of consulting experience in Public Sector industry including State and Federal regulations, design of enterprise level Health and Human Services Systems, detailed system design specifications for program objects, and large systems development lifecycle, Powerbuilder, DB2, and 3-tier client/ server application development.

Please send your resume or C.V., referencing Job Order Number WEB458827 to the PA Careerlink, 701 Crosby Street, Suite B, Chester, PA 19013-6096. EOE

PROGRAMMER/ANALYST
Werner Enterprises, Inc.

Duties: Design, program, maintain and support web-based and Geographic Information Systems (GIS) solutions using advanced object-oriented programming skills with current web technologies and knowledge of GIS layer, asset management and positional tracking technologies.

Education & Training: Bachelor's degree in Computer Science, MIS or a related field.

Experience: Two (2) years experience in programming/web application development using GIS and J2EE technology. Requires working knowledge of HTML, Java, Cold Fusion MX and Flash MX.

Hours & Wages: 40 hours/week; $56,160/year.

Reference: Persons interested in this position may send correspondence to:

Christina Boyer-Huffaker
Werner Enterprises, Inc.
14507 Frontier Road
Omaha, NE 68145-0308

Please reference Code # KAR001

Position is located in Omaha, Nebraska. No assistance with relocation expenses is offered by the Company. Applicant must have proof of legal authority to work in the United States.

SR. PROGRAMMER/ ANALYST (WEB)
Werner Enterprises, Inc.

Duties: Participate in requirements gathering, analysis, design, modification, development, implementation and testing of software programming application, participate in code reviews; and, provide some mentoring to junior developers on techniques and processes.

Education & Training: Bachelor's degree or foreign equivalent in computer science or a related field.

Experience: Two years development experience in a corporate environment. Also requires in-depth corporate experience in Cold Fusion MX, Java Script, HTML, DHTML, SQL and IIS.

Hours & Wages: 40 hours/week; $65,000.00/year.

Reference: Persons interested in this position may send correspondence to:

Christina K. Boyer-Huffaker
Werner Enterprises, Inc.
Post Office Box 45308
Omaha, NE 68145-0308

Please reference Code # SAM001

Position is located in Omaha, Nebraska. No assistance with relocation expenses is offered by the Company. Applicant must have proof of legal authority to work in the United States.

Database Administrator Code. design and implement and Oracle database applications in Unix and NT environment; design, schedule and automate backup and recovery procedures ; monitor and troubleshoot new Oracle releases; tune and optimize database performance; mentor peers in PL/SQL programming. Unix K-shell scripting and database concepts; design, build and administer Datawarehouse system. Must have administration/development experience in Oracle, datawarehouse design/administration in healthcare industry, PL/SQL, UNIX (Tru 64 & AIX), Oracle Portal, NT operating systems and Unix shells scripts, Java Microsoft Office applications. Oracle DBA Certification and BS in Information Systems or related field plus 6 years exp., or MS in Information System and 4 yrs. related experience. Prevailing wage and benefits. AA/EOE. Send resume to Children's Hospital, 1600 7th Avenue S, Birmingham, Alabama 35233.

Computer & Information Systems Manager to analyze multiple versions of financial business software to oversee projects involving the programming, coding, and testing of the entire life cycle of ProStaff resource scheduling software to insure customized business software conforms to end users business policies and informational requirements. Uses Visual Basic, ASP, and SQL as the back end to modify, install, and support customized ProStaff software to insure proper functioning in various platforms, develops real time on-line reporting functionality for users, and ensures secure access to sensitive information by end users. Requires Bachelor's Degree in Management Information Systems or Information Systems Management. Also requires education to include completion of coursework in Project Management, Business Policy and Business Finance. Send resumes only, no calls, to: Jeffrey L. Kupiec, Taylor Made Software,Inc., 28 E. Jackson, Ste 1501, Chicago, IL 60604.

Senior Systems Engineer/Product Specialist wanted to meet with senior mgmt. at customer sites to design solutions for customers involving company products; provide Pre-/Post-sales tech. support for commercial & product activities, prepare tech. responses to RFI's, RFP's & RFQ's, provide support for product mgmt. in definition of product reqts. & direction & roadmap presentations to U.S. customers, support new business educ. & workshops; act in consulting role for select customers in relation to site configurations, product applications & services, & project reqts., perform investigative analysis on capacity & perf.; act as an expert in all areas of software test process with common core products; provide suitable product branding & marketing presence, provide support & direction to development, test, open issues & site; use past operational knowledge to assist current Operations in configuration issues, network specific issues based on Telecom standards incl. GSM, TDMA, CDMA; provide assistance in emerging Telecom Packet-switched data technologies such as GPRS & 1xRTT; act as Multi-Media Messaging center (MMSC) Primary contact for the Americas region, resp. for defining product reqts.; work with standards bodies to ensure that MMS technology is successful in the U.S.; work with handset vendors to ensure that handsets are MMS capable; work with handset apps. providers on BREW, J2ME & PocketPC Phone Edition providing functionality reqts. to enable successful MMS implementation; support Operations team on tech escalations in IP networking, Oracle 8i, LDAP, HP-UX, Informix, Ingres, Opencall, Solaris. Must have Bach. Deg. in Comp. Sci., Elec. Eng. or related field & 3 yrs. Eng. Exper. in the Telecom sector working with customer, Signaling & IP networks, incl exper with GSM, TDMA, CDMA, SS7 & UNIX. Salary $92,005/yr. Send 2 resumes to Case#200300272, Division of Career Services, Labor Certification Unit, 19 Stanford St., 1st Fl., Boston, MA 02114.

Senior Quality Assurance Engineer to test web-based business and financial applications. Develop formal test plans, document software bugs, and conduct regression tests. Develop and execute test scripts. Utilize knowledge of business and financial products and software to write and produce test scripts. Organize and implement functional quality assurance schedule. Utilize quality assurance tools and methodologies. Generate scripts for automation with WinRunner and QTP using JavaScript and VBScript. Requires Bachelor's or equivalent in Computer Science, Engineering, Mathematics, or Physics plus three (3) years experience in Job Offered OR three (3) years experience in application development. Candidate must also possess demonstrated expertise in web development using HTML, JavaScript and C++ including development of Oracle database interfaces with webserver, demonstrated expertise in Project Management, including QA life-cycle, test plan development and scheduling, and automating test scripts using WinRunner and QTP, and demonstrated expertise in testing Secure Server Authentication and Authorization Systems for online financial transaction processing systems. Salary: $85,355/yr, M-F, 9AM-5PM. Send 2 resumes to Job Order #2004-348, P.O. Box 989, Concord, NH 03302-0989. EOE. Applicants must be workers eligible to accept full-time employment in U.S.

Prog Analyst to work with Documentum 4i/5i products including WebPublisher, WebCache, Appin Builder, DFCs, DQL, WDK, W4flows, Lifecyles, ACL's, Object models. WebPublisher customizations and configurations. Create custom Java methods on Documentum eContent Server, build appins w/ WDK Documentum Admin activities, security & user mgmt. Build J2EE appins. w/sg. Jakarta ANT build tool & imp. J2EE/Object Oriented d/zn. patterns like MVC, Struts, Singelton Patterns. Dev custom interfaces w/sg. Java, WDK & DFC. Create SQL Scripts, stored procs. on Oracle 8i & SQL Server 7.0. Create XSL stylesheets & perl XML transformns. Utilize IDEs like Visual Age 3.5/4.0, Visual Café 3.1, JBuilder-3.0, Front Page 2000, Dreamweaver 5.0, ColdFusion, Allaire Home Site 4.5.1. Web development using Java, JSP, Servlets, HTML, DHTML, XML/XSL, ORACLE/SQL SERVER,and JavaScript. BS in Electronics or Electrical Eng + 2 yrs. exp in duties. Apply: BCA- Code PS 2002 Perimeter Summit Blvd, #880, Atlanta, GA 30319 w/proof of perm w/k authzn.

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Senior Network Engineer Job Site: Raleigh, NC. Analyze, design & develop advanced routing and VoIP development for Linux based system. Analyze, design & integrate network/Internet/ VoIP protocols and services such as ATM, 10/100 Ethernet, TCP/IP, ipSec, DNS, Wireless-Lan. Solve network-related problems. Supervise technical projects. Min. Req. BA Engineering + 6 yrs exp (M-F 40hrs/wk) Fax resume to: Antech Information Systems, 608 Columbus Rd., Morristown, N.J. 07960 Att: P. Maggon (973) 993-9366.

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Systems Engineer (Temple Terrace, FL) Perform network engineering and troubleshooting of data and voice networks using CISCO products voice over asynchronous transfer mode (VoATM) system network architecture (SNA) and internet protocol (IP) on internetwork operation system (IOS) platforms; monitor a large nationwide voice, data and SNA integrated network that has approximately 400 branch offices in different locations; implement and maintain large scale VoATM customer networks; troubleshoot complex network issues from network operation centers or other groups; prepare detailed technical configurations and deploy designs with emphasis on integrating new configuration with existing network conditions and promoting network stability; participate in vendor negotiations; locate product deficiencies, maintain technical documents and distribute network knowledge. Requires Bachelors degree in Computer Engineering or Computer Science and either 2 yrs exp in the job offered or 2 yrs exp in network engineering and troubleshooting data and voice networks using CISCO products, VoATM, SNA and IP on IOS platforms. Salary $86,000/yr. Mon-Fri, 8AM-5PM, 40 hrs/wk. Send resume to Worldforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to J.O. # FL-2559632

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Senior Software Engineer (Web Application Developer) (Secaucus, NJ) - Requires Master's degree (or equiv. foreign educ.) in Comp. Sci., Software Eng., or Physics & 2 years' exp. in the job offered or 2 years' exp. in the dev. of financial services transactional internet apps. in C# and C++. All stated exp. must include development of application architectures for radio-enabled devices; implementation of secure coding techniques incl. SQL injection & cross-site scripting; and use of ASP.NET & ADO.NET to design server-side applications. In lieu of a Master's degree, will accept a Bachelor's degree together with 5 years of the stipulated experience. Develop large-scale financial services transactional internet applications in C# and C++ to provide firm clients with secure, on-line access to investment information. 40 hrs./wk. Apply with resume to: Alliance Capital Management L.P., Attn: Kevin Fagan, 1345 Avenue of the Americas, 20th Floor, New York, New York 10105.

Computer Scientist
Responsible for R&D of hardware & software formal verification framework. Duties include design & implementation of formal specification language, new automated verification algorithms, overall system infrastructure; perform research in formal methods area, write research papers & technical reports. This position requires PhD. in CS with doctoral dissertation emphasis in software engineering & formal methods for analyses & verification of software & hardware systems. Research background to include design, implementation, use of model checkers, static analyzers, compilers, software verification, implementation & design skills including object technology; programming skills including C++, Schema, Emacs-Lisp, & Java; working knowledge of automatic theorem proving & formal semantics of programming languages. This position is located in Menlo Park, CA. Please apply, indicating job# 2291, via our website @ www.sri.com or mailing address at 333 Ravenswood Ave, Menlo Park, CA 94025 Attn: Employment Dept. EOE/AA.

Sr. Consultant Business Consultant
Analyze & map clients' bus reqs & objects. Establish & id objctv for implement proj w/ focus on customer team mngmt & implmntn of CEL. Oversee proj plans & ensure consistent w/ proj object. Use expert knwldg of SAP R/3 & CRM mod to engage new prods & suppnt sales. Promote & eval services to ensure approp match of servce. Prvde functional expert, guidnce & presnt & instruct to customrs. Facilitate implement & support of CRM. Travel up to 100% to client sites. Supervise 0-11. Job Loc: Newtown Sqr, PA. Req: MS in CS, Eng or B Admin + 2 yrs SAP Consultant. Will accept BS in same acad fids + 2 addl yrs exp in implementing CRM sw in lieu of MS Exp. In SAP systems & CRM solution in support of merchant bus. 40 Hrs/wk, $103k/yr. Submit resumes w/att copy to PA CareerLink, FLC Unit, RE: WEB 452498, 235 W. Chelten Ave., Phil, PA 19144

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Resume and/or cover letter must reflect each requirement above and specify reference code E/ST or it will be rejected.

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Responsible for performing basic research in intelligent agent systems & applying the results to challenging real-world problems. Responsibilities will include managing maintenance & extension of existing BDI (Belief Desire Intention) agent software & leading research efforts in the area of robustness for agent systems. Requires PhD in computer science with doctoral research & dissertation emphasis in BDI agent systems plus five years experience in the application of BDI agent systems to real-world problems. Requires publication record in BDI systems. Background must include theoretical foundations of BDI agent systems; programming in Prolog, Python, Java, and Lisp; software engineering project leadership experience. This position is located in Menlo Park, CA. Please apply, indicating job# 2283, via our website @ www.sri.com or mailing address at 333 Ravenswood Ave, Menlo Park, CA 94025. Attn: Employment Dept. EOE/AA.

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PeopleSoft

tion Users Group. "It sounded to me like [Conway] had the board's confidence in the past."

Andrew Albarelle, principal executive officer at Denver-based staffing agency Remy Corp., also said he was surprised by the change but is hopeful that it will work out for the best. The shakeup came just one week after PeopleSoft's annual user conference, where Conway made the rounds with customers. "I've spent more time with Craig in the past week than I ever had before," Albarelle said. But he added that he sees Duffield as a good leader for the company.

Other users, as well as some analysts, raised the possibility that Conway's firing could pave the way for PeopleSoft to capitulate to Oracle Corp.'s 16-month-old hostile takeover bid. Conway, a former Oracle executive himself, had vociferously opposed even entertaining the thought of selling PeopleSoft to his former employer.

"Sitting on the outside, the first question is if Conway was thrown under the bus to prevent further erosion of the Oracle bid price," said Robert Robinson, business systems supervisor at Durr Industries Inc., an automotive supplier in Plymouth, Mich.

But during PeopleSoft's teleconference, board member George "Skip" Battle said the ongoing struggle with Oracle had nothing to do with Conway's removal. He noted that PeopleSoft's transaction committee, composed entirely of independent directors, has unanimously rejected all of Oracle's offers and was never at odds with Conway on the takeover issue.

"The very simple and plain reason is that over time, the board has been concerned about Craig's leadership," Battle said. "There was no smoking gun, no accounting irregularities."


had served as PeopleSoft's CEO since 1999

"Obviously, organizations go through stages, and I think Craig brought some focus, and that was needed," said Jeffrey Weiler, chief financial officer at Gwinnett County Public Schools, a PeopleSoft user in Lawrenceville, Ga. But Weiler said that with Duffield running the company again, PeopleSoft will likely become more customer-focused than it was under Conway. That could give PeopleSoft a competitive edge as it tries to fend off Oracle's bid, he added. "It could help differentiate them."


said he's back at PeopleSoft "for the long term."

Uncertain Future

Oracle Co-President Charles Phillips declined via e-mail to comment about the changes at PeopleSoft, which also promoted Chief Financial Officer Kevin Parker and Executive Vice President Phil Wilmington to new positions as co-presidents.

PeopleSoft also said on Friday that its third-quarter software license revenue topped $150 million — a level that pleasantly surprised some financial analysts, who had expected worse after PeopleSoft missed its second-quarter sales target and Oracle reported just $69 million in business applications revenue in its latest quarter.

But Charles Di Bona, a Wall Street analyst at Sanford C. Bernstein & Co. in New York, said he sees continued problems at PeopleSoft — ones that go deeper than the confusion created by Oracle's bid. He noted that the $150 million in software revenue is 9% lower than last year's third-quarter sales figure.

"I think a large part of the loss of confidence [in Conway] really is more around the J.D. Edwards situation than Oracle," Di Bona said, referring to PeopleSoft's problematic integration of former rival J.D. Edwards & Co., which it acquired last year. "This is not a growing company; this is an ailing company."

Paul Hamerman, an analyst at Forrester Research Inc., said Conway did instill a more businesslike attitude at PeopleSoft, which was losing money when he took over as CEO. But over time, Conway focused too much on the bottom line and alienated many users, Hamerman said. He added that after moves such as increases in software maintenance prices, "the customer noise level grew to the point where [Duffield] had to step in."

Jim Prevo, CIO at Green Mountain Coffee Roasters Inc. in Waterbury, Vt., said he's glad to have Duffield back. "He made me feel personally valued by PeopleSoft," Prevo said. On the other hand, he added, Conway "seemed to be all business."

Duffield's style also might help reassure PeopleSoft employees worried about job security, said Bruce Richardson, an analyst at AMR Research Inc. PeopleSoft "needs someone to rally the employees," he added. **40816**

Stacy Cowley and Laura Rohde of the IDG News Service contributed to this story.

MORE ONLINE

Visit our Web site for special coverage of Oracle's ongoing bid for PeopleSoft.

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Continued from page 1

UDC

ization and utility computing at HP, confirmed that the "big UDC" is no longer available.

UDC components will be sold separately to "get way more sales . . . to smaller customers," Van der Zweep said. "The wrong thing to think is that we are de-investing in utility computing by modularizing the parts."

However, one result of the shift is that about 100 HP workers tied to UDC will lose their jobs, with another 100 being shifted to work on the modular offerings, he said.

"HP really did close UDC down, but they are trying very hard to spin it otherwise," said Gordon Haff, an analyst at Nashua, N.H.-based Illuminata Inc. "They are concerned that it's embarrassing to say UDC is closed and that people will take the news as meaning HP's virtualization efforts are a failure."

Ahead of Its Time?

To the contrary, Haff said he believes that UDC was a pioneering effort in utility computing technology when it was introduced in 2001 and that HP continues to have solid offerings, such as its blade server virtualization systems.

"UDC as an all-singing and all-dancing product was really more than people were looking for, frankly," he said.

Tom Reinsel, president of the independent OpenView Forum International user group for customers of HP's enterprise management software, said he's pleased by the company's change in strategy on UDC. "Modularization of UDC is good," said Reinsel, who is also CEO of Pepperweed Consulting LLC, an Indianapolis-based company that resells HP's software and does systems integration work.

Reinsel said many customers he spoke with regarded UDC as "a visionary idea" but weren't inclined to "rip out all their hardware and put in UDC." Even testing the technology was expensive, he said, citing his experiences working with two customers that had installed UDC.

The original UDC offering included components such as a network operations center, a rack of management tools that monitored available data center resources, capacity planning and optimization software, and a disk array.

Van der Zweep said HP had "dozens" of UDC customers, who on average spent between $1 million and $2 million for the technology.

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>
> **GORDON HAFF, ANALYST, ILLUMINATA INC.**

But Haff said the external user base was probably 10 to 20 customers, with the others consisting of units inside HP. "UDC as a specific product was not successful," he said.

"It was too big of a chunk for people to bite off and chew," said Rich Ptak, an analyst at Ptak, Noel & Associates in Amherst, N.H.

In a report about HP's new strategy, Gartner Inc. analysts Donna Scott and Tom Bittman said the company "realized it could not make a a positive return on its investment in UDC without changing course." **40774**

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Farmshore Future

KATHY BRITTAIN WHITE HAS A DREAM. She figures if U.S. CIOs will ship programming jobs to India to save money, maybe they'll ship them to rural Arkansas instead. So White's company, Rural Sourcing, is setting up outsourcing centers in places in the U.S. where the cost of living is low — not as low as in Bangalore, but low enough to compete with the total cost of offshoring. White also plans to get her programmers up to a high process-maturity level like those offshore programming shops (see story, page 14).

Low costs, high quality — and it's onshore. For CIOs thinking about offshoring, this really does sound like a dream. For programmers worrying about their jobs, welcome to your new nightmare.

By transplanting the offshoring model to the U.S. boonies, White is wiping out most of the emotional and political arguments against IT outsourcing — the ones anti-offshoring groups have pinned their hopes on. These U.S. jobs aren't being shipped overseas — they're being shipped to the U.S. The income tax revenue from these jobs doesn't disappear — it just comes from a different state.

Meanwhile, on the business end, White's approach hits the competition where it ain't, resolving the thorniest offshoring troubles. And as a former corporate CIO herself, White knows where all the pain points are.

Cross-cultural confusion? Transnational legal questions? Lack of direct communication? Time-zone differences? Those issues are pretty much unavoidable when programming work goes out of the country. When the work goes out *to* the country, those issues are pretty much nonexistent.

These problems have spurred some CIOs to bring IT jobs back from overseas. They're not just annoyances; they jack up the cost of offshoring and reduce the chances of success for an offshored software project. So if White's plan works, it will be a real alternative to offshoring — an alternative that actually gets rid of some of the grief offshoring generates.

Wait, it gets better, at least if you're a CIO. If White's Rural Sourcing is successful, it will expand and spawn imitators. This new "farmshoring" crowd will start to soak up the outsourcing business that companies in India, Russia, China and elsewhere were expecting to grab.



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

The offshore companies won't take that lying down. They'll beef up their offerings, improve their quality and expand their services, working to make offshoring worth the trouble.

That, in turn, will push the farmshorers to improve *their* offerings. And the cycle will continue, with the ante raised each time. That's exactly what competition is supposed to create: more choice, better deals, a buyer's market. And it's a beautiful thing if you're a customer.

Of course, it's not so beautiful if you're a programmer whose job is already at risk of being outsourced. If Rural Sourcing succeeds, your fate is sealed. Even if farmshoring doesn't make sending your job away attractive enough, it will start a race that will eventually make your situation impossible. Keeping most pure programming jobs in-house just won't make economic sense.

So now the clock is ticking for you to make a choice. You can start working to shift away from pure programming to an IT job that's a lot harder to outsource — for example, one that involves lots of hands-on work or face time with users.

Or you can move up the stack to a job that involves more business analysis, so you're writing the specifications those farmshorers will be turning into code.

Or you can get out of IT.

Or, just maybe, you can head for the country and look for your next programming job there.

That may not be what you've always dreamed of. But it's a lot more feasible than following your job to Bangalore. 49758

SHARK TANK

Starting the Day Right

This sysadmin's day begins with a user's e-mail howling that his user ID has been deleted. "And he cc:'d a lot of management types," says Ish. Then the phone rings, and Ish finds himself in conference call with his boss and all those managers. Ish quickly checks the user's status. "I tell them the user not only wasn't deleted; he had not logged on in three months," Ish says. "Then he used the wrong password five times, disabling his user profile. I reactivate and reset him — and my boss says I no longer need to be on the call."

Oops!

Newly promoted IT manager hears a worrisome sound: a constant beeping that seems to come from the primary server. "I called the vendor in a total panic to describe the sound," Ish says. "They were completely baffled, since nothing in that server beeps." Two hours of frantic calls later, Ish checks the server again. "I discovered that something was left on a keyboard on an adjacent machine, causing the beeping," he sighs. "I had to sheepishly call the vendor — and reveal my mistake to the rest of my staff."

The Cost of Y2k

It's 1999, and this IT pilot fish at a box company is working feverishly on the Y2k project. But it's not done yet, so fish must regularly tell customers who ask, "One customer canceled orders and placed them with a competitor," fish says. "That competitor contracted the work out to us, since smaller orders are our niche. We ended up making all the boxes anyway — but the customer now had a hefty markup for having the other company handle their orders."

Why?

Project manager pilot fish quits suddenly at this big health care company without giving much notice, but her director talks her into staying on part time for six weeks to ease the transition. OK, fish agrees. And then? "Two weeks into my part-time status, the director asks that I submit a weekly form," fish sighs. "One detailing my activities to justify my position."

Checkout Time

This grocery chain's buyers receive lots of electronic freebies — TVs, VCRs, handheld computers — that are routinely stored until they're given away in promotions. So when a pilot fish is looking for a wireless router to set up at an executive's beach house, he remembers a box among the free gear that has been sitting in a corner for the past year. "We opened the box," fish says. "Inside was not the router, but two jars of aged cheese. No one had thought to actually open the box and check the contents."

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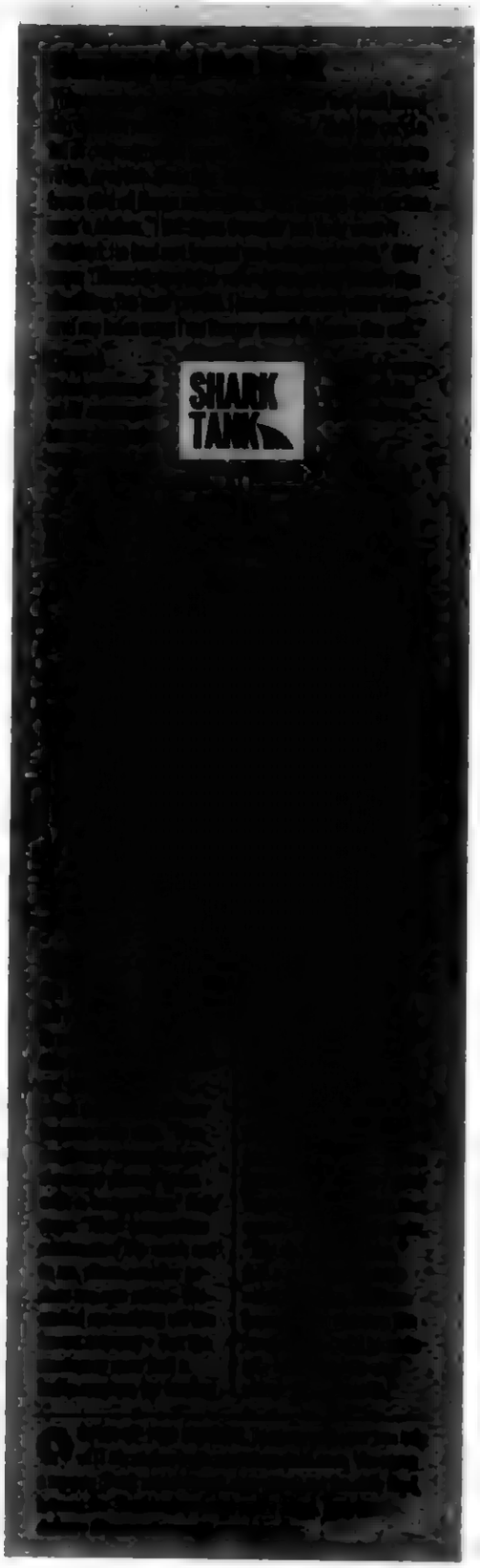
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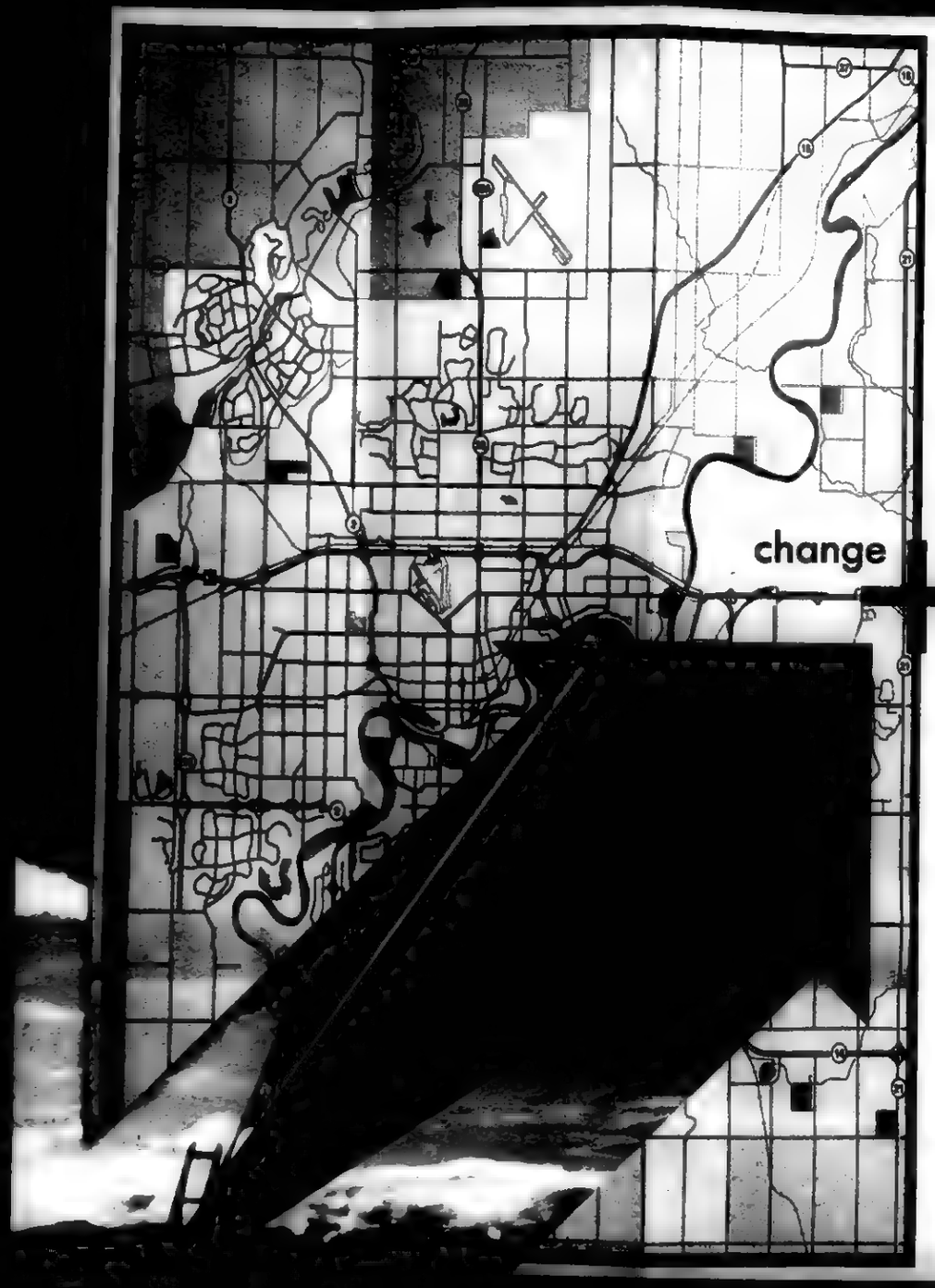
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Capgemini's cost-savings plan for TXU Corp. means layoffs for some outsourced IT workers.

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Hot Servers Not So Cool for Data Center Managers

Vendors leap ahead with dense, fast systems, but cooling issues make some users reluctant to buy

BY PATRICK THIBODEAU
ATLANTA

Low-end server technology is racing ahead of the ability of many data centers to keep the increasingly dense and fast systems cool, a problem that's stopping some IT managers from using the new machines.

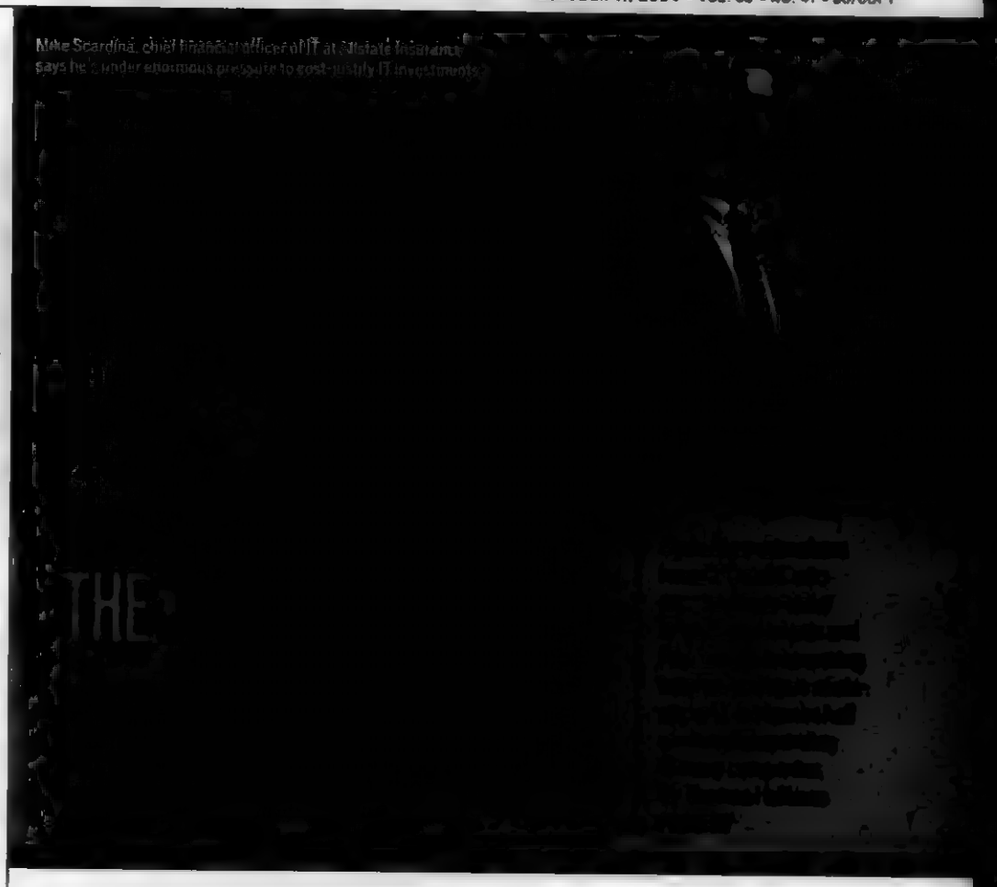
Users may have to invest in new cooling, monitoring and power equipment, or even retrofit their data centers or build new ones, to accommodate the servers.



Data center managers who gathered here last week for an AFCOM conference said server and processor vendors need to shift from building denser systems to making ones that use less power. They also need to set up development partnerships with vendors of cooling and power products, conference attendees said.

The server makers have "set their sights on making things faster and smaller, and that's all well and nice, but

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Mike Scardina, chief financial officer of IT at Allstate Insurance, says he's under enormous pressure to cost-justify IT investments.

ILM Projects Go Forward, But Slowly

IT execs face internal, technical challenges

BY LUCAS MEARIAN
LONG BEACH, CALIF.

IT managers at a conference here last week said they face daunting tasks in trying to implement information life-cycle management approaches, including classifying data based on its business value so it can be stored on different types of devices.

Another big challenge is changing the attitudes of business units that are used to getting premium storage for every byte of data, according to about 10 attendees at the inaugural ILM Solutions Conference, which was sponsored by

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JBoss App Server Gets J2EE Compliance, Draws Interest

Users start to explore open-source offerings, but concerns remain

BY CAROL SLIWA

IBM and BEA Systems Inc. hold the lead in the application server software market, but the recent release of the first J2EE-compliant open-source offering from JBoss Inc. could spark more corporate users to check out new options.

A half-dozen users of leading commercial offerings told *Computerworld* that they're beginning to explore open-source alternatives and that Java 2 Enterprise Edition compliance is important to them. But how soon or how seriously open-source application servers might challenge the market leaders is unclear.

"We will eventually implement open-source servers to help minimize costs, but our strategy is to deploy low-risk apps to them," said Gus Tepper, vice president of software development in the interactive division at First American Title Insurance Co. in Santa Ana, Calif.

IBM announces a WebSphere upgrade that can detect system outages and quickly shift transaction workloads to different machines to minimize downtime.

PHOTO BY ANDY BOOTH/IBM

First American's interactive division currently uses BEA's WebLogic application server. The unit is considering open-source options for "well-established, nonchanging applications," according to Tepper. But that will happen only after "very long and rigorous test cycles," he added.

"Common sense tells us the future of reliability and scalability comes from clusters of commodity-based hardware

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THE NUMBER CRUNCHERS

Some big corporations have CFOs of IT who oversee billion-dollar technology budgets and ROI. The job is becoming tougher, and more strategic, as IT consumes half of all capital spending at many companies. By Thomas Hoffman

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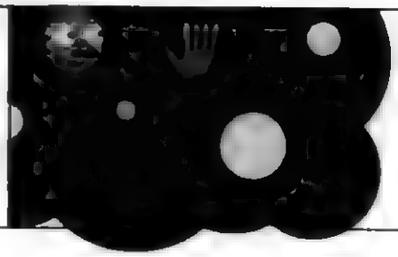
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Take Advantage of Longhorn's Lag

OPERATING SYSTEMS: Two Avanade consultants outline how the delay in Microsoft's next operating system offers you some time to prepare — in part by turning to often-underused features in existing versions of Windows. **QuickLink 40750**

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AT DEADLINE

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Changes approach on development, technical services

BY MARC L. SONGINI
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49856

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LOS ANGELES

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The analysis tool could make it easier to deliver real-time information to vehicle makers about the configurations that shoppers are seeking when they order cars online, Domeyer said, adding that such a capability could help the manufacturers improve their inventory management processes. She said the software could also make it possible for CarsDirect.com staffers to rapidly analyze the results of sales promotions and assess variables such as regional factors.

–Marc L. Songini

Outsourcing Vendor Starts to Cut IT Workers at Texas Utility

Capgemini plans layoffs, shift of 50 apps jobs to India

BY THOMAS HOFFMAN

Capgemini Energy LP, which was formed in July to manage IT and back-office operations for energy conglomerate TXU Corp., this month plans to start dismissing about 230 former TXU workers, including 50 to 75 technology staffers.

The cuts follow the Oct. 1 expiration of a three-month job security guarantee for the TXU employees and include a mix of layoffs and offshore moves. For example, Capgemini Energy CEO Bob Pryor said last week that about 50 application development and maintenance positions are being shifted to a facility in Bangalore, India, that's owned by parent company Capgemini.

Pryor added that Dallas-based Capgemini Energy plans a second wave of downsizing at TXU in February. Although Pryor declined to say how many positions might be affected at that time, he said some IT infrastructure jobs will eventually be transferred to Bangalore and to a facility in Krakow, Poland.

Slashing Costs

The layoffs and offshore transfers are part of Capgemini Energy's cost-savings strategy for TXU, which is also based in Dallas. Pryor said that before TXU turned to the outsourcing vendor to provide IT, call center and business services, it was spending more than $1 billion a year on sales, general and administrative functions.

"There's a recognition that their costs were just too high," Pryor said. The operations that were outsourced account for $500 million of TXU's SG&A expenses, he added. On Sept. 1, Capgemini Energy submitted a plan to TXU spelling out steps it would take to reduce the costs by 30% over the next 16 months while improving IT and business-process service levels.

As part of the outsourcing agreement, Capgemini Energy supports the bulk of TXU's IT operations, including its IT infrastructure and its desktop computing, application development and software maintenance activities.

Pryor said that of the 2,700 TXU employees who transferred to Capgemini Energy as part of the 10-year, $3.5 billion outsourcing agreement, roughly 800 work in IT-related positions. The first round of layoffs, which Capgemini expects to complete early next month, could reduce the IT workforce by as much as 9%.

Rick Nicholson, an analyst at Meta Group Inc., noted that the TXU/Capgemini contract is complex and was pulled together in a relatively short period of time — in only about 60 days, from what he was told. "I bet there are a number of issues that will pop up in the first year of the deal that they'll have to work through," he said.

Nicholson also questioned whether the plan to transfer jobs that support the regulated side of TXU's business out of state could be challenged by the Public Utility Commission of Texas or by state legislators.



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CA Buys Netegrity to Expand in IT Security

Product overlap issues could affect users, analysts say

BY JAIKUMAR VIJAYAN

Computer Associates International Inc. last week said it plans to buy Netegrity Inc. in an effort to boost its share of the market for identity and access management software. But the deal may result in short-term uncertainty for users because of what analysts described as a significant overlap between the tools sold by CA and Netegrity.

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But users and analysts reacted more cautiously.

A "rather complete overlap" in products could mean major problems for users, said Jonathan Penn, an analyst at Forrester Research Inc. For instance, Netegrity's SiteMinder software is a direct rival to CA's eTrust access management suite, Penn said. Similarly, the application provisioning technology that Netegrity acquired as part of its purchase of Business Layers Inc. last December overlaps with CA's provisioning software, according to Penn.

"I think there is going to be a lot of near-term confusion as to the future of some of these products," he said.

AT A GLANCE

What Netegrity brings to the table for CA:

A variety of Web access control, authorization and application provisioning tools

About 860 customers, including more than 50 Fortune 100 companies

Revenue of $78.4 million in 2003 and $47.4 million in the first half of this year

A distribution network that consists of more than 300 channel partners

Giuseppe Cimmino, director of corporate technology at Discovery Communications Inc. in New York, said it's still too early to say how the acquisition will affect him and other users. His company, which owns the Discovery Channel and other cable TV programming outlets, uses SiteMinder and the eProvisioning software that Netegrity inherited from Business Layers.

"Our main concerns will be which products survive and whether there are any impacts to Netegrity's execution of the continued integration and enhancement of the eProvisioning product," Cimmino said.

A user at a large financial services firm expressed concern that Islandia, N.Y.-based CA's purchase of Netegrity could result in higher prices for products such as the IdentityMinder software that his company uses.

"Unfortunately, my opinion is that this is a very bad move for a pretty decent product," said the user, who asked not to be identified. He added that CA "consistently overcharges" for its software and said he also expects technical support costs to "rise dramatically" from what Netegrity currently charges.

It can take years for CA to fully integrate acquired software into its tightly bundled product suites, said Jon Oltsik, an analyst at Enterprise Strategy Group Inc. in Milford, Mass. For instance, five years after CA bought Platinum Technology Inc., integration of the two companies' products remains "a work in progress," Oltsik said. "I expect the same between Netegrity and eTrust, so we're likely to see nothing but slideware for a while."

Toby Weiss, senior vice president of eTrust product management at CA, said the company will release a product integration road map after the acquisition is completed, which is expected by year's end. In response to the concerns about overlapping products, Weiss insisted that there are only superficial similarities between Netegrity's software and CA's tools.

Netegrity's strategic focus on Web services security technology complements CA's strengths in client/server access control and directory management, Weiss said. "I think this merger ultimately gives users the deepest and broadest set of identity management products," he added. 40959

AT DEADLINE

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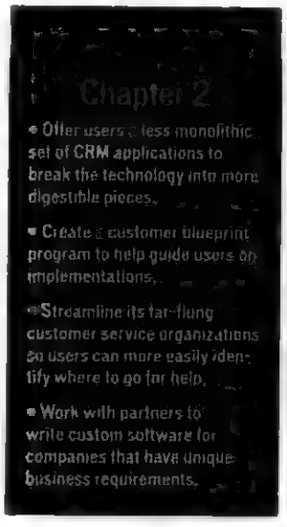
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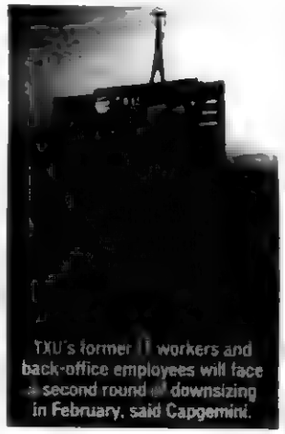
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"Unfortunately, my opinion is that this is a very bad move for a pretty decent product," said the user, who asked not to be identified. He added that CA "consistently overcharges" for its software and said he also expects technical support costs to "rise dramatically" from what Netegrity currently charges.

It can take years for CA to fully integrate acquired software into its tightly bundled product suites, said Jon Oltsik, an analyst at Enterprise Strategy Group Inc. in Milford, Mass. For instance, five years after CA bought Platinum Technology Inc., integration of the two companies' products remains "a work in progress," Oltsik said. "I expect the same between Netegrity and eTrust, so we're likely to see nothing but slideware for a while."

Toby Weiss, senior vice president of eTrust product management at CA, said the company will release a product integration road map after the acquisition is completed, which is expected by year's end. In response to the concerns about overlapping products, Weiss insisted that there are only superficial similarities between Netegrity's software and CA's tools.

Netegrity's strategic focus on Web services security technology complements CA's strengths in client/server access control and directory management, Weiss said. "I think this merger ultimately gives users the deepest and broadest set of identity management products," he added. 49959

BRIEFS

SunGard to Undo Merger Via Spin-off

SunGard Data Systems Inc. said it will split into two companies early next year by spinning off its disaster recovery unit. The move will undo the 1983 merger that created SunGard, although the Wayne, Pa.-based company said the disaster recovery unit and its financial services software division have operated independently of each other all along. No layoffs are planned, SunGard added.

Former Peregrine Execs Face Charges

A federal grand jury in San Diego indicted eight former executives of Peregrine Systems Inc. on charges of conspiracy to commit securities fraud. The charges cover a period from March 1999 through May 2002. John Mutch, who took over as Peregrine's CEO last year, said the San Diego-based software vendor "fully cooperated with the government in its investigations and will continue to do so."

Sun Details Plans For Faster CPU

Sun Microsystems Inc. introduced a new UltraSparc IV processor designed to double application performance, with features such as multithreading and expanded caches and buffers. The UltraSparc IV+ will also have a higher clock speed than Sun's existing chips, and plans call for it to reach 2 GHz one day. Shipments are due to start in mid-2005.

Short Takes

The fiscal 2005 cap on H-1B VISAS for foreign workers was reached on Oct. 1, the day the federal fiscal year began. The cap was reached even faster than had been expected [QuickLink 49794]. . . . ADVANCED MICRO DEVICES INC. reported that its third-quarter revenue was below plan, but it said that microprocessor sales remained strong.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



Web Services Put EBay, PayPal in . . .

. . . your supply chain pocket. Enterprises like Dell Inc., IBM and the state of Oregon already use eBay Inc. and its PayPal Inc. online payments division to profitably move unwanted capital goods that are gathering dust on their shelves into the hands of people who can actually use them. But eBay, which gets a small cut from each transaction processed on its site, sees a huge growth opportunity if it can make it even easier for companies to leverage its global buying community within their supply chains. Not a bad idea, since the online auction site handled more than $12 billion worth of transactions last year. So San Jose-based eBay is bulking up its Web services offerings in an attempt to entice third-party and corporate developers to more tightly integrate its online auction and payment technologies into packaged and custom applications. Matt Ackley, senior director of strategic partnerships at eBay, points to the company's development of another way to expose its application programming interfaces, through a Web service called Representational State Transfer, or Rest. The technology is designed to support secure transactional operations over the Web and is now in beta. Ackley is cagey about the final release date, but he says it won't be long. Greg Isaacs, eBay's senior manager for platform evangelism, says, "We didn't originally look at Web services as a competitive advantage, but now we do." The company also has struck deals with Borland Software Corp. and Microsoft Corp. to integrate tools for programmers to easily link eBay and PayPal into applications with their respective software development platforms. A version of Borland's JBuilder suite for Java will likely ship with eBay's tools in early '05, Isaacs says. Windows developers won't need to wait that long. Borland will provide eBay integration for .Net applications when it releases an update to its Delphi programming environment later this month. And Microsoft will include similar capabilities in a planned release of Visual Studio Express early next year. Who knows? Maybe the new, used and simply weird stuff idly depreciating on your company's books can make some money alongside all the Elvis paraphernalia.

15% Portion of total online sales done on eBay, says Forrester

Web app development demands . . .

. . . thinking small. That's the argument Jason Fried makes. He's the founder of 37 Signals LLC, a Web development house in Chicago. Fried applies smallness not just to the development team, but to the application itself. Don't make a half-baked product, "make half a product," he says. Rejecting end-user-friendly schools of thought, Fried says IT developers "ought to say no by default" to users' requests for added features. Not necessarily to their faces, but as a matter of internal policy. The point, he says, is to deliver a solid product as quickly as possible, and you can't do that if you're constantly throwing in new requirements. Plus, the hidden costs of adding features during development can be onerous. For example, developers may have to update documentation and modify user interfaces. Fried thinks a better idea is to include the most sought-after new features in an update as soon as 30 days after you release an application. That approach builds goodwill among end users and reduces the chance that you'll encounter those hidden costs, he claims.

Protect your app . . .

. . . with a software licensing tool. New York-based jProductivity LLC will ship a new version of its Protection licensing framework that lets developers control usage rights. Alexander Krivov, the company's CEO, claims that even corporate IT shops need to protect their intellectual property. He says that in a world where Web services and Java components are intermingling in applications, IT managers should have more fine-grained control over maintaining their rights to code. The new professional version of Protection ships at the end of this month and supports a variety of license models. Pricing starts at $299.


KRIVOV: Add licensing rights to corporate apps.

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. . . with the company's recent release of its Enterprise Web Suite portal. According to Jay Simons, vice president of product marketing and strategy at Plumtree Software Inc. in San Francisco, the 100% Java product was necessary not just to win bids, but to compete at all. "This opens up opportunities that we haven't been able to compete for because some companies have an ideology about pure Java," Simons says. The software runs only on Solaris now, but expect AIX, HP-UX and Linux releases over the next six months. You also might want to look at Plumtree's 6.0 release of its Content Server software. Due next month, the upgrade lets you use Microsoft Office applications to locate, open, alter and save files in your Plumtree portal. Although that was possible before through a series of menu choices, Content Server 6.0 makes it a point-and-click feature. Cool.


SIMONS says businesses want Java.

49007

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Dave Checon
Manager, Technical Services, *PING*

Make a name for yourself with Windows Server System.™ Microsoft Windows Server System makes it easier for golf club maker PING to manage the infrastructure serving their 400 end users. Here's how: By using Windows Server™ 2003 with Active Directory,® PING now centrally manages all its servers, desktops, and end users from one location. This cut annual administrative time by 800 hours. Time that can now be spent developing new ways to support customers, partners, and employees. Software that's easier to manage is software that helps you do more with less. Get the full PING story at **microsoft.com/wssystem**

Microsoft®
Windows
Server System™

IBM App Server Upgrade Aims To Reduce System Downtime

New WebSphere release can detect outages, shift data processing workloads

BY HEATHER HAVENSTEIN

IBM LAST WEEK unveiled an upgrade of its WebSphere application server software that includes new features designed to protect applications from system downtime and boost efforts by developers to create service-oriented architectures.

Version 6 of the WebSphere Application Server can detect system outages and ensure that transactions are handed off to another server to quickly restore processing operations and minimize the financial impact of downtime, said Bob Sutor, IBM's director of WebSphere foundation software. "If these transactions don't take place or are stalled in some way, someone is going to have to pay," he said.

Sutor added that instead of forcing end users to wait while a server is restarted, WebSphere can document what the disabled system was doing when it crashed and shift the transaction workload to a failover machine in the same data center or at another location — all in less than 10 seconds.

The features are designed to meet the needs of large companies that require "a lot of assurances and a lot of fault tolerance," said Shawn Willett, an analyst at Current Analysis Inc. in Sterling, Va. "This just senses things and does the recovery automatically."

Walt Smith, chief architect in IT at a large financial institution, said the functionality developed by IBM would be very appealing if it works as promised. "We have many mission-critical transactions that could benefit from the ability to perform geographic fail-over without loss of in-flight data," he said, referring to transactions that are being processed when a system problem arises. "The caveat would be that the technology would have to be bulletproof, because our customers would not tolerate any failure of the backup mechanism," added Smith, who asked that his employer not be identified.

Differentiation Trend

With Version 6, IBM is also standardizing the WebSphere programming model across the entire product family and continuing a shift of the J2EE application server market toward differentiation through proprietary features, said Massimo Pezzini, an analyst at Gartner Inc. "Users should come to terms with this trend and evaluate the trade-off between greater functionality but risk of lock-in versus freedom of choice but higher development costs," he said.

The new release is due by year's end. IBM said it will support several Web services standards and include a new messaging engine for exchanging event data between systems. Version 6 has a wizard-based, drag-and-drop user interface designed to automate common application development tasks.

Application availability will also be a key focus in the next release of BEA Systems Inc.'s rival WebLogic application server, which is due next summer. WebLogic users will be able to deploy and test a new version of a Web service on a production system without having to shut down the existing application, according to BEA officials. They added that users will be able to apply software patches to servers without bringing down applications that are running on a cluster of systems. **49961**

NEW FEATURES

WebSphere Application Server 6.0

- Support for J2EE 1.4 and Web services standards such as WS-Transactions and WS-Security
- Fail-over functionality to protect Internet applications from server outages
- A system-to-system messaging engine designed to boost performance and enable simpler connections into enterprise IT backbones

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Navy, EDS Modify Performance Measurements on Intranet Project

Clarify contract specs, copy private IT best practices

BY DAN VERTON
WASHINGTON

The U.S. Navy and Electronic Data Systems Corp. have agreed to scale back and streamline the performance measurements used to evaluate the progress that EDS is making on the $8.8 billion Navy/Marine Corps Intranet (N/MCI) project.

Navy and EDS officials said this month that the agreement reduces the number of N/MCI service-level agreements from 44 to seven and cuts the number of performance categories from 192 to 27.

Kevin Clarke, a spokesman for EDS Government Solutions, said the changes are designed to improve the N/MCI network's efficiency. "Both the [Navy] and EDS recognized the need to establish more clearly defined performance metrics that more resemble commercial IT practices," he said, adding that the revamped contract provisions give EDS a better idea of the service levels it must meet to achieve "100% seat billing" on N/MCI deployments.

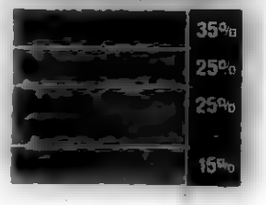
Rear Adm. James Godwin, the Navy's N/MCI program director, said the new SLAs and performance categories should save money by reducing administrative complexity and enable the Navy and EDS to more effectively monitor end-user experiences.

"For instance, instead of focusing on how long it took an e-mail to travel from sender to receiver, we were measuring how long the e-mail took to go from the sender to the first server, then to the second server, then to the third, until the e-mail finally reached the receiver," Godwin said.

He added that Navy officials "came to realize that our segmented, incremental approach to measuring N/MCI's performance was flawed and really didn't . . . reflect the end-user services received."

New Provisions

The Navy will use this weighting approach to evaluate EDS's performance on the N/MCI contract:



Other contract changes include replacing an incentive provision under which EDS received extra payments for meeting or exceeding SLAs with one that penalizes the company if it falls short of agreed-to service levels. The penalties would be applied on a quarterly basis, whereas the incentives were paid annually.

In addition, performance measurements will now be weighted according to the Navy's service priorities instead of assigning uniform weighting to all performance categories (see chart). And end-user satisfaction surveys will affect a portion of available incentive funds for the contractor, Godwin said.

N/MCI is an enterprisewide network designed to connect about 360,000 sailors, Marines and civilian employees at more than 300 bases in the U.S. and overseas. The program is the largest federal IT contract ever awarded, but it has posed challenges for EDS.

The company reported operating losses of $316 million stemming from the contract during the first half of this year, according to a filing submitted to the U.S. Securities and Exchange Commission. The filing also said that EDS has tied $775 million worth of assets to N/MCI. EDS plans to provide additional information on the progress of N/MCI when it releases its third-quarter earnings on Oct. 25.

"N/MCI remains a focus for EDS, given the contract's size, use of cash and impact on earnings," Clarke said. **49942**

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DON'T UNDERESTIMATE SPYWARE.

BRIEFS

PeopleSoft Director Says Deal Possible

A member of PeopleSoft Inc.'s board of directors said in a Delaware court that there's a "high certainty" that the company would accept Oracle Corp.'s hostile takeover offer if the price were high enough.

"Never did we imply that there were no set of conditions under which we could imagine being acquired by Oracle," said board member Steven Goldby. He was testifying during a trial in which Oracle is challenging PeopleSoft's anti-takeover defenses.

EC Relaunches Its Probe of Oracle Bid

The European Commission said it has restarted its investigation into Oracle's bid for PeopleSoft after Oracle "substantially complied" with a request for more information that was issued in April. The commission also set a Nov. 9 deadline for ruling on whether it would seek to block an acquisition of PeopleSoft by Oracle, although a decision is expected to be issued later this month.

Canadian Retailer Divests Apps Work

Boston-based Keane Inc. said its Canadian subsidiary has signed a five-year deal to take over maintenance of existing applications for Shoppers Drug Mart Corp., a Toronto-based drugstore chain. The two companies said 77 IT workers will be shifted to Keane as part of the agreement. Financial details weren't disclosed.

Short Takes

UNISYS CORP. announced plans to lay off about 1,400 workers, a move that will reduce its 37,000-person workforce by 4%. . . . Looking to increase its market presence in Europe, AVAYA INC. said it has agreed to pay $835 million to buy Tenovis GmbH, a vendor of telecommunications systems in Frankfurt.

Companies Fight Back Against Phishing Scams

Take action to curb costs, stem loss of customer confidence — and customers

BY JAIKUMAR VIJAYAN

THE POTENTIAL erosion of consumer confidence in the online transaction process and the cost to companies resulting from phishing scams has triggered a multifaceted response from some organizations.

For example, London-based Barclays Bank PLC said last week that it has signed up for an antifraud service from New York-based Cyota Inc.

Cyota's FraudAction service, which Barclays piloted for three months earlier this year, is designed to help the bank more quickly detect and shut down phishing scams involving the use of its brand. FraudAction uses a network of probes seeded around the Web to scan more than 400 million e-mails a day looking for signs of phishing attacks, said Amir Orad, a Cyota vice president.

In some instances, the service has helped Barclays detect and shut down scamming attacks in less than one hour, said Stuart MacKenzie, senior portfolio manager at Barclays.

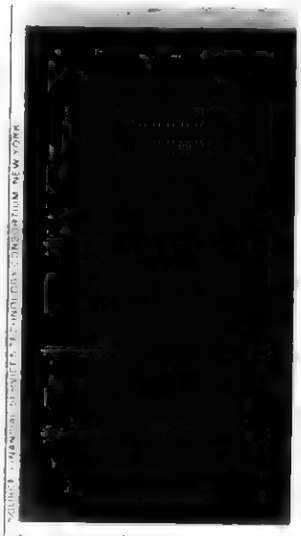
"We wanted to ensure that we protected the integrity of the channel and kept customer confidence at a level where Barclays customers continued using [online channels]," MacKenzie said.

Barclays' move is similar to one announced recently by eBay Inc., which is another favorite target of phishers. EBay is using so-called Web Caller-ID technology from Austin-based WholeSecurity Inc. that's designed to allow eBay users to verify the authenticity of a Web site.

Other companies are taking action against phishing attacks as well. Last week, the New York-based Financial Services Technology Consortium (FSTC) said a counterphishing initiative announced on Sept. 20 had so far attracted 11 financial services companies and 17 technology vendors. The initiative is focused on developing technology and operational safeguards for countering phishing. Participants include CitiGroup Inc., J.P. Morgan Chase & Co. and Visa U.S.A. Inc.

Growing Threat

The efforts come at a time when there has been a significant increase in the number of phishing attacks, which involve the use of fake e-mails and Web sites to extract confidential information from users. The Anti-Phishing Working Group, an industry association, reported 1,974 unique phishing attacks in July and said that average monthly growth rates had been exceeding 50% to that point.



SOURCE: ANTI-PHISHING WORKING GROUP, CONSORTIUM NEW YORK

Companies are being forced to respond because of costs, said Gene Neyer, a managing executive of the FSTC effort.

"There is a cost to the banks in terms of loss of consumer confidence; there's a cost to banks in terms of their ability to conduct their own business [over the Internet]," Neyer said. Other costs come from the sharp increase in customer support calls following a phishing attack and the expense related to replacing compromised cards or passwords and other confidential data, he said.

Dealing with the problem involves battles on multiple fronts, MacKenzie said, and technology approaches such as Cyota's address only part of the problem. Because phishing attacks cross international borders, broad cooperation among law enforcement authorities and Internet service providers in different countries is required to effectively deal with the issue, he said. Greater effort also needs to be made in educating people about the issue, he added.

"You can have great mousetraps for catching such attacks, but it's very difficult to shut them down," given the cross-border nature of the problem, said Avivah Litan, an analyst at Gartner Inc. Even so, deploying defensive measures is the best that companies can do, she said.

"It's better than not doing anything," Orad said. **49044**

Vendors Add Weapons to Battle E-mail Viruses

THE ABILITY of new e-mail viruses to spread before fixes become available for them is nudging some vendors to look beyond traditional signature-based antivirus technology.

Last week, Lindon, Utah-based Avinti Inc., a start-up with over $30 million in venture capital funding, introduced an e-mail security appliance designed to detect and block as-yet-unidentified e-mail viruses.

Unlike reactive signature-based products that block viruses by matching patterns, Avinti's iSolation server looks for deviations in e-mail behavior to identify threats. It intercepts all e-mail heading into a corporate network and looks at all attachments or executables in the body.

E-mail attachments and executables are opened in a virtual execution module and inspected for behaviors suggesting malicious intent. Suspect e-mail is quarantined or filtered out based on user preferences.

The technology doesn't replace signature-based antivirus products, said Teney Takahashi, an analyst at The Radicati Group Inc. in Palo Alto, Calif. "It's probably most effective as part of a comprehensive antivirus strategy," he said.

The Make-A-Wish Foundation of Utah has been testing the iSolation server for a few months and has found it to be quite useful, said network administrator Darren Massey in Salt Lake City.

Despite some early problems with false alarms, the technology helped block a recent virus that had gotten past the organization's defenses, Massey said. "It's given us another layer of protection," he said.

Avinti's announcement is similar to the one made earlier this month by IronPort Systems Inc., a San Bruno, Calif.-based vendor of e-mail security appliances and services. IronPort now sells an appliance featuring the new Virus Outbreak Filter, which uses information culled from an IronPort spam-filtering database to identify new e-mail viruses.

In beta tests by Electronic Data Systems Corp. and some of its customers, the IronPort filters have provided warnings about new viruses hours in advance, said Richard Parvins, a systems engineer at EDS.

– Jaikumar Vijayan

BRIEFS

PeopleSoft Director Says Deal Possible

A member of PeopleSoft Inc.'s board of directors said in a Delaware court that there's a "high certainty" that the company would accept Oracle Corp.'s hostile takeover offer if the price were high enough.

"Never did we imply that there were no set of conditions under which we could imagine being acquired by Oracle," said board member Steven Goldby. He was testifying during a trial in which Oracle is challenging PeopleSoft's anti-takeover defenses.

EC Relaunches Its Probe of Oracle Bid

The European Commission said it has restarted its investigation into Oracle's bid for PeopleSoft after Oracle "substantially complied" with a request for more information that was issued in April. The commission also set a Nov. 8 deadline for ruling on whether it would seek to block an acquisition of PeopleSoft by Oracle, although a decision is expected to be issued later this month.

Canadian Retailer Divests Apps Work

Boston-based Keane Inc. said its Canadian subsidiary has signed a five-year deal to take over maintenance of existing applications for Shoppers Drug Mart Corp., a Toronto-based drugstore chain. The two companies said 77 IT workers will be shifted to Keane as part of the agreement. Financial details weren't disclosed.

Short Takes

UNISYS CORP. announced plans to lay off about 1,400 workers, a move that will reduce its 37,000-person workforce by 4%. . . . Looking to increase its market presence in Europe, AVAYA INC. said it has agreed to pay $635 million to buy Tenovis GmbH, a vendor of telecommunications systems in Frankfurt.

Companies Fight Back Against Phishing Scams

Take action to curb costs, stem loss of customer confidence — and customers

BY JAIKUMAR VIJAYAN

THE POTENTIAL erosion of consumer confidence in the online transaction process and the cost to companies resulting from phishing scams has triggered a multifaceted response from some organizations.

For example, London-based Barclays Bank PLC said last week that it has signed up for an antifraud service from New York-based Cyota Inc.

Cyota's FraudAction service, which Barclays piloted for three months earlier this year, is designed to help the bank more quickly detect and shut down phishing scams involving the use of its brand. FraudAction uses a network of probes seeded around the Web to scan more than 400 million e-mails a day looking for signs of phishing attacks, said Amir Orad, a Cyota vice president.

In some instances, the service has helped Barclays detect and shut down scamming attacks in less than one hour, said Stuart MacKenzie, senior portfolio manager at Barclays.

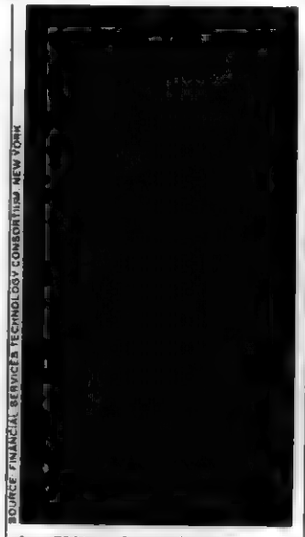
"We wanted to ensure that we protected the integrity of the channel and kept customer confidence at a level where Barclays customers continued using [online channels]," MacKenzie said.

Barclays' move is similar to one announced recently by eBay Inc., which is another favorite target of phishers. EBay is using so-called Web Caller-ID technology from Austin-based WholeSecurity Inc. that's designed to allow eBay users to verify the authenticity of a Web site.

Other companies are taking action against phishing attacks as well. Last week, the New York-based Financial Services Technology Consortium (FSTC) said a counterphishing initiative announced on Sept. 20 had so far attracted 11 financial services companies and 17 technology vendors. The initiative is focused on developing technology and operational safeguards for countering phishing. Participants include CitiGroup Inc., J.P. Morgan Chase & Co. and Visa U.S.A. Inc.

Growing Threat

The efforts come at a time when there has been a significant increase in the number of phishing attacks, which involve the use of fake e-mails and Web sites to extract confidential information from users. The Anti-Phishing Working Group, an industry association, reported 1,974 unique phishing attacks in July and said that average monthly growth rates had been exceeding 50% to that point.



SOURCE: FINANCIAL SERVICES TECHNOLOGY CONSORTIUM, NEW YORK

Companies are being forced to respond because of costs, said Gene Neyer, a managing executive of the FSTC effort.

"There is a cost to the banks in terms of loss of consumer confidence; there's a cost to banks in terms of their ability to conduct their own business [over the Internet]," Neyer said. Other costs come from the sharp increase in customer support calls following a phishing attack and the expense related to replacing compromised cards or passwords and other confidential data, he said.

Dealing with the problem involves battles on multiple fronts, MacKenzie said, and technology approaches such as Cyota's address only part of the problem. Because phishing attacks cross international borders, broad cooperation among law enforcement authorities and Internet service providers in different countries is required to effectively deal with the issue, he said. Greater effort also needs to be made in educating people about the issue, he added.

"You can have great mousetraps for catching such attacks, but it's very difficult to shut them down," given the cross-border nature of the problem, said Avivah Litan, an analyst at Gartner Inc. Even so, deploying defensive measures is the best that companies can do, she said.

"It's better than not doing anything," Orad said. 49944

Vendors Add Weapons to Battle E-mail Viruses

THE ABILITY of new e-mail viruses to spread before fixes become available for them is nudging some vendors to look beyond traditional signature-based antivirus technology.

Last week, Lindon, Utah-based Avinti Inc., a start-up with over $30 million in venture capital funding, introduced an e-mail security appliance designed to detect and block as-yet-unidentified e-mail viruses.

Unlike reactive signature-based products that block viruses by matching patterns, Avinti's ISolation server looks for deviations in e-mail behavior to identify threats. It intercepts all e-mail heading into a corporate network and looks at all attachments or executables in the body.

E-mail attachments and executables are opened in a virtual execution module and inspected for behaviors suggesting malicious intent. Suspect e-mail is quarantined or filtered out based on user preferences.

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New Tools Let Users Open Mainframe Data to Web Apps

Attachmate adds software that enables blending of legacy info, Web services

BY HEATHER HAVENSTEIN

ATTACHMATE CORP. is upgrading its mainframe connectivity product line with a pair of new tools designed to help software developers more easily tap into legacy data when building Web-based applications.

The Bellevue, Wash.-based vendor last week announced its Synapta Presentation Builder and Services Builder tools, which abstract mainframe data so developers can use it in new types of applications. Markus Nitschke, vice president of corporate marketing at Attachmate, said the new tools "provide legacy access and put a layer of abstraction on top so you can create a Web service," enabling mainframe applications to be incorporated into service-oriented architectures (SOA).

Harbor Federal Savings Bank in Fort Pierce, Fla., has used the Synapta products to build access to customer account data housed on a Unisys Corp. mainframe into Web services that support online banking transactions and inquiries, said Annetta Smith, the bank's vice president of IT.

"We needed to . . . be able to go and hit the host and hit different parts of the host," Smith said. With Synapta, the bank's developers can direct the Web services to retrieve the mainframe data, she added.

Vendors such as Attachmate, WRQ Inc. and NetManage Inc. are trying to meet demand for tools that can help developers take internally facing applications and expose them to external users without having to touch the mainframe code, said Dale Vecchio, an analyst at Gartner Inc.

"Products like Synapta are generally noninvasive," Vecchio said. "SOA is the savior of the mainframe [because] it's going to cause people to use the business logic in place and expose it as services."

First American Default Technologies in Anaheim, Calif., has used WRQ's Verastream host integration software to tie its mainframe data to an online loan-tracking application built around Microsoft Corp.'s .Net technology. With Verastream, the mortgage default servicing company was able to provide bankers and lawyers with Web-based access to loan information stored on its mainframe, said Glen Banta, First American's director of client technology.

Developers were also able to abstract and isolate the mainframe data in order to create a series of reusable services that can be combined with new business logic in Visual Studio .Net, Banta added.

"You just go through using their design tools and map out your screens," he said. "Once we have these models to access the host system, it basically turns the mainframe into a SQL database so you can leverage all types of applications."

The Synapta tools are due for release next month. Pricing starts at $125,000 per runtime for Presentation Builder and $65,000 per runtime for Services Builder. **ID 49960**

NEW SOFTWARE

Synapta Features



Continued from page 1

JBoss

and not large proprietary boxes," said Chris Brien, a systems analyst at Mark's Work Wearhouse Ltd. in Calgary, Alberta.

The retail chain is using IBM iSeries servers, which bundle WebSphere with the hardware, so open-source application server software isn't yet part of its IT planning, according to Brien. But he said he expects that will change.

Thomas Murphy, an analyst at Meta Group Inc., said that his firm has seen open-source application servers primarily used for development purposes but that it's starting to see corporate uptake of the JBoss Application Server in production applications. Still, the JBoss server's market share remains small, at about 5%, Murphy said.

Some companies, such as Hawaiian Electric Co., continue to harbor concerns about support. The Honolulu-based power company runs the Apache Tomcat servlet container in its test environment and has debated bringing the server into production, according to Richard Eber, director of development services.

"The IT staff is spread so thin that it is difficult to be able to develop an in-depth knowledge in any one product," he said. "If we were to use an open-source application server in production, we would need to have a support contract with someone we could call 24-by-7 in case we got in over our heads."

Eber said Hawaiian Electric has been a Microsoft shop for years and is only beginning to get its arms around J2EE technology. So far, that tends to be when one of its software products requires J2EE, such as the Vignette Corp. software that supports its Internet and intranet presence.

Support Factor

Unlike some open-source offerings, support is available for the new JBoss Application Server 4.0. Pricing starts at $10,500 per year for a single application, according to a JBoss spokeswoman. Support and services are also available from JBoss Authorized Service Partners, which include Computer Associates International Inc., Hewlett-Packard Co., Novell Inc. and Unisys Corp.

But support isn't the only factor holding back some companies. Ramu Kannan, a director of IT at Humana Inc., said the Louisville, Ky.-based health care provider wants to limit the number of application servers it needs to deploy. Its choice of application servers is driven by the recommendations of independent software vendors, and so far, they either haven't steered Humana toward open-source products or have certified their applications only for IBM's WebSphere or BEA's WebLogic, Kannan said.

Walt Smith, chief architect in IT at a large U.S.-based financial institution that he asked not be named, said his company requires tight integration of its J2EE-based application server with its security infrastructure to protect mission-critical customer applications. He declined to identify the application server vendor, citing security concerns.

"We view the distributed application server as a core component of our services architecture and therefore require a higher degree of interoperability and integration support for legacy systems than is available in most open-source application servers," Smith said.

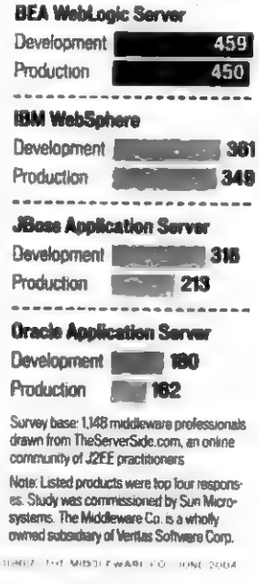
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But Shawn Willett, an analyst at Current Analysis Inc. in Sterling, Va., noted that JBoss is "very techie," geared more toward hard-core programmers, and that it doesn't have all the "bells and whistles" that the commercial offerings from IBM and BEA do.

"They are working on it," Willett said, adding that Atlanta-based JBoss has added support for enhanced features such as clustering.

The competition is certainly paying attention to open-source application servers. BEA, for instance, stopped charging for developer licenses in March 2003 in response to the growing usage of free options, said Eric Stahl, senior director of product marketing at BEA. Other vendors, including IBM, have also done that. **ID 49955**

Application Server Usage Survey



Survey base: 1,148 middleware professionals drawn from TheServerSide.com, an online community of J2EE practitioners

Note: Listed products were top four responses. Study was commissioned by Sun Microsystems. The Middleware Co. is a wholly owned subsidiary of Veritas Software Corp.

SOURCE: THE MIDDLEWARE CO., JUNE 2004

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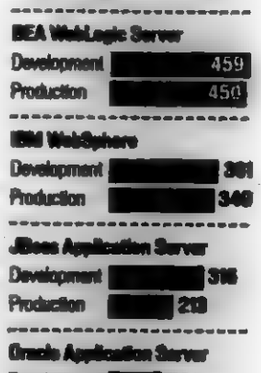
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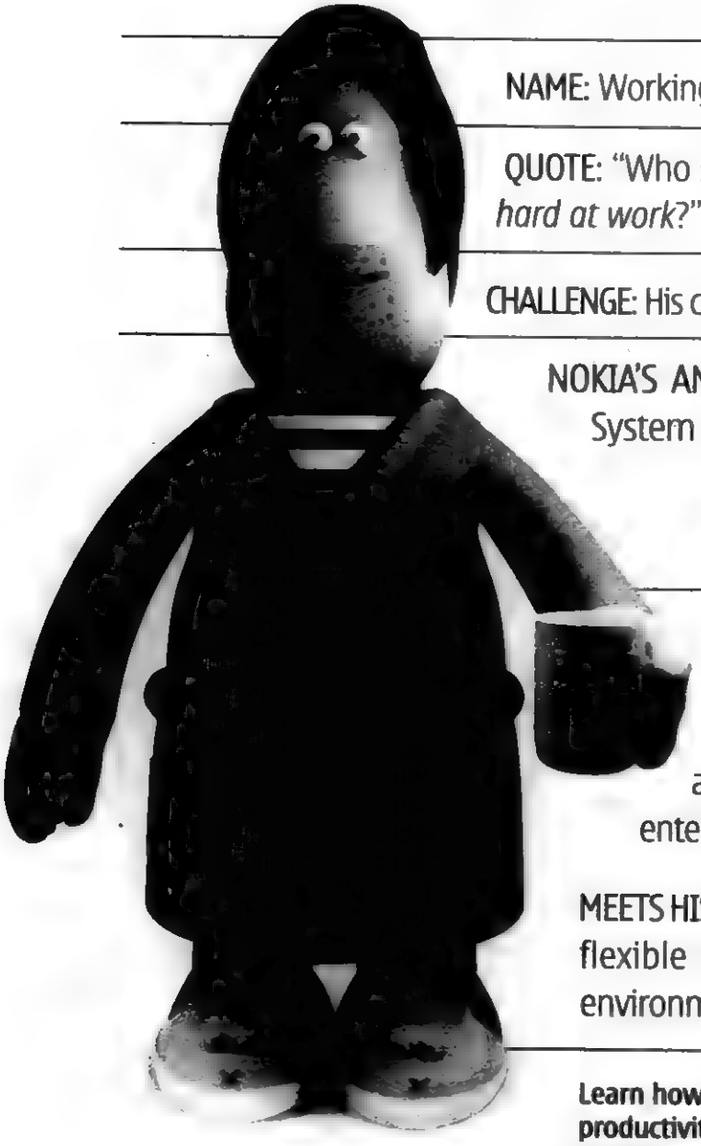
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SOURCE: THE MIDDLEWARE CO., JUNE 2004

Nokia for Business

Profiles in Business Mobility | Productivity

Working-from-Home Walter now gets more done in slippers than in wingtips.



NAME: Working-from-Home Walter

QUOTE: "Who says I have to be *at work* to be *hard at work?*"

CHALLENGE: His company needs him. His family needs him.

NOKIA'S ANSWER FOR I.T.: Nokia Secure Access System for SSL VPN Connectivity



MEETS HIS NEEDS by letting him work on his home PC when he needs to and still have access to business-critical applications like email, sales data, and enterprise resource planning software.

MEETS HIS COMPANY'S NEEDS by creating a more flexible yet cost-effective and secure work environment for valuable employees.

Learn how to mobilize your team and increase business productivity. Download "The Anytime, Anyplace World" white paper at nokiaforbusiness.com

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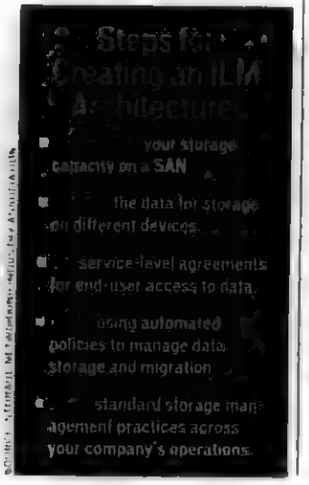
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ILM Projects

the Storage Networking Industry Association.

Users and storage vendors alike agreed that most ILM strategies are still works in progress. In addition to the internal challenges that IT managers have to contend with, ILM standards are lacking, attendees said. They also cited a need for more automated data migration capabilities and better integration between applications and storage devices.

But the sheer volume of information makes it imperative that companies begin classifying data and managing it via automated policies, said users such as Scott McIntyre, CIO at Quantum Corp. in San Jose.



Source: Storage Networking Industry Association

The need to comply with the Sarbanes-Oxley Act and other regulations "provides the opportunity for us to bludgeon our business units to where we need to go" with ILM, McIntyre said. Quantum, which makes disk and tape drives, is moving from a storage approach built around data warehousing to what McIntyre described as an information retention model. But, he added, the company is "in the early stages" of the project.

The potential business ramifications of not adopting ILM "are absolutely huge," said Joel White, lead IT architect at Allstate Insurance Co. in Northbrook, Ill. White added that Allstate's ILM strategy is twofold: The insurer is trying to achieve an enterprisewide view of all its data while consolidating and centralizing its storage infrastructure.

Mike Peterson, an analyst at Strategic Research Corp. in Santa Barbara, Calif., and program director for the SNIA's Data Management Forum, said the key issues driving ILM adoption include an inability to effectively manage data and a desire to get information out of the silos where it has traditionally been stored. But dealing with the sheer mass of data "is really an ominous challenge for the IT group," Peterson said.

Another major issue identified by conference attendees was the need to keep old applications running in order to access and read archived data.

Peter Delle Donne, CEO of Iron Mountain Inc. in Boston, said the archiving services vendor recertifies older business applications on its systems after upgrades to ensure that archived data can still be accessed. Delle Donne added that he has sometimes been able to avoid the costly practice by saving data in Portable Document Format files. With PDFs, "we can present the information for a long period of time," he said.

But others disagreed that PDF files are a viable means of staving off business application upgrades for archived data.

"PDF is not the answer," said Tom McGuire, director of IT at a large pharmaceutical company. "In fact, it's a big problem." McGuire, who asked that his company not be identified, noted that an upgraded version of PDF software he purchased last year wouldn't access data archived in an earlier format.

Jim Zhou, a senior programmer/analyst in the IT architecture and engineering group at Genentech Inc. in South San Francisco, Calif., said storage managers need to convince their company's business units that all of their data doesn't have to be stored on high-performance disk arrays.

Storage vendors should develop standardized procedures for IT departments to follow in classifying data and setting service-level agreements with business units, Zhou said. He added that business managers could then choose from a menu of ILM options. **49929**

SNIA Plans Standards Work to Help Boost ILM Usage

LONG BEACH, CALIF.

Less than 10% of all corporate data is transactional, according to consultancy McKinsey & Co. The rest is fixed data that potentially could be stored on low-end disk arrays. Yet prior to being archived, the vast majority of data is still stored on primary disk systems with annual operating costs of between 45 and 55 cents per megabyte.

"If you're not accessing it, don't leave it there," said Lou Harvey, a member of the Storage Networking Industry Association's Data Management Forum. "That's where your cost savings will be realized."

How to lower storage costs through the use of standardized ILM practices was the focus of several discussions led by members of the SNIA's ILM Technical Working Group at the ILM Solutions Conference. Working group members also detailed plans to develop best-practice guidance for users and vendors to follow in automating the migration of data across tiers of storage devices.

Chief among the efforts that will take place over the next two years are initiatives to standardize the way different industries classify their data for storage and create interoperability standards between business applications and the middleware used to manage data migration procedures.

"Classify the data, and we can build whatever storage facilities we need to store it," said Jim Carlson, a senior technical staffer at IBM's storage systems division and a member of the ILM working group within the SNIA. Carlson said it should take the working group about six months to come up with a methodology for classifying data.

Jim Doustou, technical director at Cambridge, Mass.-based storage software vendor Permabit Inc., is involved in the SNIA's efforts. He said that once standards are established, data classification shouldn't be an arduous task for users. Generally, the process shouldn't take more than six to eight weeks per line of business, he said.

"Do not do this as a big bang," Doustou advised. But, he added, "you can't deploy [ILM] technology until this is in place."

– Lucas Mearian

SAP Beefs Up Java Support Capabilities for NetWeaver

BY MARC L. SONGINI

Looking to penetrate further into the software infrastructure market, SAP AG last week announced plans to add new Java and business intelligence capabilities to its NetWeaver suite of middleware and application integration tools.

At its SAP TechEd 2004 developer conference in San Diego, the software vendor said it's building technology into NetWeaver that's designed to boost the reliability of Java-based applications. The so-called container technology uses standard Java virtual machine code and provides a lockdown feature that isolates end users from one another in order to prevent system errors from having a widespread impact, said Peter Graf, senior vice president of collaborative solutions at SAP.

"What it means from a user perspective is that the system doesn't crash," Graf said. "We've taken the reliability of SAP and made that capability available in Java."

To speed access to data for business intelligence uses, SAP is beefing up the query-processing capabilities in NetWeaver by adding advanced storage and search techniques, such as vertical decomposition, horizontal partitioning, smart compression and in-memory processing. It said the new features are aimed at users with high data volumes, a large number of simultaneous data requests and unpredictable types of queries.

The Java and business intelligence upgrades are due in the next version of the NetWeaver platform, which is scheduled for release next year.

SAP also introduced an upgrade of NetWeaver's Master Data Management module, available immediately. The company said it plans to add a global data synchronization tool in December that's optimized for the retail and consumer products industries.

David Dobrin, an analyst at Cambridge, Mass.-based consultancy B2B Analysts Inc., said the data synchronization tool is "terribly important" for companies that plan to install supply chain systems based on radio frequency identification technology. It could also play a big role in inventory management applications, he said.

SAP has many consumer product manufacturers among its user base, Dobrin said, so "anything they can do for them in this area will be welcomed as a step, however small, in the right direction." **49982**

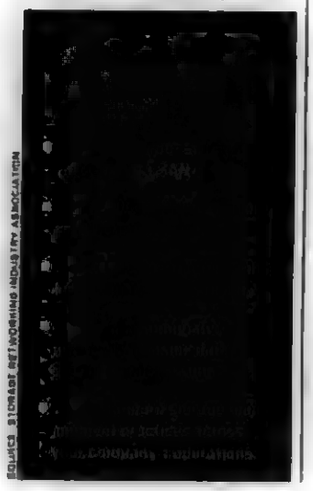
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the Storage Networking Industry Association.

Users and storage vendors alike agreed that most ILM strategies are still works in progress. In addition to the internal challenges that IT managers have to contend with, ILM standards are lacking, attendees said. They also cited a need for more automated data migration capabilities and better integration between applications and storage devices.

But the sheer volume of information makes it imperative that companies begin classifying data and managing it via automated policies, said users such as Scott McIntyre, CIO at Quantum Corp. in San Jose.



SOURCE: STORAGE NETWORKING INDUSTRY ASSOCIATION

The need to comply with the Sarbanes-Oxley Act and other regulations "provides the opportunity for us to bludgeon our business units to where we need to go" with ILM, McIntyre said. Quantum, which makes disk and tape drives, is moving from a storage approach built around data warehousing to what McIntyre described as an information retention model. But, he added, the company is "in the early stages" of the project.

The potential business ramifications of not adopting ILM "are absolutely huge," said Joel White, lead IT architect at Allstate Insurance Co. in Northbrook, Ill. White added that Allstate's ILM strategy is twofold: The insurer is trying to achieve an enterprisewide view of all its data while consolidating and centralizing its storage infrastructure.

Mike Peterson, an analyst at Strategic Research Corp. in Santa Barbara, Calif., and program director for the SNIA's Data Management Forum, said the key issues driving ILM adoption include an inability to effectively manage data and a desire to get information out of the silos where it has traditionally been stored. But dealing with the sheer mass of data "is really an ominous challenge for the IT group," Peterson said.

Another major issue identified by conference attendees was the need to keep old applications running in order to access and read archived data.

Peter Delle Donne, CEO of Iron Mountain Inc. in Boston, said the archiving services vendor recertifies older business applications on its systems after upgrades to ensure that archived data can still be accessed. Delle Donne added that he has sometimes been able to avoid the costly practice by saving data in Portable Document Format files. With PDFs, "we can present the information for a long period of time," he said.

But others disagreed that PDF files are a viable means of staving off business application upgrades for archived data.

"PDF is not the answer," said Tom McGuire, director of IT at a large pharmaceutical company. "In fact, it's a big problem." McGuire, who asked that his company not be identified, noted that an upgraded version of PDF software he purchased last year wouldn't access data archived in an earlier format.

Jim Zhou, a senior programmer/analyst in the IT architecture and engineering group at Genentech Inc. in South San Francisco, Calif., said storage managers need to convince their company's business units that all of their data doesn't have to be stored on high-performance disk arrays.

Storage vendors should develop standardized procedures for IT departments to follow in classifying data and setting service-level agreements with business units, Zhou said. He added that business managers could then choose from a menu of ILM options. **49929**

SNIA Plans Standards Work to Help Boost ILM Usage

LONG BEACH, CALIF.

Less than 10% of all corporate data is transactional, according to consultancy McKinsey & Co. The rest is fixed data that potentially could be stored on low-end disk arrays. Yet prior to being archived, the vast majority of data is still stored on primary disk systems with annual operating costs of between 45 and 55 cents per megabyte.

"If you're not accessing it, don't leave it there," said Lou Harvey, a member of the Storage Networking Industry Association's Data Management Forum. "That's where your cost savings will be realized."

How to lower storage costs through the use of standardized ILM practices was the focus of several discussions led by members of the SNIA's ILM Technical Working Group at the ILM Solutions Conference. Working group members also detailed plans to develop best-practice guidance for users and vendors to follow in automating the migration of data across tiers of storage devices.

Chief among the efforts that will take place over the next two years are initiatives to standardize the way different industries classify their data for storage and create interoperability standards between business applications and the middleware used to manage data migration procedures.

"Classify the data, and we can build whatever storage facilities we need to store it," said Jim Carlson, a senior technical staffer at IBM's storage systems division and a member of the ILM working group within the SNIA. Carlson said it should take the working group about six months to come up with a methodology for classifying data.

Jim Doustou, technical director at Cambridge, Mass.-based storage software vendor Permabit Inc., is involved in the SNIA's efforts. He said that once standards are established, data classification shouldn't be an arduous task for users. Generally, the process shouldn't take more than six to eight weeks per line of business, he said.

"Do not do this as a big bang," Doustou advised. But, he added, "you can't deploy [ILM] technology until this is in place."

– Lucas Mearian

SAP Beefs Up Java Support Capabilities for NetWeaver

BY MARC L. SONGINI

Looking to penetrate further into the software infrastructure market, SAP AG last week announced plans to add new Java and business intelligence capabilities to its NetWeaver suite of middleware and application integration tools.

At its SAP TechEd 2004 developer conference in San Diego, the software vendor said it's building technology into NetWeaver that's designed to boost the reliability of Java-based applications. The so-called container technology uses standard Java virtual machine code and provides a lockdown feature that isolates end users from one another in order to prevent system errors from having a widespread impact, said Peter Graf, senior vice president of collaborative solutions at SAP.

"What it means from a user perspective is that the system doesn't crash," Graf said. "We've taken the reliability of SAP and made that capability available in Java."

To speed access to data for business intelligence uses, SAP is beefing up the query-processing capabilities in NetWeaver by adding advanced storage and search techniques, such as vertical decomposition, horizontal partitioning, smart compression and in-memory processing. It said the new features are aimed at users with high data volumes, a large number of simultaneous data requests and unpredictable types of queries.

The Java and business intelligence upgrades are due in the next version of the NetWeaver platform, which is scheduled for release next year.

SAP also introduced an upgrade of NetWeaver's Master Data Management module, available immediately. The company said it plans to add a global data synchronization tool in December that's optimized for the retail and consumer products industries.

David Dobrin, an analyst at Cambridge, Mass.-based consultancy B2B Analysts Inc., said the data synchronization tool is "terribly important" for companies that plan to install supply chain systems based on radio frequency identification technology. It could also play a big role in inventory management applications, he said.

SAP has many consumer product manufacturers among its user base, Dobrin said, so "anything they can do for them in this area will be welcomed as a step, however small, in the right direction." **49962**

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Meet the Winners at SNW

"Best Practice" Storage Users to Be Announced October 25th at Storage Networking World Conference

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Storage Networking World (SNW), in conjunction with Computerworld and the Storage Networking Industry Association (SNIA), proudly presents the fifth SNW "Best Practices in Storage" Awards Program. This program honors ten IT user "best practice" case studies selected from a field of qualified finalists.

Two awards will be presented in each of the following five categories:

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Acknowledges implementation strategies and programs to insure highly available information and data access.

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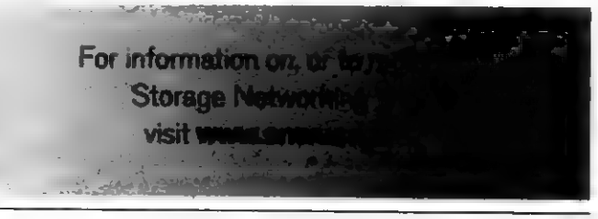
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DHS Faulted for Terrorist Data Woes

BY TODD R. WEISS

The U.S. Department of Homeland Security still isn't doing enough to integrate information that's stored in a dozen terrorist watch-list databases maintained by nine federal agencies, according to a report by the inspector general at the DHS.

The report, which was issued internally in August and made public on Oct. 1, criticizes the DHS for "not playing a lead role in consolidating terrorist watch-list information" despite the fact that the agency was given that responsibility when it was created in 2002.

The formation last year of two interagency organizations by the CIA and the FBI has helped the government make progress in sharing watch-list data that's used to monitor and apprehend terrorists, the report says. But, it adds, planning, budgeting and staffing issues related to the database integration continue to be handled on an ad hoc basis because of "the lack of central leadership and oversight," which the DHS should be providing.

Coordination Challenges

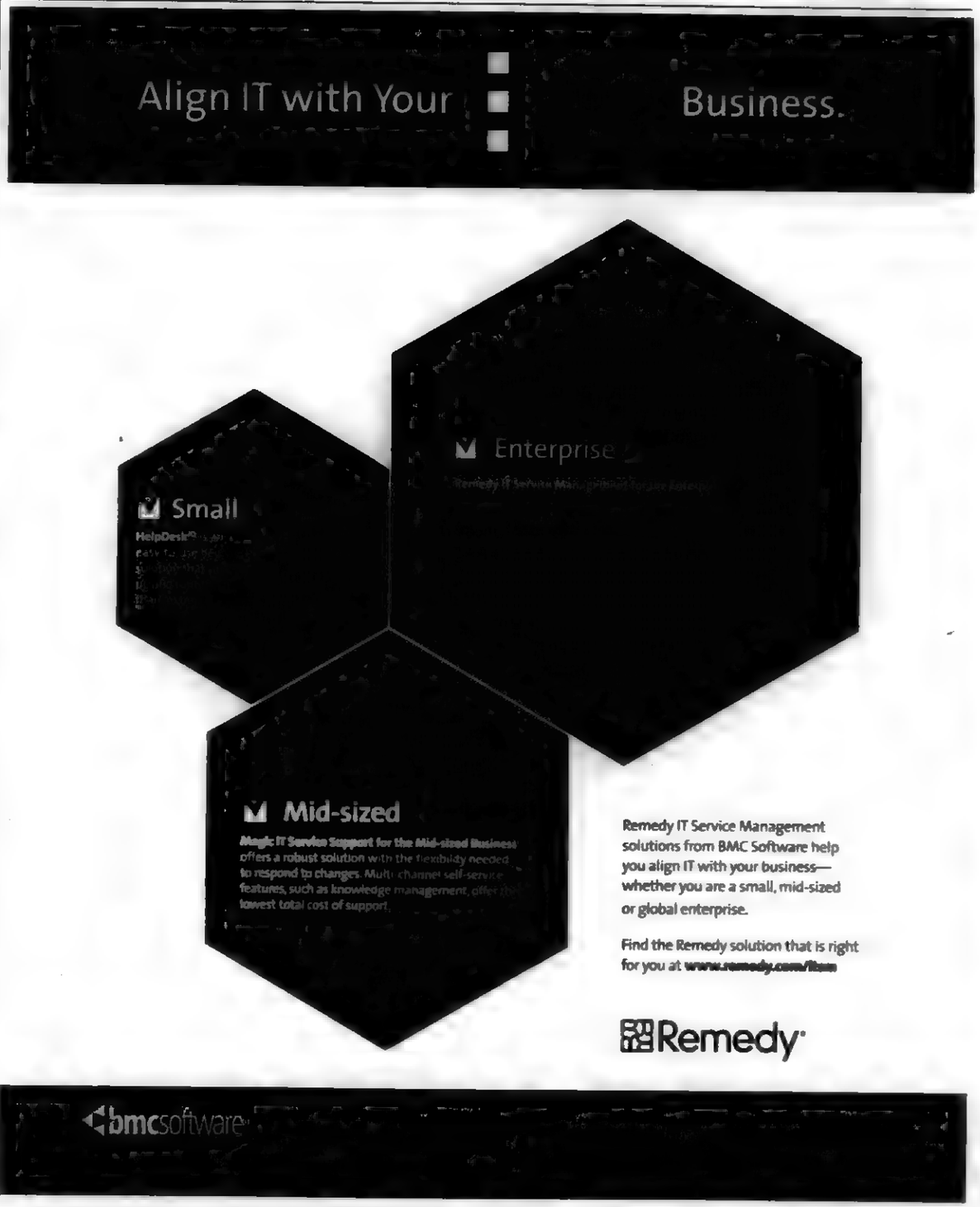
The report, signed by DHS Inspector General Clark Kent Ervin, notes that the agency said it initially lacked the resources to coordinate the watch-list work. In addition, the DHS faced major IT challenges, including the need to integrate the financial systems of its 22 member agencies, develop a departmentwide IT infrastructure and create an information assurance program.

And in a written response to the inspector general's report, Frank Libutti, the DHS undersecretary for information analysis and infrastructure protection, said he strongly disagrees that the agency has the lead responsibility for consolidating the watch-list information in the first place.

A presidential directive signed in September 2003 stated that responsibility for the effort would rest with the U.S. Department of Justice, Libutti wrote. He went on to reject the report's recommendation that his unit set up an interagency group to identify technology and resource needs and then coordinate their allocation.

A spokeswoman for Ervin said the disagreement over responsibility means that a consensus will have to be built between the DHS and DOJ before more data-sharing improvements can be made. "We can't force their hand," the spokeswoman said.

DOJ officials didn't return calls seeking comment. A spokesman for the FBI, which is part of the DOJ, declined to comment about the inspector general's report. **40908**



DON TENNANT

Handicapped Thinking

THREE WEEKS AGO in this space, I mentioned that I had a signed copy of Bill Gates' book *Business @ the Speed of Thought*, and I said I'd auction it off to raise money for The ALS Association. The winning bid was an even $100, and it came from Steve Jenkins of the M.D. Anderson Cancer Center



in Houston. I know Steve's generosity is greatly appreciated by the association, which is dedicated to finding a cure for ALS, also known as Lou Gehrig's disease, and by my dad, who is one of its victims.

In that same column, I referred to the proclivity of "Linux loonies" to reward anyone who makes a critical comment about Linux with a barrage of hate mail. In fact, I was speaking from experience: A few years ago, I wrote a tongue-in-cheek column in which I poked fun at the stupid penguin and at the absurd cult following of Linux creator Linus Torvalds. And sure enough, I received dozens of venomous e-mails from his followers. I remember one in particular that said I should "burn in hell," and another that labeled me a "Bill Gates love slave." In fact, a common theme of these folks is that anyone who would dare disparage Linux is necessarily a toady of Gates and Microsoft — for which they seem to have an irrational and disturbingly intense loathing.

Predictably, the e-mails I received from the Linux crowd following my "loonies" comment chided me for expecting anyone to be interested in a book written by Gates.

"I noticed your intent to auction off your autographed copy of *Business @ the Speed of Thought*," one person wrote. "I checked Amazon, and the going price is $0.01. New copies are going for $0.98. Since your copy is signed by Gates, I'll bid a whole dollar." And, he continued, "Seriously, why don't you auction off a boxed Linux [distribution] like Mandrake or SUSE (the least expensive you can find) at the same time. If you do, I'll start the bidding at $100."

That theme was echoed by another correspondent: "Well, considering how many times I've had to deal with Billy's products and viruses, clueless tech support, blue screens of death, security holes, hackers — I tell ya what," this person wrote. "You give me 20 bucks, and I'll haul it to the dumpster for ya. . . . Anyone that thinks I'd actually pay for that thing is . . . just a fool."

What these people just don't seem to get is that they don't need to be so mindlessly defensive anymore. Linux is no longer just the operating system of choice for a band of free-spirited, defiant techno-geeks. It's the operating system of choice for a growing number of Fortune 500 companies that are using it to run critical, enterprisewide applications. So these sorts of rants bespeak an outdated mentality that can only handicap Linux's adoption by perpetuating the impression of its immaturity.

What's especially harmful is that it tends to be a mentality of intolerance. After I thanked that second correspondent for taking the time to write, he sent me this reply: "That wasn't a joke. I've been regularly astounded that people accept this poor-quality software as much as they do. Heck, if I had cranked out this kinda crap when I was a junior programmer, I'd be an auto mechanic now!"

I wonder. I've known some brilliant, dedicated auto mechanics. Like my dad, for one. **49904**

Don Tennant



THORNTON A. MAY

The Why and What of the CFO for IT

FRANKLIN ROOSEVELT'S last written words from Warm Springs, Ga., in the spring of 1945 counseled global leaders and ordinary citizens alike on the need "to cultivate the science of human relationships." On the IT scene, a new player, the CFO for IT, is playing a huge role in this area, bridging the very significant gap between the internal IT and financial camps (see "The Number Crunchers," page 37).



I'll discuss what a CFO for IT does, but first, let's look at the state of this relationship. Data collected over three days from 300-plus CFOs attending the IT Leadership Academy, sponsored by Lawson Software, unambiguously demonstrates that IT leaders and finance professionals need to work much harder to get on the same page. Here's some of what we learned from the CFOs:

WHAT IS YOUR HUMAN RELATIONSHIP WITH IT LEADERS?

"My best friends."	12%
"Trusted colleagues."	29%
"Business colleagues, no more, no less."	39%
"People I worry about."	19%
"Enemies."	0%

WHAT IS YOUR BUSINESS RELATIONSHIP WITH YOUR COMPANY'S CIO?

"We're joined at the hip. We are so synchronized, we almost finish each other's sentences."	0%
"On the big things, we pretty much agree."	80%
"There are a few spots where we agree to disagree."	20%
"We are constantly arguing."	0%
"Sometimes I think the guy is from Mars."	0%

HOW OFTEN DO YOU AND IT LEADERS MEET PHYSICALLY TO TALK ABOUT COMMON ISSUES?

Every day	19%

Every week	37%
Every month	38%
Every quarter	11%

HOW LONG HAVE YOU WORKED WITH THE CURRENT CIO?

Less than 10 years	12%
Less than five years	48%
Less than two years	24%
Less than a year	16%

DO IT LEADERS SPEAK THE LANGUAGE OF BUSINESS?

Fluently	20%
Passably	63%
Mute	17%

DO FINANCIAL LEADERS SPEAK THE LANGUAGE OF TECHNOLOGY?

Fluently	5%
Passably	39%
Mute	49%

Since the term *chief information officer* first appeared in 1987 (in William R. Synott's book *The Information Weapon*), the chieftains of the technology and finance tribes have mostly operated in a world of antagonism and limited understanding of each other's roles.

A detailed analysis of organizations that extract the highest value from IT investments today reveals three common traits:

- A good working relationship between IT and finance.
- A well-managed, highly interactive, real-time and reasonably transparent IT investment process.
- The presence of a tribal go-between — frequently referred to as the CFO for IT.

What do CFOs for IT do?

They report to the CFO but work for the CIO. They put together the numbers for IT. They manage IT's assets. They work with their colleagues in the finance department to make financial decisions (such as which depreciation schedules to use and whether to lease or buy equipment). They maintain high-trust back-channel relations with executives in the finance department. They manage procurement. They manage the contractual side of the relationship with vendors, including auditing vendor performance. They establish common language and methods for identifying benefits of IT investments. They manage benchmark studies and IT performance information.

The CFO for IT will play a big part in the future of IT. **49675**

PIMM FOX

Public Net Connections Put at Risk

AS WE HEAD into the home stretch of the presidential election, consider this snafu: Money to support high-speed Internet and telephone service in public libraries and schools, as mandated by the Telecommunications Act of 1996, is being tied up in the type of red tape that would make a Christmas present impossible to open. About $1 billion that schools and libraries were expecting from the E-Rate program to help pay the bills for Internet and telephone service won't be arriving anytime soon.

Why? Because of a bureaucratic collision between the E-Rate program and the Anti-Deficiency Act, which is designed to enforce rigorous accounting methods for federal programs. The E-Rate program typically makes financial pledges to schools and libraries that are greater than what is in its budget. Program managers say this isn't a problem because the schools and libraries spend less than 80% of the money they request. But the Anti-Deficiency Act says this isn't the right way to run a government program, and Michael K. Powell, chairman of the Federal Communications Commission, isn't going to rock the boat on this one. He was reported as saying that any funding delays are temporary while he gets the program on a more solid footing. That sounds nice, but why then did the FCC reduce the level of phone company contributions to the E-Rate program by $550 million?

The FCC says it did this because the nonprofit Universal Service Administrative Co. (USAC), which runs the program, appeared to have too much cash on the books, and that didn't look good.



The FCC and the White House have had a couple of years to work this out. Where is the education president on this?

Anne L. Bryant, a board member of USAC, says it's more than policy — it's politics. She's been quoted as saying that "there was a lot of pressure to keep the [phone company] contribution factor down until the election passes, after which it will then have to rise again." And when it does, you can expect the cost to be passed on to consumers.

But in the meantime, some states have signaled that the lack of funding could shut down services for students and public libraries.

Does this make sense?

Not to me.

It doesn't make sense to put students and library visitors at a disadvantage because a bunch of politicians in Washington want to strangle a piece of legislation that is already law.

But this shouldn't come as a surprise. Politicians attack legislation they don't like with delays and obfuscation.

After all, students don't vote. And, heck, who goes to the library? Only those who don't have lots of money to spend on books and Internet access — or on political contributions.

Our priorities are screwed up if we don't see the urgency in spending money each year to make sure schools and libraries have the funds to stay connected.

By creating the delay, the White House and FCC are igniting three problems.

The first is that, given the inertia of the federal government, commitments already made — about $1 billion — won't be met.

The second is that putting off the spending means having to spend more in subsequent quarters.

And finally, the worst problem of them all: Government small-mindedness is hurting a group of U.S. citizens in a way that shuts them out of the Internet and prevents equal access to information and opportunity. And people wonder why *politics* is a dirty word. **49838**

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READERS' LETTERS

In Praise of Change

THE STORY DETAILING Paul Ingevaldson's "IT Survival Guide" [QuickLink 48479] was a well-done piece. I enjoyed reading about a fellow CIO who is moving on to the next phase of life by choice.

John Townsend
Carlsbad, Calif.

One More Loophole In Data Destruction

IT MIGHT BE USEFUL to add another caveat to the matters addressed in Frank Hayes' column of Aug. 30 ["Shred, Burn, Erase," QuickLink 49071]. Users, especially developers and other techies, often maintain personal backups of whatever they're working on and, often, anything they've ever worked on. Why would they do so if it violates company security policy? Because they've been burned by lost data. As a practical matter, this risk exceeds by at least an order of magnitude the risk of data theft. Naturally, when users make personal backups, informal copies will appear on workstation drives, CDs, DVDs and all of the other kinds of media on the employee's home computer. Of course, not all of the copies are remembered when it's time to clean house or move on to another employer. You can't avoid this tendency of employees entirely, but the reasonable among them will be far more likely to comply if a) the firm backs up their work in a regular, diligent and disciplined manner; b) the backups are frequently test-restored; and c) the employees are made entirely aware of a) and b).

Where a firm allows work to be done from home, it might be reasonable for it to provide or subsidize machines that connect to the VPN. Then it might reasonably request staff to present these dedicated machines for maintenance at periodic intervals or at separation.

Larry Brunella
Allen, Texas

Value Experience

HEAR! HEAR! to this statement: "Smart companies are enticing their older, wiser IT workers to remain on the job a little bit longer" ["Staying Power," QuickLink 48720]. Most CEOs are fattening their wallets with the so-called cost savings found in offshoring. But retaining the individuals who wrote your systems and have key business knowledge is invaluable.

Tim Albrecht
DBA, Wachovia Bank, Winston-Salem, N.C.

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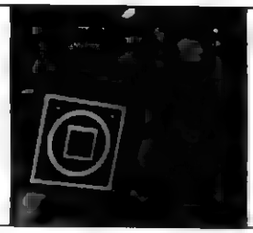
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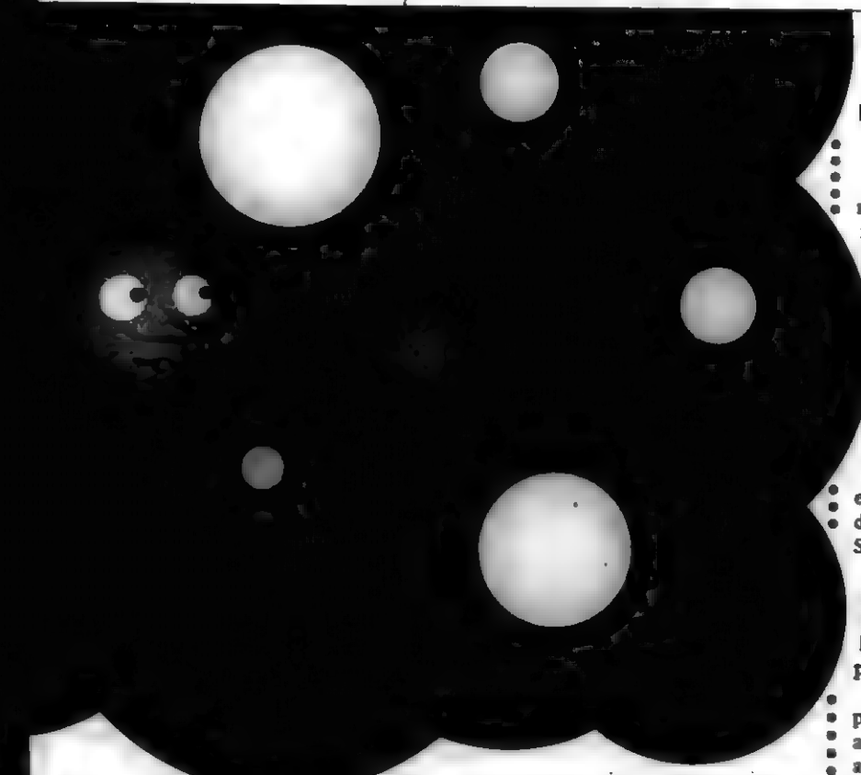
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Express Delivery
Integrated appliances offer a range of technologies to improve the speed and security of Web-enabled applications. **Page 28**

FUTURE WATCH
Grazing the Nanograss
A material made of microscopic silicon posts, nanograss may put a zoom lens in your cell phone. Bell Labs' David Bishop (right) holds a chip with 256 nanograss micromirrors for network switching. **Page 30**



SECURITY MANAGER'S JOURNAL
Security Review Uncovers Rampant Virus Infections
"C.J. Kelly," our new journal writer, finds that she has a big problem just as the IT auditors are scheduled to arrive. **Page 32**



Though federated identity management technologies promise improved access to networks and cost savings, issues of trust and interoperability slow adoption. **BY JAIKUMAR VIJAYAN**

EXTENDING Identity

GREG MABLY

THE REDUCED identity administration costs, improved access to cross-organizational applications and better security promised by federated identity management systems are finally beginning to drive corporate interest, say proponents of the technology.

But organizational trust concerns and nagging interoperability problems continue to pose big challenges.

"Identity federation has been talked about for some time, but it is only now that we are really seeing a number of customers showing interest in it," says Jason Lewis, vice president of product management at RSA Security Inc. in Bedford, Mass.

"The main reason why users are looking at federated ID management is to make it easier to do business online for their customers, business partners and their employees," he says.

Identity federation allows users to present a single set of identity and authentication information to access applications and services across multiple domains and distributed, heterogenous networks. A federated system allows a user's identity in one domain to be used to gain access to resources in another domain without the need for separate authentication.

Federated identity projects enable single sign-on to cross-organizational resources, while other identity management systems focus on improving internal access to resources.

One company that's implementing cross-domain authentication is insurance provider Nationwide Financial Services Inc., which recently deployed a federated identity system using technology from RSA Security.

The system lets thousands of Nationwide insurance agents and brokers go to a central portal site where they can access the Columbus, Ohio-based company's applications as well as applications hosted on sites belonging to some of its partners.

Previously, Nationwide's agents needed to create separate accounts and passwords with the third parties to access their applications. The partners, in turn, needed to maintain their own lists of usernames and passwords for Nationwide's agents.

With identity federation, the agents have to authenticate themselves only once on the central Nationwide portal and simply click on the appropriate links to access applications on the partner sites.

RSA's Federated ID Manager technology intercepts an agent's request with his log-in information. It generates an encrypted Security Assertion Markup Language (SAML) message containing the user's identity profile and other authentication information that the partner needs in order to let the user access its applications.

The SAML assertion and the browser session are then directed to the partner's site, where another federation server or agent parses the packaged identity information and uses it to grant access to the application the agent wanted.

Such cross-domain identity assertion can yield multiple benefits, says Daniel Blum, an analyst at Burton Group in Midvale, Utah.

"There are many different use cases for federation in the business-to-business, business-to-employee and business-to-consumer [areas]," Blum says. For example, an organization might federate identities to provide employees with access to benefits information, enable better information access to business partners or deliver more integrated services to consumers.

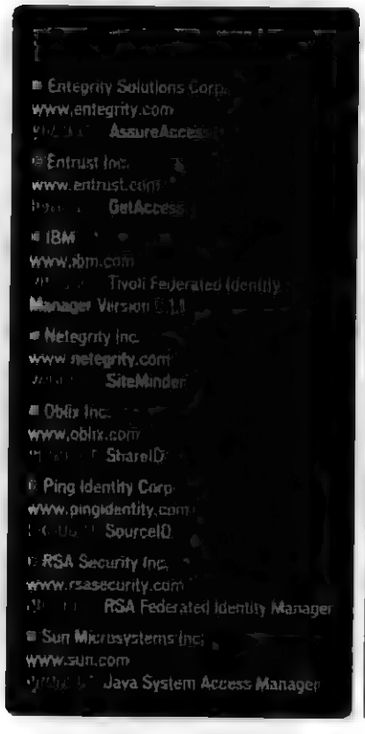
Federation can also improve security. For example, since identity information is centrally administered and managed, it becomes easier for companies to deprovision access to federated resources when an employee leaves a company or is terminated.

Such benefits have convinced a small but growing number of companies to implement federated identity management systems.

■ Harvard Pilgrim Health Care Inc. is using a federated identity model to present members with claims information from a partner site. The health care organization has deployed technology from Waltham, Mass.-based Netegrity Inc. that allows it to take a member's identity information and assert it on the claims presentation partner's Web site. The ability to deliver such access via a federated portal is a crucial competitive advantage, says Ken Patterson, information security officer at Wellesley, Mass.-based HPHC.

■ For the U.S. Navy, identity federation is a core enabler in a massive ID management project designed to make it easier for over 800,000 ship- and land-based naval personnel to access thousands of scattered applications using a single sign-on. When complete, the system will allow a sailor or marine to use a single, unique Naval Network Identity to access scores of applications and network services. Previously, users had to maintain dozens of usernames and passwords to access these different resources, says Terry Howell, enterprise services lead at the program executive office for the Navy's Command, Control, Communications, Computers and Intelligence project at the Space and Naval Warfare systems center in San Diego. Cupertino, Calif.-based Oblix Inc. is providing the Navy with the federated SAML authentication technology that is needed to assert identities across domains.

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Slowly Gaining Traction

Though adoption of the federated model is growing, the number of implementations so far is still relatively small, Blum says. "We estimate there's between 200 to 300 deployments of federated identity today," he says. "The greatest interest is in the financial services sector, with significant interest also in manufacturing, government and telecommunications."

Most of the activity has been in large companies that are using identity federation to link networks with subsidiaries, widely dispersed internal business units and partners with whom they have trusted relationships, says Venkat Raghavan, security manager of IBM's Tivoli Software business unit.

Raghavan sees the growing use of mobile technologies and the attempt by wireless providers to deliver more services to handhelds as another driver of identity federation. Being able to use next-generation mobile devices to pay multiple bills or access peer-to-peer applications will require identity federation to play a big role, he says.

Despite the growing interest, there are several formidable challenges that companies need to consider when thinking about deploying federated identity systems, he says.

The biggest by far is trust, Raghavan says. Partners in a federated system are essentially vouching for the identity of their users and their need to have access to services on another network.

Before a federated system can be set up, many issues must be sorted out relating to the roles, privileges and access rights for individuals on partner networks. There also needs to be a high level of assurance around the procedures and policies that federated partners employ for authenticating users and assigning roles to them.

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"It is really difficult to trust a network outside of what you control," says the Navy's Howell. "The negative consequences of an [identity-related security breach] could be quite drastic."

As a result, identity federation works best where the business model is built on interaction between different companies and domains, says Rick Caccia, director of product management at Oblix. When legal and trust processes are already in place, cross-domain user authentication becomes easier to accept, Caccia says.

Interoperability is another key issue, since identity federation involves the exchange of security information across different domains and servers. The most widely used standard for doing this today is SAML. Another standard is the Liberty Alliance Project's Identity Federation Framework. Both standards specify the manner in which organizations package and encrypt the identity information they share with one another.

But different versions of the specifications, and the ways in which vendors of federated identity management products have chosen to implement these standards, can create interoperability problems, Blum says.

Organizations that are embarking on identity federation projects also need to figure out a way to bring partners on board, says RSA's Lewis. Unless you make it as easy and cost-effective as possible, there is little incentive for partners — especially the smaller ones — to link into a federated identity system, he says.

At the end of the day, federation just makes cross-organizational access easier, Raghavan says. For example, an employee who previously needed to separately log in and authenticate himself on his 401(k) provider's site might no longer need to do so if he's already logged in on his employer's human resources site.

But federated identity doesn't enable new access where none existed before, Raghavan says. Therefore, it becomes crucial to have a clear understanding of the specific cost, access and security value it can deliver, he says. **49605**

STANDARDS SHUFFLE

A RELATIVE LACK of interoperability among the products that are used in a federated identity system continues to be a problem, but the situation is getting better, according to users, vendors and analysts.

In a federated identity management system, identity information is shared across heterogeneous systems by multiple organizations using standards that specify how the information is to be exchanged.

The most popular standards for doing this are SAML from the Organization for the Advancement of Structured Information Standards, or OASIS, and the Identity Federation Framework from the Liberty Alliance Project, a 150-member consortium focused on digital identity.

Products from various vendors supposedly implementing the same standards haven't always interoperated easily with one another in a federated network, says Dan Blum, a Burton Group analyst. "Interoperability is a problem," he says. "But there are some initiatives going on in the industry which are starting to ease the situation."

Among the more notable ones are the Liberty Alliance's conformance tests, which have been going on for over a year. Under the initiative, the alliance is validating interoperability of different vendor implementations of its federation specifications.

In another effort, several vendors are working with the U.S. General Services Administration on the E-Gov E-Authentication initiative to demonstrate interoperability of products using SAML. So far, products from seven vendors have passed SAML 1.0 interoperability tests and have been approved for use by federal agencies in implementing E-Authentication. The vendors include IBM, Oblix, RSA Security, Entrust Inc. and Hewlett-Packard Co.

Similar testing will be needed on another emerging standard called the Web Services Federation Language, a specification for sharing digital identities, Blum says. The companies involved in that effort include IBM, Microsoft Corp., Netegrity, Ping Identity Corp. and RSA.

"The key thing is for a user not to get bogged down with one or two vendors," says Venkat Raghavan, security manager at IBM's Tivoli Software unit.

"A [user] company cannot say, 'I only want to use Liberty or only want to use SAML.'" says Raghavan. In a federated network, users must be able to share identity information using multiple products and protocols, he adds.

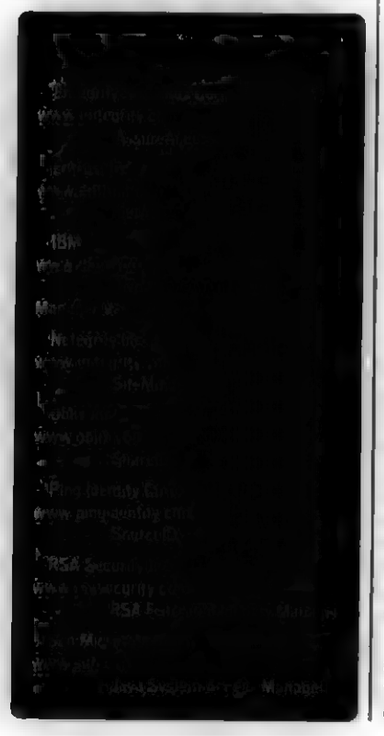
—Jaikumar Vijayan

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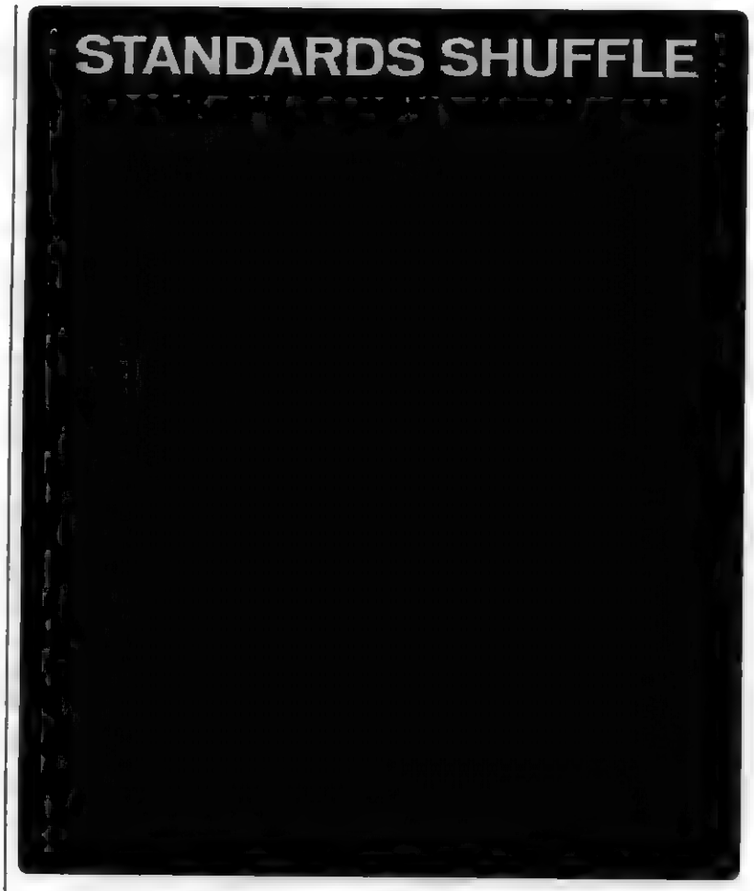
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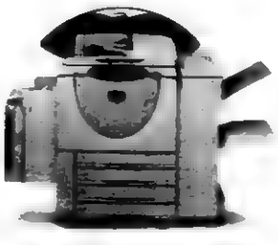
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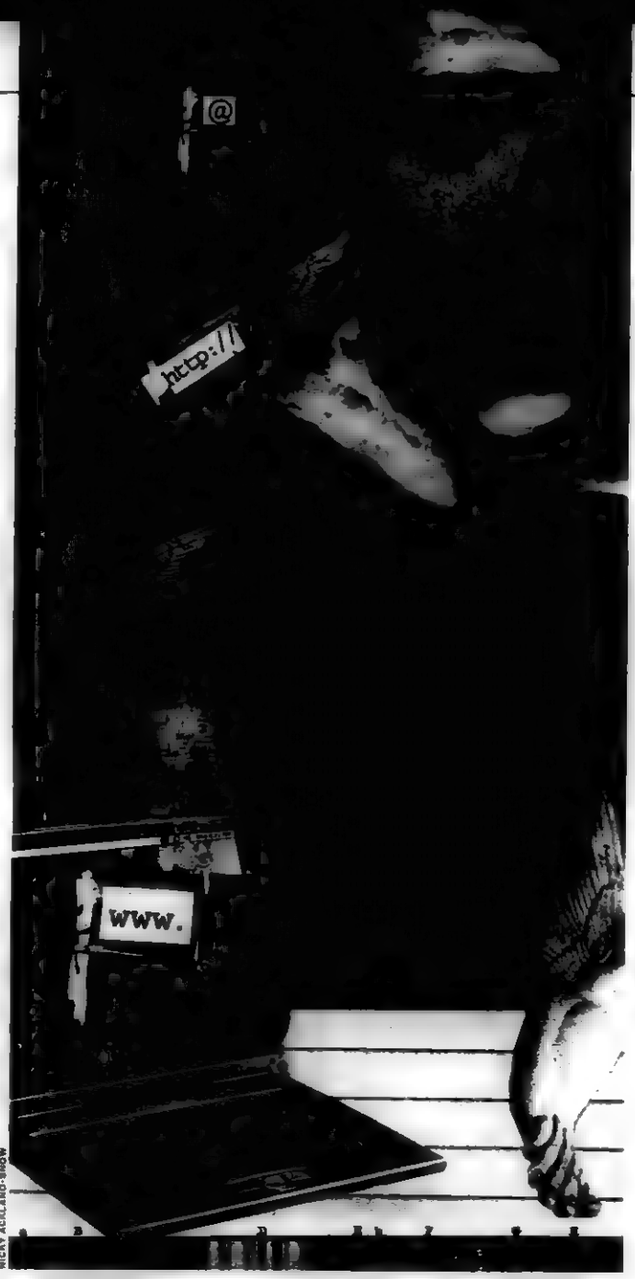
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Express DELIVERY

Web-enabled application delivery appliances combine several technologies to ensure fast, secure and reliable access to Web applications.

BY MATT HAMBLEN



NICKY ACKLAND-SHOW

CHARTONE INC. had invested heavily in a new Web-enabled application, only to discover that it reached end users too slowly. "We were having challenges running PeopleSoft efficiently," says Henry Svendblad, director of IT and information systems at the San Jose-based company, which provides technology services to health care institutions.

"The advice from vendors and integrators was to tune the application or the database or add more server hardware," Svendblad says. But he tried a different approach, spending $100,000 on four E|X 3250 Enterprise Application Processor appliances from Campbell, Calif.-based Redline Networks Inc.

By taking advantage of features such as traffic compression, load balancing, session management and TCP optimization capabilities available in the devices, Svendblad says ChartOne has improved the performance of PeopleSoft and all of its other Web applications as well. "We see on average a 70% reduction in bandwidth. It makes a night-and-day difference in the way applications go, from being very slow to snappy and very responsive," he says.

All in One

Vendors have traditionally offered an array of products — from Secure Sockets Layer (SSL) acceleration appliances to Web server load balancers — to ensure fast, reliable and secure delivery of Web-based applications. With products such as the E|X 3250, those technologies are beginning to converge

into consolidated offerings. A half-billion-dollar market has emerged for products from more than a dozen vendors that integrate, usually in a single switchlike appliance, a range of functions designed to improve the speed and security of Web-enabled applications.

The products, variously referred to as Web-enabled application delivery, Layers 4-7 switching or application front-end appliances, may support a variety of functions. Among them are SSL encryption and acceleration, compression, load balancing, route optimization and control, XML optimization, attack-signature filtering, TCP offloading and optimization, and application performance optimization. The core functions most large businesses want are compression, TCP optimization and offloading, and SSL acceleration, says Lynn Nye, an analyst at APM Advisors in Portland, Ore.

IT organizations say they're attracted to consolidated devices because they require less data center space, lessen setup and management headaches and save money by reducing the need to add hardware and bandwidth.

The leading players in this niche are smaller companies, says Mark Fabbi, an analyst at Gartner Inc. In contrast, major network switch vendors such as Cisco Systems Inc., Nortel Networks Ltd. and Foundry Networks Inc. offer load balancing, but they've mostly omitted the other optimization features needed to ensure speedy Web application delivery. "The big guys don't get it," Fabbi says.

Yet the need for such products is real. "Companies spend a lot of money on expensive applications and find the network performance is lacking," he says. "You can spend $10 million for a critical application, and the performance to remote users doesn't work well."

Gradual Rollout

ChartOne's main goal in using the E|X 3250 was to reduce bandwidth by using its compression capabilities, but Svendblad decided to use several other features as well. ChartOne's experience is similar to that of other users interviewed for this story, all of whom say their primary concern was to improve performance.

"Typically, customers buy the appliance for one function and turn on other functions as time goes on," says Nye.

UBid Inc., an online auction provider in Chicago, started using the NetScaler 9000, an appliance from NetScaler Inc. in San Jose, last March. It deployed the device to provide load balancing across the company's Web servers but quickly deployed other features, says Mano Sivashanmugam, vice president of technology.

UBid's Web site allows simultaneous bids from hundreds of users but prevents them from seeing the final bid price to protect retailers. Some users, however, had written scripts to discover the final price, he says. The NetScaler appliance prevents such scripting attacks from succeeding.

UBid had 30 Web servers before installing NetScaler, but by using its load-balancing features, UBid was able to reduce that to just eight. Sivashanmugam bought two appliances for about $60,000 but says he has saved up to $80,000 on new hardware he didn't have to buy, as well as up to $10,000 per month for additional electrical power and bandwidth that won't be needed.

"My cost of ownership is less, hosting is less, power is less, and bandwidth is a lot less," Sivashanmugam says. In all, bandwidth needs have dropped from 35Mbit/sec. to 17Mbit/sec., he estimates.

NetScaler's SSL acceleration capability also has made UBid more efficient, Sivashanmugam explains. SSL puts a strain on Web servers. As a result of offloading encryption and decryption tasks to the NetScaler appliance, the Web server request queue is much smaller — about one-tenth what it once was.

Sivashanmugam says he likes the idea of using a single product that handles all aspects of application performance. "If anything goes down, our business is down. . . . We've seen most big [vendors] take too long to understand that," he says.

For Kentucky, load balancing is a key function of four application switches running Big-IP software from F5 Networks Inc. in Seattle. But the state government also uses the switches in its four data centers to monitor traffic and the health of connections to 45 Web sites, says Rajesh Bhabaraju, a consultant at Analysts International Corp. in Minneapolis and a Web administrator for the state. Kentucky also uses Big-IP to create SSL proxies, so it doesn't need to purchase a separate SSL product from another vendor. The system has been in place for about 18 months and has helped reduce support hours and costs "drastically," says Bhabaraju.

"Big-IP primarily provides reliability," says Bhabaraju. Putting all the features together with a variety of vendors might have been too complex and wouldn't ensure ease of management or interoperability, he says.

Thinking Out of the Box

While vendors offer a variety of security and performance options from one source, the products aren't always in one box. LifeWay Christian Resources of the Southern Baptist Convention in Nashville uses two devices from Radware Inc. in Mahwah, N.J.

LifeWay, which operates 118 retail stores and provides online Bible study and other online Christian resources, installed Radware's LinkProof load balancer and FireProof firewall load-balancing products.

David Elliott, systems engineer at the nonprofit, says that when a new online curriculum was introduced, bandwidth use surged 35%, but LinkProof handled the load without adding bandwidth. Prior to LinkProof's launch, bandwidth had been sluggish across three T1 lines, Elliott says. "In that first immediate use of Radware, it got us out of the hole," he says.

Using the separate boxes, which cost about $60,000, hasn't been a problem, but the implementation of such products can be complex, Elliott warns. "It's pretty involved, and I was surprised at the level of technical knowledge that your engineers need to have," he says.

While many companies use just a few features today, some are taking maximum advantage of consolidated products. Savvis Communications Corp. in St. Louis is making full use of all of the features available in the 30 Virtual Service Switches it purchased from Inkra Networks Corp. in Fremont, Calif.

Savvis operates application infrastructure for other companies and uses Virtual Service Switches in 25 data centers to offer customers SSL acceleration, load balancing, firewall protection, intrusion detection and IPsec virtual private network tunnel termination, says CEO Rob McCormick. He says each switch costs $200,000.

With this approach, Savvis can use one switch to serve multiple customers, although some still prefer to have separate products for each function tied directly to their servers. McCormick estimates that he can replace the need for 1,200 Ethernet ports to various Web servers with one Inkra switch filling half a rack for a significant savings in space.

McCormick passes on the savings from using a consolidated appliance to customers. For example, Savvis charges customers about $1,500 per month for a dedicated, managed firewall but charges just $250 per month if the customer uses the managed firewall in its Virtual Service Switch product.

"Inkra is the only vendor I've found to pull all the functions we need into a single product," McCormick says. But as the market matures, other vendors will offer more application delivery features in their appliances. And that's something that both Savvis and other corporate IT organizations are bound to want, says Fabbi. 49489

FIVE LEADERS

While more than a dozen vendors sell Web-enabled application delivery products today, five lead the market and two are at the top of the pack, says Gartner analyst Mark Fabbi.

F5 recently announced the Traffic Management operating system for its Big-IP appliances and has added "rate shaping," which ensures that bandwidth is available for high-priority applications. Caching isn't yet available.

Radware offers its products in appliances such as its LinkProof load balancer and FireProof firewall load balancer. It also offers attack signature filtering and the LinkProof Branch product to extend control beyond the data center.

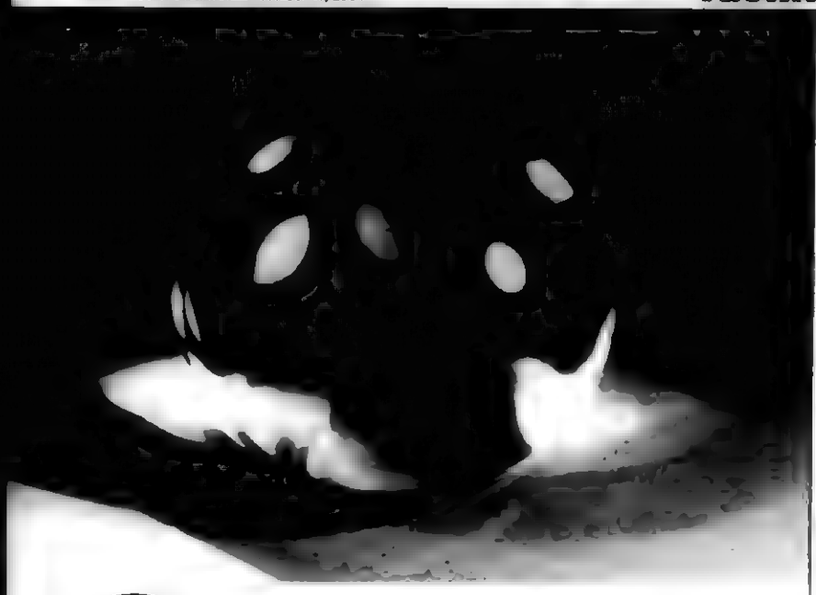
Fabbi puts **Inkra Networks**, **NetScaler** and **Redline Networks** in the next tier. The three offer similar features. Inkra has moved beyond its focus on service providers to the enterprise with its Inkra 1500 Virtual Service Switch, he says. The remaining vendors include niche players, Fabbi says. Array Networks Inc. is notable for its memory-based caching; FineGround Networks Inc. and Piva Inc. have complementary products that provide application optimization; and Nauticus Networks Inc. has strong SSL and traffic management capabilities.

– *Matt Hamblen*

PLAYING CATCH-UP

Larger vendor offerings still lack key features for Web-enabled application delivery.

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Grazing THE Nanograss

Adaptable substance may cool computers and put a zoom lens in your cell phone. By Gary H. Anthes

A drop of water glides across the flat surface like quicksilver, moving effortlessly from place to place as the surface is tilted. It's hard to believe that the little bead is water, for it doesn't wet the surface as it races around, seemingly without friction.

The little drop in this impromptu laboratory demonstration isn't on an ordinary surface. It's riding on "nanograss," a bed of upright silicon posts a thousand times thinner than a human hair. Bell Labs, the research and development arm of Lucent Technologies Inc., is betting that nanograss will find its way into commercial products ranging from low-friction boat hulls to heat sinks for computer processors and batteries with a shelf life of 25 years. It will be one of the first nanoscale technologies commercialized by Bell Labs and its partner, the New Jersey Nanotechnology Consortium (NJNC).

FUTURE WATCH

"Nanograss is a whole new class of structure, where we are nanoengineering the surface of a material," says David Bishop, a research vice president at Bell Labs and president of the NJNC. "By adjusting the area of these posts and their density, and how you pattern them, you can engineer how the fluid interacts with the substrate. So you are not stuck with what nature gave you, and you can do lots of amazing things."

It is also possible to alter the properties of nanograss on the fly by changing the temperature, applying ultrasound or a small voltage, or other means. A voltage builds up an electrical field at the tips of the nanograss, and that changes its wettability through an effect called electrowetting.

That could allow the electrodes and electrolytes in a battery to remain separated until the battery is needed, extending its shelf life indefinitely. Conventional batteries discharge at the rate of 3% to 5% a month, even when not in use. Nanograss batteries will cost less and have far higher power-to-weight ratios, researchers predict.

Bishop says other applications of nanograss include the following:

■ **Heat sinks** for computer processors and other devices. "It's very hard to get high fluid flows through small silicon channels; it kind of jams up," Bishop says. "But nanograss allows much higher fluid flow because the liquid is only interacting with one-hundredth as much surface."

Commercialization of the nanograss heat-sink idea is two to three years away, but Bell Labs is about to sign a contract with a company to develop a "smart" heat sink that can change its cooling properties as needs change, he says. The idea is noteworthy because chip makers have found that heat dissipation is one of the greatest obstacles to making silicon circuits smaller than the current generation, at 90 nanometers.

■ **Liquid lenses.** It's possible to construct tiny, cheap liquid lenses whose focal lengths and other properties can be changed very quickly by the application of electrical fields. Bishop predicts that disposable cameras and cell phones with zoom lenses based on this idea could be available in a year.

■ **"Liquid photonics."** In three to five years, nanograss might also go into switches, power splitters, filters, multiplexers and other devices in order to manipulate light in ways that are difficult to do by conventional means.

"Nanograss is an important technology because it combines a materials breakthrough with electronic properties that enhance the material and allow it to be used as a platform for a slew of applications," says Josh Wolfe, a managing partner at Lux Capital Group LLC, a venture capital firm in New York.

Wolfe says such "hybridization of disciplines" is a defining characteristic of many nanotech applications, and it allows for advancements that would have been impossible in a world where scientists generally concentrated on just one field at a time.

MPhase Technologies Inc. in Norwalk, Conn., is working with Bell Labs and the NJNC at Bell Labs' $400 million "nanofabrication laboratory" in Murray Hill, N.J., to develop nanotech batteries. The parties will share any patents that result. MPhase will produce some batteries itself and will license the technology to other battery makers, says Steve Simon, the company's executive vice president for R&D.

MPhase will make conventional nonrechargeable batteries and "reserved" batteries — those that don't combine the electrolyte and electrodes until the battery is needed, Simon says. The batteries will be used in military applications in 2006 and in commercial devices, such as cell phones, handheld devices and notebook computers, in about three years. Preliminary benchmark data from mPhase shows that the batteries will have three to four times the power-to-weight ratio of ordinary AA batteries. 49480

Gold Rush

"THE PERFECT STORM OF TECHNOLOGY."

That's what Bell Labs' David Bishop calls nanotechnology. "Physics, chemistry and biology all intersect at the nanoscale, and all have gotten there simultaneously," he says.

"Nanotech is about bringing engineering precision and discipline to a world where we know lots of interesting things happen at the nanoscale, rather than wait 5 billion years for something to evolve," he adds.

Lucent Technologies in 2003 established the New Jersey Nanotechnology Consortium, a regional partnership of Bell Labs, the state of New Jersey and the New Jersey Institute of Technology. The heart and soul of the consortium is Bell Labs' nanoscale fabrication facility, which can take an idea from concept to commercialization.

The National Science Foundation estimates that by 2015, nanotechnology will generate $1 trillion in revenue in the U.S. "It's now at a few tens of billions a year, so over the next 10 to 15 years, nanotech revenue will grow by a factor of 100," Bishop says. "No other area of technology is likely to grow at that rate. It's got a little bit of the feel of the gold rush."

– Gary H. Anthes



Bell Labs' David Bishop holds a chip that contains 256 micromirrors for high-speed network switching.



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Commercialization of the nanograss heat-sink idea is two to three years away, but Bell Labs is about to sign a contract with a company to develop a "smart" heat sink that can change its cooling properties as needs change, he says. The idea is noteworthy because chip makers have found that heat dissipation is one of the greatest obstacles to making silicon circuits smaller than the current generation, at 90 nanometers.

■ **Liquid lenses.** It's possible to construct tiny, cheap liquid lenses whose focal lengths and other properties can be changed very quickly by the application of electrical fields. Bishop predicts that disposable cameras and cell phones with zoom lenses based on this idea could be available in a year.

■ **"Liquid photonics."** In three to five years, nanograss might also go into switches, power splitters, filters, multiplexers and other devices in order to manipulate light in ways that are difficult to do by conventional means.

"Nanograss is an important technology because it combines a materials breakthrough with electronic properties that enhance the material and allow it to be used as a platform for a slew of applications," says Josh Wolfe, a managing partner at Lux Capital Group LLC, a venture capital firm in New York.

Wolfe says such "hybridization of disciplines" is a defining characteristic of many nanotech applications, and it allows for advancements that would have been impossible in a world where scientists generally concentrated on just one field at a time.

MPhase Technologies Inc. in Norwalk, Conn., is working with Bell Labs and the NJNC at Bell Labs' $400 million "nanofabrication laboratory" in Murray Hill, N.J., to develop nanotech batteries. The parties will share any patents that result. MPhase will produce some batteries itself and will license the technology to other battery makers, says Steve Simon, the company's executive vice president for R&D.

MPhase will make conventional nonrechargeable batteries and "reserved" batteries — those that don't combine the electrolyte and electrodes until the battery is needed, Simon says. The batteries will be used in military applications in 2006 and in commercial devices, such as cell phones, handheld devices and notebook computers, in about three years. Preliminary benchmark data from mPhase shows that the batteries will have three to four times the power-to-weight ratio of ordinary AA batteries. **ID 49480**




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Security Review Uncovers Rampant Virus Infections

Our new journal writer makes a most unpleasant discovery just as the IT auditors arrive. By C.J. Kelly

SECURITY MANAGER'S JOURNAL

WHEN the call came, I wasn't surprised. The voice at the other end of the line said, "Our network security analysis tool has found something we call 'suspicion indicators' on your network. I think you need to look at this right away." I had a sick feeling as my mind raced to the conversations I would soon be having with senior management. I tried to focus on the conversation at hand.

After several years of network security consulting in health care, financial services and high-tech companies, I had accepted a full-time position at a not-so-high-tech company, thinking it would be an easy, kick-back kind of job with a regular paycheck.

In the short time I've been here, I've realized that I traded one set of problems for another. Before, I could point out all the security issues to my clients and get paid for that — and require additional large sums of money for the follow-on remediation work. But now, I'm on the other end of the equation. I am now responsible for the network, and the security consultants are pointing out all the problems to me. What was I thinking?

The caller was with an outside network security company we had brought in to do a high-level security assessment. I had hired this firm under the constraints of a small budget and tight timeline, and with the internal and external IT auditors one week away from walking in the door, a quick decision was needed.

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I had interviewed a number of consulting firms and was becoming a little desperate. When I asked the team if they knew of anyone, I was introduced to a company that had developed a proprietary tool that incorporated many of the open-source tools we use. I was impressed by its functionality and said, "This is like ArcSight on steroids!" The lead security consultant's résumé read like a who's who of the scientific world. He was involved in the Internet before it was ever called that. And to top it off, he was the most unassuming and interesting person I had ever met. I hired his firm, and we got started right away.

Within days of data collection and analysis, the consultants had discovered hundreds of thousands of suspicious connections to sites all over the world, many of which were very undesirable. Using their reports, I typed in a Google search string that included the port numbers and country names. The information I found pointed to backdoor Trojan horses associated with a number of viruses. These Trojans horses had to be the culprit for the mysterious connections.

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Ports of Call

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We use Web filtering technology and have a robust antivirus program, so I couldn't understand what was going on. Then I found that most of the suspicious activity was on a network segment that wasn't being filtered, which means malicious Web sites weren't being blocked. Great. I asked the network architect if we could deploy our Web filtering technology to that segment. His answer: We needed two more routers, and it would take weeks to get the equipment in place. Roadblock.

The next step was to identify and inspect the systems from whence the connections were originating, but the DHCP logs were basically useless. Another roadblock.

I logged onto the central antivirus control manager. It was reporting that hundreds of systems were infected! I ran month-to-month reports beginning in January to see if there was a pattern. Sure enough, January through April, we had no virus outbreaks. In May, something went *boink*. From May through the present, the control manager was reporting a long list of viruses active on our network, many of which installed backdoor Trojans. This was not a good sign. I asked the data center operations manager for his help.

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SECURITY LOG

New Tool Helps Authenticate PDFs

Adobe Systems Inc. and GeoTrust Inc. announced the Certified Document Service, designed to verify and authenticate the identity of senders of Adobe PDF files. With GeoTrust's True Credentials digital signing technology, users can create "trusted electronic documents" that organizations can share, according to a statement from the two companies. The service can be used to digitally sign individual documents or large volumes of PDF files, the statement said. Pricing starts at $995 for a single-user, one-year signing credential.

F5 Improves Its VPN Technology

Seattle-based F5 Networks Inc. last week announced a new version of its FirePass Controller, Secure Sockets Layer virtual private network technology that features broader client and application access support, enhanced management capabilities and new security features. The F5 Firepass VPN lets users access any Windows, Linux, Macintosh or Solaris applications from a wide range of devices, including PDAs. A new "adaptive policy engine" allows for better management and more granular access control, F5 said. Pricing starts at $2,490 for 100 concurrent users.

Easier SSO Rollout

M-Tech Information Technology Inc. has integrated its P-Synch password management tool and Citrix Systems Inc.'s MetaFrame Password Manager. New capabilities include self-service password reset for forgotten or expired passwords, which M-Tech said can help reduce password-related calls to help desks by 80%. M-Tech also said the integrated product can let organizations deploy a single sign-on system without first acquiring current user log-ins and passwords.

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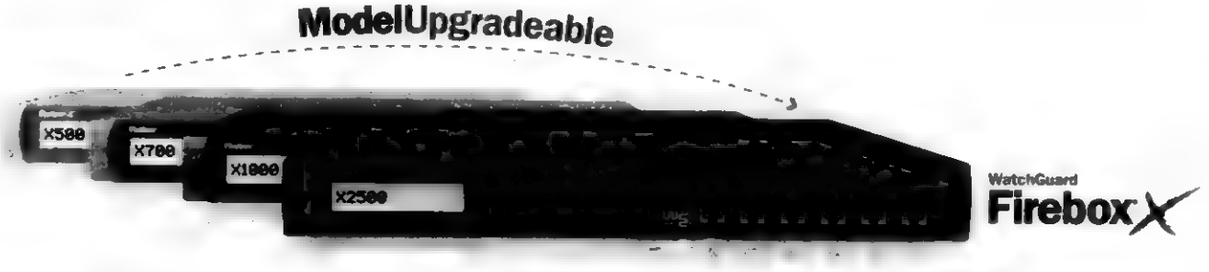
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BRIEFS

Attensity Suite for Unstructured Data

■ Attensity Corp. in Palo Alto, Calif., announced the Attensity Application Suite. It is based on Attensity Server, which extracts relational facts, entities and events from text-based information. The suite is available in versions tailored to individual vertical industries using Attensity Knowledge Libraries. Available now, Attensity Application Suite starts at $50,000.

Force10 Launches New Switch Line

■ Force10 Networks Inc. in Milpitas, Calif., last month introduced the TeraScale E-Series family of switches. The new switches deliver 672 line-rate Gigabit Ethernet ports and 56 line-rate 10 Gigabit Ethernet ports in a single chassis, according to Force10. The four-port 10 Gigabit Ethernet LAN/WAN line card, available now, sells for $48,000.

SAS Announces Forecasting App

■ SAS Institute Inc. has announced the High-Performance Forecasting application. The tool is designed to automate predictive analysis operations and make them more accessible to nontechnical users. It is expected to be particularly useful in industries such as retail, where sales are affected by seasonal variables, according to Cary, N.C.-based SAS. Pricing starts at $50,000.

Movaris Upgrades Sarb-Ox Suite

■ Movaris Inc. in Cupertino, Calif., has introduced Certainty 8.0, a modular suite of its software for managing finances according to requirements of the Sarbanes-Oxley Act. New functionality includes tools for ensuring compliance with Sections 404 and 302, according to Movaris. Certainty 8.0 runs on SQL Server, IBM DB2 and Oracle database systems.

CURT A. MONASH

Finding the Candidate for IT

WHICH U.S. PRESIDENTIAL candidate is most in tune with issues of particular interest to IT professionals?

On many subjects, the two major candidates, and their parties, are pretty equivalent. Both George Bush and John Kerry support federally subsidized universal broadband access, extension of the R&D tax credit, education pro-



grams in science and technology, and restraint on Internet taxation. Both Republicans and Democrats have a long track record of supporting a high-tech military, although Republicans sometimes overspend a bit (e.g., the "Star Wars" and artificial intelligence boondoggles of the 1980s), while Democrats may spend too little.

But on some issues of particular interest to IT professionals, there is real separation between the two candidates:

Benefits for self-employed workers. Many IT workers are or may soon become "consultants." Health insurance options for self-employed workers can be pretty grim. One major differentiator between the two candidates is Kerry's vow to provide self-employed workers with access to "the same affordable coverage policies that members of Congress get today," via an extension of the Federal Employees Health Benefits Program. Maybe he can deliver that, and maybe he can't. But either way, Kerry can at least be expected to make a major assault on the problem of health coverage for those households in which nobody is employed by a sizable enterprise. Bush expresses no similar intention, except for "medical savings accounts" — and those are supplements to health insurance, not replacements for it.

Offshore competition. A president can't stop the flow of IT jobs overseas, but he can probably slow it down. Kerry has vowed to do what he can about the outflow of jobs, while Bush's approach is wholly laissez faire.

Tax breaks for start-ups. Beyond the R&D tax credit, Bush favors tax breaks for dividend-paying corporations, while Kerry favors tax breaks for start-ups. Start-ups produce new technology, and new IT usually leads to new or better jobs.

Internet freedom. We used to believe that the Internet would simply route around censorship. But the examples of China and Vietnam show that government content control is a genuine danger to the Internet. The Bush administration's obsession with the menace of exposed flesh seems like the first step on the slippery slope of censorship.

Also crucial to the evolution of the Internet is personal data privacy. Homeland security, electronic medical records and even advanced CRM all depend on tremendous amounts of data integration. But unlimited nationwide data integration is — and probably should be — politically impractical, unless it's accompanied by strong data privacy safeguards. The costs of these safeguards should be manageable, since data privacy requirements in other countries will mean that the relevant software and systems must be developed anyway.

The USA Patriot Act, which Bush proposed and Kerry voted for, is a major assault on data privacy. Even so, Kerry distinguishes himself from Bush in this area. He has sponsored admirable data privacy legislation in the past (in partnership with Republican Sen. John McCain) and promises more in the future.

Some important IT-related issues aren't being addressed by either candidate. Federal computer systems procurement is a major fiasco, leaving us with an air traffic control system mired in the 1970s and an FBI intranet that lacks an effective search capability. Neither candidate has made a peep on the subject.

Electronic health records will be a huge savior of lives and costs, assuming that there are proper provisions for privacy and security. But while both candidates have expressed support for the idea, neither has offered a concrete plan for making it happen.

Even so, on the IT-specific issues where the candidates do have positions, Kerry has a clear advantage over Bush. And his advantage in science and technology extends beyond IT. Dozens of Nobel laureates support Kerry over Bush because of his stated commitment to solid science-based policymaking.

Most voters will probably place other issues ahead of purely IT-related ones. Iraq, terrorism, loose nukes, nuclear proliferation, abortion and AIDS prevention are all life-and-death matters. Potential Supreme Court vacancies will be hugely important. So, too, are fiscal and economic questions: Should tax cuts be funded by government borrowing? Is Bush responsible for his Hooveresque record of deficits and job losses, or can it be explained away by 9/11 and the collapse of the tech bubble?

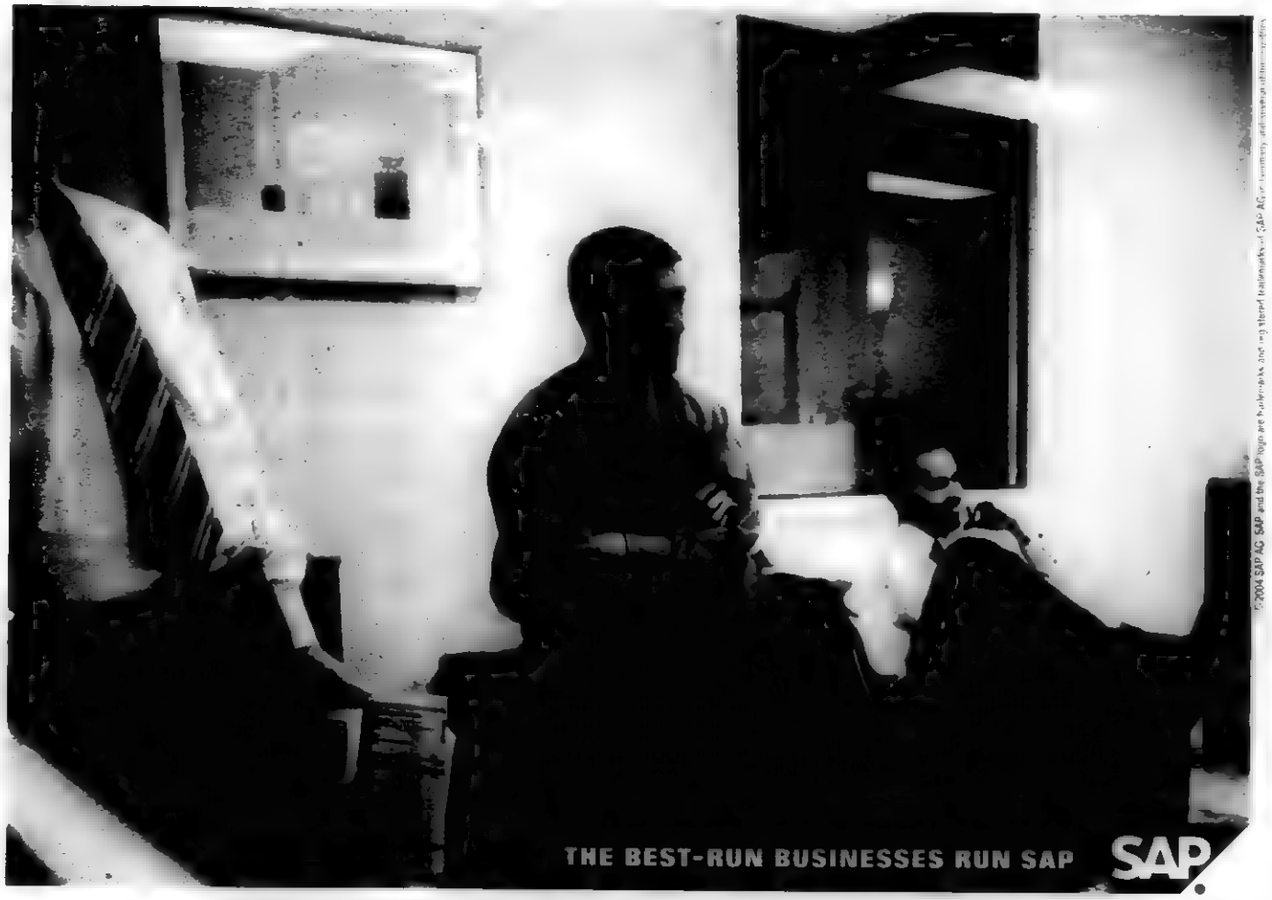
But to the extent that you're voting from an IT perspective, John Kerry is the best candidate. 40820

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Q&A
Senate CIO
J. Greg Hanson's agenda ranges from e-mail to inaugurations — all on the national stage. And talk about tough customers. **Page 40**

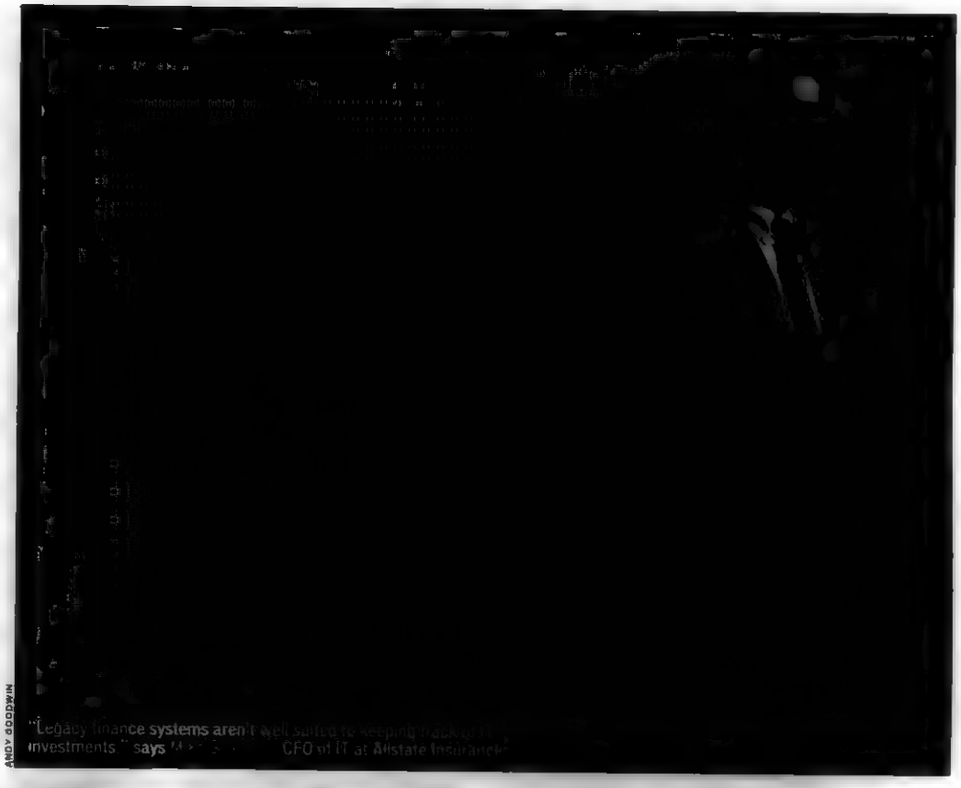


Career Watch
GMAC's Chris Laping offers advice for making midlife career changes and dealing with problem employees. Also, top B-schools for IT; the morphing CIO; and small companies lead in IT hiring. **Page 42**

OPINION
Development Drop-Down Budgeting
Ongoing infrastructure and support costs for new development can throw your hard-won budget out of whack, says Bart Perkins. Here's how to avoid nasty surprises. **Page 43**

THE NUMBER CRUNCHERS

CFOs of IT face an uphill course in their efforts to measure and quantify the often intangible benefits of technology. By Thomas Hoffman



ANDY GOODWIN

"Legacy finance systems aren't well suited to keeping track of IT investments," says [illegible], CFO of IT at Allstate Insurance.

MIKE SCARDINA has been the chief financial officer for IT at Allstate Insurance Co. for nearly 10 years. But it's only in the past few years that the spotlight on his role has intensified. Allstate's annual technology spending has swelled to more than $1 billion a year, and Scardina has come under enormous pressure from senior management to help cost-justify the Northbrook, Ill.-based insurer's technology investments.

"It's not enough to say we're going to spend $150 million on a data center. People will ask, 'Well, yeah, but why $150 million and not $75 million?' " he says.

As IT spending has soared to half of all capital expenditures at many companies, so-called CFOs of IT are being required by top brass to provide greater clarity and transparency around those investments.

"I define my role this way: to determine and explain to senior management what AIG is spending on IT and to provide reasonable assurance that expectations are being met," says Joseph Barkley, CFO at AIG Technology Management Services, the IT services arm of New York-based insurance giant American International Group Inc.

Changing Roles

Indeed, the roles for CFOs of IT have changed. "The scope of my role has expanded well beyond managing and controlling IT budgets since 2002," says Grant Zaichick, head of IS controlling for the Americas at DHL Information Services (Americas) Inc., the Scottsdale, Ariz.-based IT services arm of transportation and logistics provider DHL International Ltd. In addition to overseeing IT accounting and budgeting, Zaichick has recently taken on responsibility for global IT reporting and IT contracts and asset management for the Americas region.

The IT CFO's position "is changing from a custodial tactical role to more of a strategic role," says Howard Rubin, executive vice president at Stamford, Conn.-based Meta Group Inc. "They're in the nexus of negotiations."

Simply put, being a CFO of IT "is a real tough job," says Bill Johnston, president of Alinean LLC, a consulting firm in Orlando. There are several reasons for this.

For starters, it's still a universal challenge — even for financial wizards — to effectively measure and quantify the impact that technology investments are having on profits or operational efficiency. Add to that the dearth of tools available to attempt those measurements. Finally, throw in the complexities of developing a standardized approach to valuing IT investments across multiple business divisions or regions, and it's a wonder that IT controllers can do their jobs at all.

Unaccountable

Measuring the quantifiable impact of IT investments is a big challenge for all types of companies, even those with world-class IT practices such as Intel Corp. Showing the link between IT spending and the benefits accrued is the "key issue that nearly every IT organization faces," says Intel CIO Doug Busch.

Sure, Intel has continually refined its IT funding model. And it's had a finance manager in at least one of its IT organizations since 1994, including Theresa Kelly, who took over as CFO for the company's newly consolidated IT department a few months ago, says Busch. Intel has also taken advantage of IT portfolio management and other measurement techniques to help its IT organization identify the link between IT and more than $1 billion in bottom-line improvements to the company between 2000 and early 2004, says Busch.

But he'll also tell you that Intel is having as much trouble as any company getting its accounting systems to assimilate IT-related finances into its core accounting practices.

Allstate's Scardina understands. "Legacy finance systems aren't well suited to keeping track of IT investments, particularly at the kind of granular level that we feel we need in order to provide the clarity of spend," he says. For instance, standard accounting systems don't provide Allstate's IT finance professionals with the ability to track the number of desktops in use across the organization or processor power in use per IT dollar spent, notes Scardina.

Allstate does use IT asset management software to help it track hardware and software systems. But the insurer's accounting software goes only so far in providing Scardina and his staff with the kind of financial information on IT investments that they need.

"From a corporate standpoint, you want to have one set of financial records to report on," Scardina says. "But from an IT standpoint, [accounting systems] don't have all the data you need."

To help resolve those kinds of issues, AIG has developed common financial reporting processes and software templates to collect IT-related financial data across its worldwide operations and feed it into the company's Hyperion Solutions Corp. accounting system, says Barkley.

But the accounting system problems are further exacerbated at global companies such as Chicago-based Aon Corp., which has business divisions in 120 countries. "IT is a function that runs across all parts of the organization, and it's very difficult to extract the functional costs from the [profit and loss statements] of various reporting systems," says David Barker, vice president of global IT finance for the provider of risk management, reinsurance and human capital consulting services.

The bottom line is that many CFOs of IT are having a hard time translating to senior management the effect that IT investments are having on, well, the bottom line.

Besides the difficulties inherent in measuring intangibles across multiple divisions with inadequate tools, there are other problems. CFOs of IT "don't have good data or good information, and that makes it tough for them to figure out how much it costs them to run a data center and whether it makes sense to outsource it," says Barbara Gomolski, an analyst at Gartner Inc. and a *Computerworld* columnist.

Another factor that makes it tough for CFOs of IT to do their jobs effectively is the lack of financial know-how among IT staffers and midlevel IT managers. "It's usually a relatively small number of people at the top of the IT [organizational] chart who are 'with it' financially," says Gomolski.

Teaching Financialese

Some IT controllers are attacking the problem by having their finance staffers educate IT workers on financialese. At Allstate, everyone who's involved in IT decision-making has received training in the company's financial allocation process, says Scardina.

At DHL, Zaichick and his staff have worked closely with the company's program management office and technical staff over the past few years to ensure that front-line technology staffers understand the financial requirements necessary to develop a business case for a project.

Other companies have taken more formal approaches to educating IT workers on finances. At Intel, all employees are able to take a "business acumen class," which educates workers on the basic business parameters for the company (i.e., assessing Intel's progress against the competition), says Busch. In addition, IT project managers are taught to help the IT finance team evaluate financial alternatives as part of their skills training, he says.

To help both IT and finance executives get a better handle on these issues, the Society for Information Management formed an alliance with the Financial Executives Institute a few years ago, says Aon CIO June Drewry, who was SIM's international president until 2000. The two groups meet and share strategies.

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WHO ARE THESE GUYS?

CFOs of IT are the finance people who oversee the business of running an IT department or services unit at a company. Although their responsibilities vary from company to company, their duties include oversight of IT budgets, IT procurement, asset management, cost analysis and benchmarking IT competencies against those of competitors and other companies. Most CFOs of IT report to the CIO, but some have dotted-line reporting to the corporate CFO.

Although some organizations have had people in these roles for more than 20 years, the position has become increasingly popular since the economy started to soften in mid-2000 and senior management began to severely scrutinize IT spending. Still, less than 10% of companies have someone who's formally in an IT finance role, says Bill Johnston, president of consulting firm Alinean.

— *Thomas Hoffman*

A COUNTING LIFE



Paul Costello officially retired as the CFO of IT at the University of Miami on May 31, 2003. But while he's less involved in day-to-day budget activities as a twice-a-week special projects manager for the Coral Gables, Fla.-based university, Costello, who has 20-plus years of experience in his role, is still active in overseeing the university's IT finances. *Computerworld*'s Thomas Hoffman asked Costello, 68, to share his insights.

How did you come into the CFO of IT role at the University of Miami? In 1977, I went to the university as a bursar in charge of student accounts receivables based on my experience in data processing and my previous responsibility for a $25 million accounts receivable environment. After three or four years, [CIO] Lew Temares asked me if I wanted to get into DP again, and I did. The IT finance focus became an increasingly bigger part of my job, even though the title was "director of administration and budget." We didn't know what to call it.

Do you run into political battles over IT finance issues? Certainly, there are political situations and competing priorities because we service administration, faculty, students and a medical school. Each of those groups brings a different focus to what's appropriate and what's the first priority.

How do you allocate resources? In terms of prioritizing application services, maintenance and so forth, we have a couple of steering committees. They work primarily within the ongoing operational budget. We then get Lew involved to look at that as a group. Lew and the project sponsor try to sell the IT/business projects to different constituents, with participation from the IT finance side.

Any problems creating a standardized approach to valuing IT investments? Yeah, it's evolved over time. [Laughs.] Some people want to know how quickly we get payback, others want to know internal rate of return, others ask how this will reduce costs, others ask how this will improve productivity. There's no single measure. But if you develop a history of not having cost and project-duration overruns, then you begin to get credibility. What gets [more] credibility is if you can show the business need or how a particular area is going to be dramatically impacted by an investment.

The IT CFO's position "is changing from a custodial/tactical role to more of a strategic role," says Howard Rubin, executive vice president at Stamford, Conn.-based Meta Group Inc. "They're in the nexus of negotiations."

Simply put, being a CFO of IT "is a real tough job," says Bill Johnston, president of Alinean LLC, a consulting firm in Orlando. There are several reasons for this.

For starters, it's still a universal challenge — even for financial wizards — to effectively measure and quantify the impact that technology investments are having on profits or operational efficiency. Add to that the dearth of tools available to attempt those measurements. Finally, throw in the complexities of developing a standardized approach to valuing IT investments across multiple business divisions or regions, and it's a wonder that IT controllers can do their jobs at all.

Unaccountable

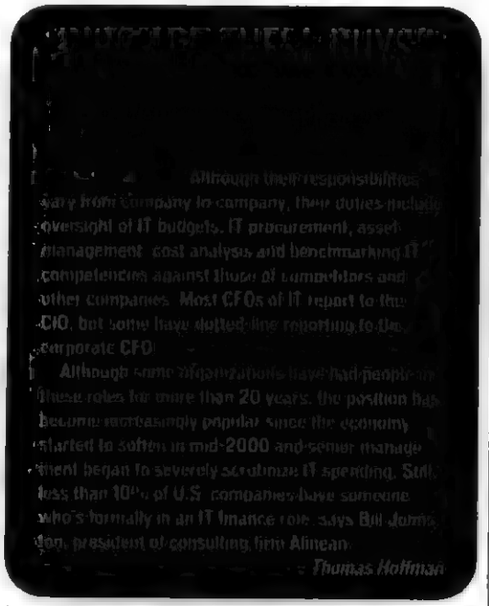
Measuring the quantifiable impact of IT investments is a big challenge for all types of companies, even those with world-class IT practices such as Intel Corp. Showing the link between IT spending and the benefits accrued is the "key issue that nearly every IT organization faces," says Intel CIO Doug Busch.

Sure, Intel has continually refined its IT funding model. And it's had a finance manager in at least one of its IT organizations since 1994, including Theresa Kelly, who took over as CFO for the company's newly consolidated IT department a few months ago, says Busch. Intel has also taken advantage of IT portfolio management and other measurement techniques to help its IT organization identify the link between IT and more than $1 billion in bottom-line improvements to the company between 2000 and early 2004, says Busch.

But he'll also tell you that Intel is having as much trouble as any company getting its accounting systems to assimilate IT-related finances into its core accounting practices.

Allstate's Scardina understands. "Legacy finance systems aren't well suited to keeping track of IT investments, particularly at the kind of granular level that we feel we need in order to provide the clarity of spend," he says. For instance, standard accounting systems don't provide Allstate's IT finance professionals with the ability to track the number of desktops in use across the organization or processor power in use per IT dollar spent, notes Scardina.

Allstate does use IT asset management software to help it track hardware and software systems. But the insurer's accounting software goes only so far in providing Scardina and his staff with the kind of financial information on IT investments that they need.


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"From a corporate standpoint, you want to have one set of financial records to report on," Scardina says. "But from an IT standpoint, [accounting systems] don't have all the data you need."

To help resolve those kinds of issues, AIG has developed common financial reporting processes and software templates to collect IT-related financial data across its worldwide operations and feed it into the company's Hyperion Solutions Corp. accounting system, says Barkley.

But the accounting system problems are further exacerbated at global companies such as Chicago-based Aon Corp., which has business divisions in 120 countries. "IT is a function that runs across all parts of the organization, and it's very difficult to extract the functional costs from the [profit and loss statements] of various reporting systems," says David Barker, vice president of global IT finance for the provider of risk management, reinsurance and human capital consulting services.

The bottom line is that many CFOs of IT are having a hard time translating to senior management the effect that IT investments are having on, well, the bottom line.

Besides the difficulties inherent in measuring intangibles across multiple divisions with inadequate tools, there are other problems. CFOs of IT "don't have good data or good information, and that makes it tough for them to figure out how much it costs them to run a data center and whether it makes sense to outsource it," says Barbara Gomolski, an analyst at Gartner Inc. and a *Computerworld* columnist.

Another factor that makes it tough for CFOs of IT to do their jobs effectively is the lack of financial know-how among IT staffers and midlevel IT managers. "It's usually a relatively small number of people at the top of the IT [organizational] chart who are 'with it' financially," says Gomolski.

Teaching Financialese

Some IT controllers are attacking the problem by having their finance staffers educate IT workers on financialese. At Allstate, everyone who's involved in IT decision-making has received training in the company's financial allocation process, says Scardina.

At DHL, Zaichick and his staff have worked closely with the company's program management office and technical staff over the past few years to ensure that front-line technology staffers understand the financial requirements necessary to develop a business case for a project.

Other companies have taken more formal approaches to educating IT workers on finances. At Intel, all employees are able to take a "business acumen class," which educates workers on the basic business parameters for the company (i.e., assessing Intel's progress against the competition), says Busch. In addition, IT project managers are taught to help the IT finance team evaluate financial alternatives as part of their skills training, he says.

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A CAREER LIFE



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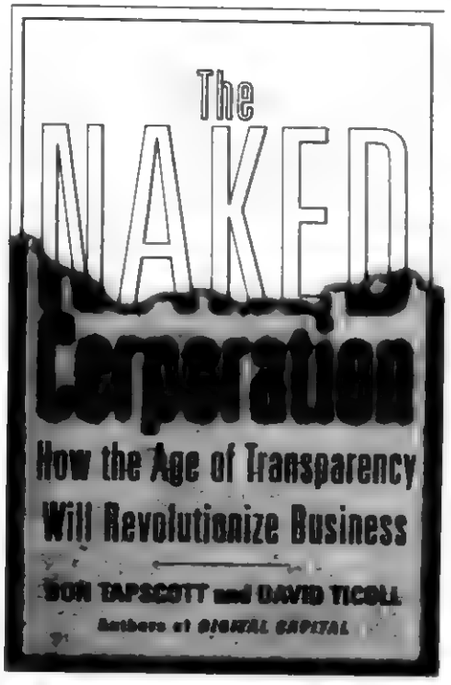
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—Malcolm Gladwell, author of *The Tipping Point*

Media Reaction

"This is a fresh and compelling thesis, backed up by some persuasive evidence."
—BusinessWeek

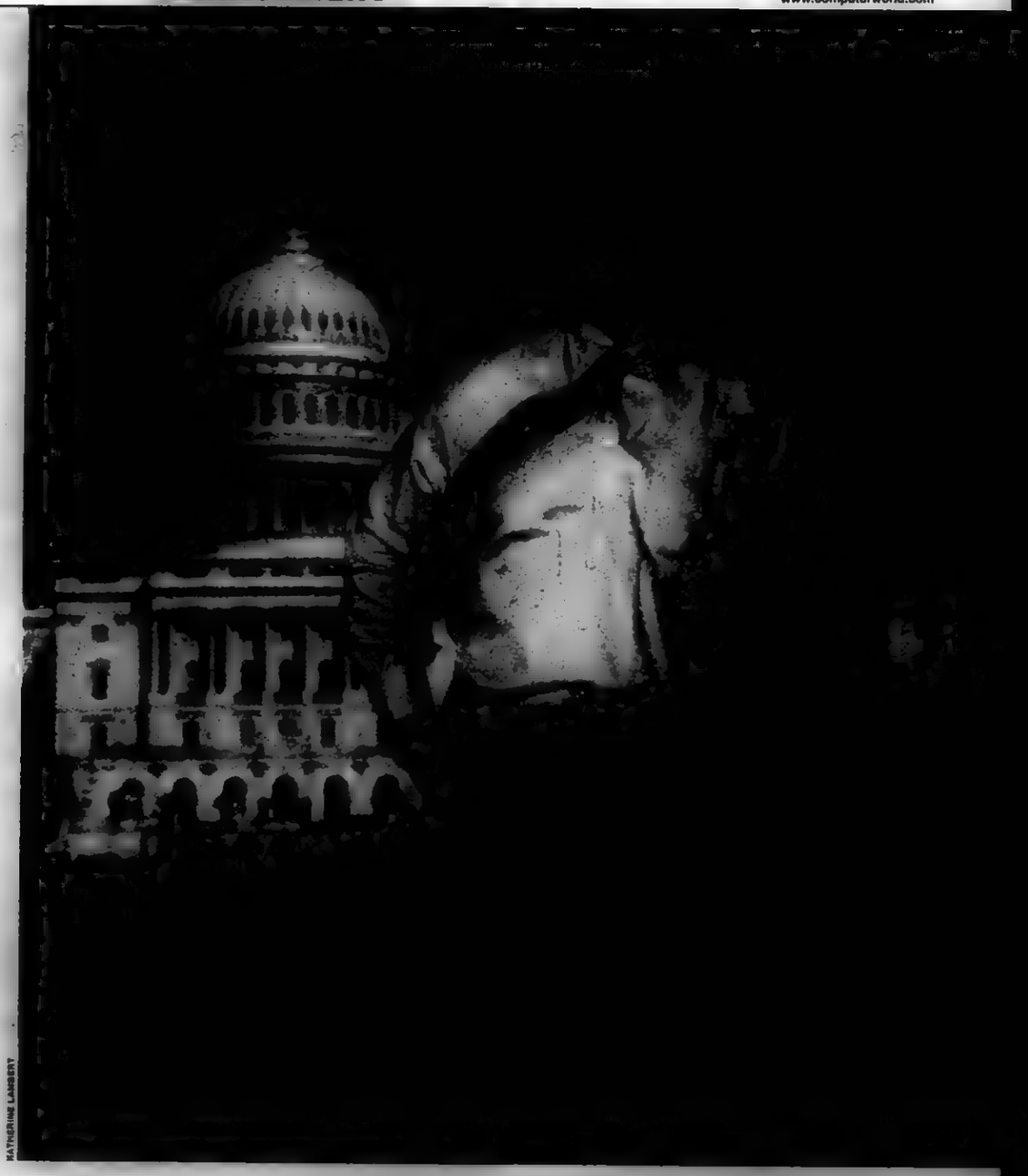
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"It's not about what happens; it's about how you respond to what happens."

J. GREG HANSON, assistant sergeant at arms and first CIO of the U.S. Senate



KATHERINE LAMBERT

SENATE CIO

Think you've got tough customers? J. Greg Hanson serves 100 U.S. senators, dozens of committees and staffs in 50 states. And about that upcoming inauguration . . .

Q&A

About a year and a half ago, the leadership of the U.S. Senate decided to raise the profile of IT at the Capitol. They wanted to provide direction, update technology, elevate awareness and improve customer service. To accomplish that, they invited J. Greg Hanson to become assistant sergeant at arms and the Senate's first CIO. "When you get a call like that, the only correct response is yes," Hanson says.

Since then, he has faced many of the same challenges encountered by CIOs everywhere, as well as some that are unique. Hanson told Kathleen Melymuka about his job, where "every day is a surprise."

You're the CIO; what does your other title mean? In the Senate, all technology is managed out of the sergeant at arms office, so I'm an assistant sergeant at arms.

Are you a political junkie? No, definitely not. I'm not a tech junkie either. I'm interested in delivering tools and solutions to help senators accomplish their missions. I look for ways to use technology to solve business problems, not for technology's sake.

What kinds of positions did you hold previously, and in what types of organizations? Prior to here, I was CTO at Universal Systems & Technology, a high-tech company in Northern Virginia. Prior to that, I was CTO at Telos Corp. We grew that company and spun off some new companies, and I did some CIO work in some of the subsidiaries. Prior to that, I had a 20-year career in the Air Force, and I was in technology the entire time.

Some CIOs consider themselves technologists first; others consider themselves primarily business people. Where do you fall along that spectrum? I've got very, very deep tech expertise; I've got a Ph.D. in computer science. But in my entire career — from the Air Force through my time in the commercial world — it's been clear to me that technology is a tool. It's a wonderful tool that can give you advantage if you use it correctly, but it's a tool to make bigger, more important things happen. I consider myself a business person before a technologist, even though I still teach a graduate course in technology at the University of Maryland.

How big is the Senate IT group? I have about 500 people reporting to me. Two hundred fifty to 300 are full-time government employees; the rest are contractors. But IT at the Senate is even bigger. To get it done right requires a team that also includes the Rules Committee and the Appropriations Committee of the Senate. And every senator's office has a small tech staff. They report to the senators, but they're also part of the larger tech team here.

What is the IT group responsible for? We're responsible for the entire Senate IT infrastructure, all the networks, all the telecommunications, information processing, storage, front- and back-office applications — all the typical things a CIO does. We're also very, very closely tied to continuity of operations, and we do a lot of planning and work with our counterparts in security. We're responsible to see that the Senate has state-of-the-art technology and to look into further strategic technology and enterprise architecture and how that can best be used in this environment. So I've got CTO as well as CIO duties. It's a dream job.

Is your position in any way political? It's a federal government job, but it's not politically aligned, and it's completely nonpartisan.

What are some of the unique aspects of your role – things you do that are outside the purview of other CIOs? I get to do great stuff. When we have elections or a transition or an inauguration, I have to support them. We have to set up the offices, provide all the technology, get the systems set up, train the staff, support telephone and radio. When President Reagan's funeral took place, we supported that. And as an assistant sergeant at arms, I participate in ceremonies and sometimes escort dignitaries.

What are some of your top priorities as CIO? Customer service; that's No. 1. That's tough in this environment because I have about 10,000 customers. Equal to that is security. They need to access information anywhere at any time.

Next is strategic planning: looking over the bow for new technology and innovation, staying ahead of the technology curve. Technology changes very quickly, and senators and staff see that and demand excellent technology. We have to keep it all lined up and facing in the right direction.

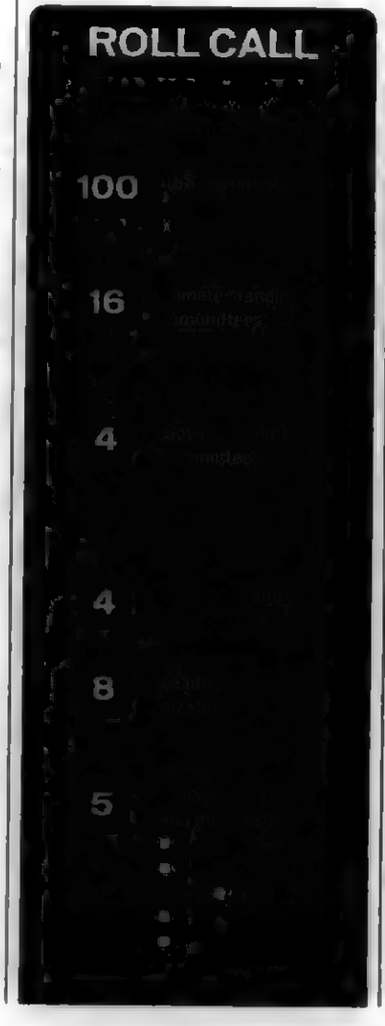
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In many companies, the business executives form an IT steering committee that sets priorities for IT projects and spending. Is there anything similar in the Senate? We use a combination of the Senate leadership organization, plus the Rules and Appropriations committees, plus my organization. Rules sets policy and procedures. We build budgets, but Appropriations has to bless that. The Senate leadership gives me oversight, and there are organizations of system administrators and administrative managers, and I get input from them on a constant basis, as well as from technology working groups.

What are some of your big challenges? When I'm trying to do a big project, I try to gain consensus, and that's a challenge. There's also the challenge of being in the public eye and the challenge of special events. We have the regular day-to-day work, and then there's a special event and there's a surge, and we have to set up transition offices or work a state funeral in addition to all the day-to-day stuff.

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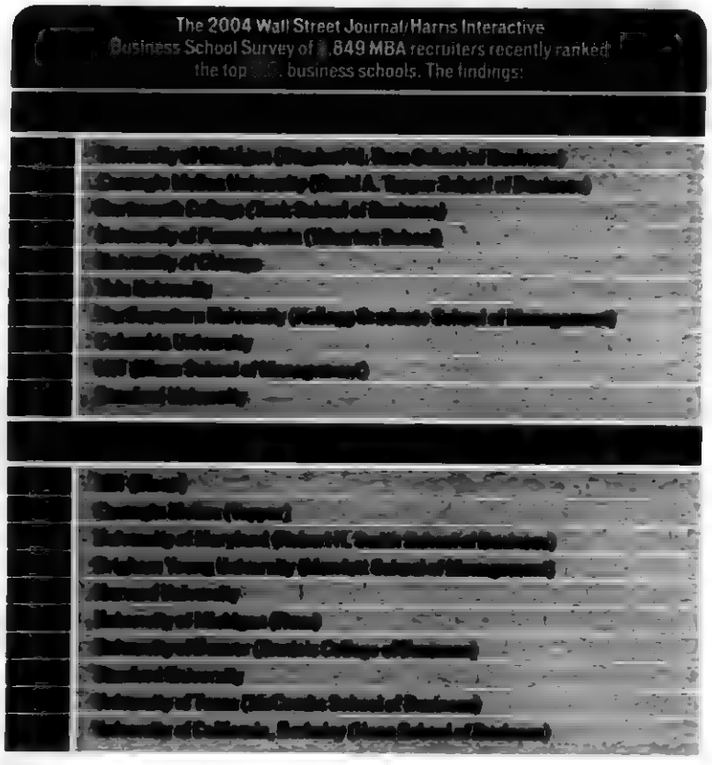
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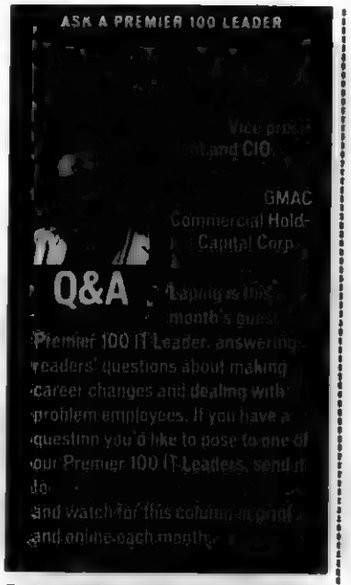
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Career Watch

The 2004 Wall Street Journal/Harris Interactive Business School Survey of 1,849 MBA recruiters recently ranked the top U.S. business schools. The findings:



ASK A PREMIER 100 LEADER



I've been in the credit management field for 10 years, but I'm considering a midlife career change to be an IT instructor. Can you give me some advice on the market prospects? While the technical training and executive education industry has exploded in the past five years, I've been amazed at the limited amount of experience that instructors tend to have. A value-added training opportunity can come in two forms: on-the-job training and a well-organized and -managed classroom experience from an instructor who has real-world experience. It sounds like you could contribute to the latter.

The market generally doesn't pay well, whether you're training or providing instruction in a more formal academic environment. However, the intrinsic benefits of changing people's lives and growing their capabilities can't be valued in dollars. There are plenty of jobs out there in this arena, so go for it. A riskless approach to diving in may be to accept a part-time, evening instruction role that would allow you to feel out the industry and the classroom setting.

Are there still good opportunities for mainframe design and development? I've spent the past 10 years working with midrange software and infrastructure. I'd like to return to the mainframe world, but I don't want to take a big cut in pay. Is this possible? I'm not sure that I would recommend this move, especially if your paycheck is a priority. Keep in mind that pay is directly correlated to your depth of experience in a specific niche (financial services or manufacturing, for example) and specific set of technologies. The mainframe world is static – you rarely get boosts in pay for niche experience. This is mostly because large, transactional environments tend to be operating on older business models that don't evolve as rapidly and don't require sexy new technology enhancements to enable them.

I have two employees who work for me in Mexico. I visit the plant at least once a week, but when I'm not there, my employees take advantage of my absence to leave early, take long lunches and so on. I get complaints of lengthy wait times for problems. What are some suggestions? Quite simply, they need to be terminated. That usually presents a long list of human resource issues to overcome, but it's worth your time now to create a well-documented action plan for both employees. If you don't already have a long list of key performance indicators, I would start with that and include it in the action plan. You should be able to measure the employees' productivity against those indicators, and if the employees are falling short of the goals, they can and should be terminated.

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www.ilresa.com/cti/

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BART PERKINS

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and desktops. They also include ongoing software license fees and production support staff (production control, security, database administration, help desk). These costs automatically drop down into future operating expenses, whether they are budgeted or not.



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"We are becoming more efficient, so we can absorb it into the existing budget." During the Internet boom, many companies acquired large amounts of technology but never implemented planned systems. As a result, they had excess capacity. After the Internet bust, these same companies focused on efficiency (a discipline lost during the boom) by consolidating servers, rationalizing software and redesigning their networks. As a result of these efforts, they've had to absorb only limited drop-down lately. Excess capacity will eventually be absorbed, however, and there won't be any fat left to trim.

"We are funding major new development efforts, but our budget will remain flat." Some IT organizations prefer to ignore drop-down costs as long as possible because of corporate and political pressures. But bad news doesn't get better with age, and the drop-down costs will eventually appear as budget overruns.

Drop-down costs should be included in the business case for any new system, but since the case may have been written several years ago, the numbers could be outdated. Before you transfer this data into your budget, make sure the estimates are still realistic. In addition, since most applications run for many years, costs can change significantly over time. Create a rough estimate for drop-down costs and refine it annually.

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Career Watch

The 2004 Wall Street Journal/Harris Interactive Business School Survey of 2,849 MBA recruiters recently ranked the top U.S. business schools. The findings:

TOP BUSINESS SCHOOLS

1. University of Michigan (Stephen M. Ross School of Business)
2. Carnegie Mellon University (David A. Tepper School of Business)
3. Dartmouth College (Tuck School of Business)
4. University of Pennsylvania (Wharton School)
5. University of Chicago
6. Yale University
7. Northwestern University (Kellogg Graduate School of Management)
8. Columbia University
9. MIT (Sloan School of Management)
10. Stanford University

TOP FOR TECHNOLOGY/TELECOMMUNICATIONS/INTERNET

1. MIT (Sloan)
2. Carnegie Mellon (Tepper)
3. University of Maryland (Robert H. Smith School of Business)
4. Brigham Young University (Marriott School of Management)
5. Harvard University
6. University of Michigan (Ross)
7. University of Denver (Daniels College of Business)
8. Stanford University
9. University of Texas (McCombs School of Business)
10. University of California, Berkeley (Haas School of Business)

ASK A PREMIER 100 LEADER



Vice president and CIO

GMAC Commercial Holding Capital Corp.

Q&A Laping is this month's guest Premier 100 IT Leader, answering readers' questions about making career changes and dealing with problem employees. If you have a question you'd like to pose to one of our Premier 100 IT Leaders, send it and watch for this column in print and online each month.

I've been in the credit management field for 10 years, but I'm considering a midlife career change to be an IT instructor. Can you give me some advice on the market prospects? While the technical training and executive education industry has exploded in the past five years, I've been amazed at the limited amount of experience that instructors tend to have. A value-added training opportunity can come in two forms: on-the-job training and a well-organized and -managed classroom experience from an instructor who has real-world experience. It sounds like you could contribute to the latter.

The market generally doesn't pay well, whether you're training or providing instruction in a more formal academic environment. However, the intrinsic benefits of changing people's lives and growing their capabilities can't be valued in dollars. There are plenty of jobs out there in this arena, so go for it. A riskless approach to diving in may be to accept a part-time, evening instruction role that would allow you to feel out the industry and the classroom setting.

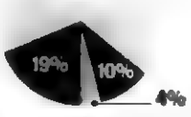
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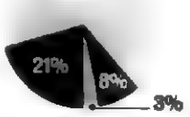
Which best describes the current status of your full-time IT staff?



Companies with 20,000 or more employees



Companies with 5,000 to 19,999 employees



Companies with 1,000 to 4,999 employees



*Companies with six to 999 employees**

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■ HIRING ■ CUTTING
FLAT ■ DON'T KNOW

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Bart Perkins is managing partner at Leverage Partners Inc. in Louisville, Ky., which helps CIOs manage their IT supplies. He was previously CIO at Tricon Global Restaurants Inc. and Dole Food Co. Contact him at bart@leverage-partners.com.

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Software Engineers to analyze, design, develop, test appls using Java, JSP, Servlets, EJB, XML, HTML, JavaScript, C, C++, Oracle etc under UNIX, Windows OS, provide architectural support, create and integrate product data stores into Siebel product module; perform Siebel CRM implementations and install Siebel servers/clients; Develop, enhance components of new/existing appls and databases; interact, train end users. Require: M.S. in CS or Engineering (any branch) with 1 yr exp in Siebel. F/T. Travel involved. Competitive salary. Resume to: HR, ABZ Consulting, Inc., 2600 Century Parkway, Ste 100, Atlanta, GA 30345.

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Sr. Systems Analysts to lead teams to analyze, design, develop, appls using Java, C++, VC++, VB, LabView, Matlab, MathCAD, Rational Rose, OOAD/P, UNIX etc; analyze, finalize architecture using RUP process, J2EE design patterns, UML diagrams, administer, deploy components into appl server-Websphere; develop applications as per ISO-9001, CMM level 3 compliant software dev. Methodologies. Require: Masters or foreign equiv. in CS / Engg. (any branch) / Business with 1 yrs exp. Travel involved. Comp.Salary. F/T. Resumes. HR, Synergy America, Inc., 6340 Sugarloaf Parkway, Ste 140, Duluth, GA 30097

Manager, DCP Software Development - Manage the design, development and implementation of Dynamic Charging Platform Software Systems; manage the installation of Sun Boxes and HP Unix Boxes to create a stand alone environment supporting the development of DCP compatible software; define and develop DCP systems requirements for customized clients' systems; manage, train and recruit software development professionals with regard to DCP development utilizing C++ with C/C++, including but not limited to the development of real-time performance critical applications in a multi-threaded environment, and train end-users on software maintenance. Must have five years of experience in time critical software development in a multi-threaded environment utilizing C++ with C/C++. If interested, submit resume in duplicate to: Natalie Gow, Intec Telecom Systems, 301 Perimeter Center North, Ste 200, Atlanta, GA 30346

Programmers & Software Engineers: Analyze, design, develop, test & implement specialized business apps. in Business Objects Version 5.1, Web Intelligence & related Business Objects products, RSA Baste SDK, VBA, ASP, Oracle related RDBMS & rel. tools. Travel req. / US Workers only. Send resume to Sapphire Consulting Company, 6 Orange Street, Edison, NJ 08817. EOE.

Sr SW Eng'r Dsgn device driver for Intel Xscale/StrongArm processors w/ MS WinCE3.0, WinCE.Net 4.2 & embed'd Linux; Dsgn firmware for graph's controllers & video capture/compress'n algorithms; Dsgn SW applic'n w/ MFC,C++, ODBC, db archit're/program'g, 40hr/w, 8-5, MS Comp. Sci, 2-yr wk exp w/ Xscale, Video Controller & MFC. Resumes to SI Solutions, Tampa, Craig@si-t-solutions.com / fax: 813-630-2532. Only US wkrs can apply.

Ohio insurance company seeks Application System Analyst to assist in researching and fact-finding to develop or modify more complex information systems. Designs, codes, tests, debugs, documents and maintains program. Min req: Bachelor's or Master's (or equ.) in Computer Science & 3 yrs in-job/job-related exp. in programming including: MS Net/C#, VB6, COM, COM+, Windows DNA, C++, XML, UML, Visio, VSS, MFC, SQL RDBMS, ASP, ASP.NET. Resume to Susan Swales, 300 N Commons Blvd., Mayfield Village, OH 44143

Comp Consults is looking for programmer/system analysts, engineers or IT consultants to design & develop programs using Oracle, Unix, C/C++, VB, Java, J2EE, EJB, XML, XSL/XSLT. Min requirement is BS plus experience. Please send resumes to mmg@compconsults.com. EOE. No calls.

In-Venture Soft is seeking IT consultants to design & develop applications for various projects. Applicants must have BS/MS with solid background in Oracle, WebSphere, Java, EJB, ASP. We offer competitive wage with full benefit. Travel may be required. Apply at resume@inventure.net. EOE

Integrated Software Solutions, Inc., a rapidly growing IT consulting Co has permanent pos open for Computer Software Professionals w/BS or equiv & exp in one of foll skills or in combination:

- Administration - Win NT/2000/ Unix
- DBA - Oracle/Sybase
- PeopleSoft & related PeopleSoft Tools
- Main Frames - DB2, CICS, JCL, TSO
- Oracle Dvlpr-SQL/PL/SQL/ Dvlpr 2000
- C, C++, VB, J2EE, ASP
- SAP R/3 & related tools
- QA Testing-WinRunner/LoadRunner/Silk/Rational Suite/ Test Director

ISS, Inc., provides competitive salary & benefits. Applicants must be willing to relocate/travel to various unanticipated locs throughout US. Send resume to HR Dept, ISS, Inc., Attn: HR, 55 Princeton- Hightstown Rd, Ste #103, Princeton Junction, NJ 08550 or email to: resumes@issinc-usa.com

Programmer Analyst needed w/2 yrs exp in using Oracle Applications, Oracle Forms, Oracle Reports, Designer6, Discoverer3i, HP UNIX, Digital UNIX, Sun Solaris, Windows NT, Standard APIs', Data Pump, custom.pll, SQL Loader, PL/SQL & write Fast Formulas. Generate test scripts using Mercury Mail resumes to: Optima Technology Partners, Inc. 264 South River Rd, Ste #454, Bedford, NH 03110.

Sr. Citrix Admin (CCEA or CCA) to dsgn, install, config, support, & admin Citrix products (XPe, Nfuse, Citrix Sec Gateway, Res Mgr, Inst Mgr). Implmt & support large NT & Citrix Farm envrnmts w/SNA connectivity. Resolve Citrix infrastructure & app related issues & produce tech documentation. BS+2 years exp. WTR, Inc, 156 5th Ave, Ste 1034, NY, NY 10010. Res & cvr ltr.

Application Integration Developers ttl needed. Seeking candidates possessing BS or equiv and relevant work exp. Part of rel work exp. must include 2 years working w/ JDE ERP and SQL. Duties include: Develop, maintain, enhance and integrate JDEdwards OneWorld enterprise business applications. Work w/ Peoplesoft Enterprise One (JDE ERP), webMethods Optio, SQL, Unix and Oracle. Mail resume & refs to: Temple-Inland Forest Products, 1300 South Mopac, Austin, TX 78746.

IT System Analyst. BS in comp. sci. or rel. field; proven IT exp to incl. desktop mgmt, area supporting a large enterprise, Win-Install, Tivoli sWare distribution PUSH, Tivoli UserLink, packaging applics via WISE & Tivoli packager, exp w/dsgn engg methodologies; demonstrated communication & proj. mgmt. skills, knowl of Insurance & fin. svcas & willng to travel & do on-call support. Resume & Cvr ltr to: Jennifer Schwartz, HR. Refer to Job # ACW23174, 711 High St., Des Moines, IA 50392-0550.

IT PROFESSIONALS

Software Engineer

(Glen Mills, Pennsylvania and other locations throughout the U.S.) Responsible for the design, implementation configuration, and testing of software systems and system components in the Office of Information Management. Creates design specifications for systems and components. Performs software development, including Lotus Notes Development and ASP and HTML Development, and software engineering including hands-on development of software components, web parts and web services using .NET framework, C# language, Domino R5, Lotus Script, ASP, DHTML, JavaScript, VBScript, VBA, DHTML, and ASP.NET. Utilizes Visual Basic for software development as well as to maintain software applications. Develops web parts and components for use within Microsoft SharePoint v2 Portal platform. Designs and documents data models. Performs SQL server design and development, including hands-on development of SQL scripts including ER diagrams and stored procedures. Develops XML schemas and XSL/XSLT transformations. Creates scripts and utilities for data migration and synchronization between multiple platforms such as Lotus Notes/Domino, Microsoft SharePoint, and Microsoft CMS. Designs components and systems within global web-based applications using object-oriented methodology. Participates in architecture and infrastructure definition of global web-based systems. Utilizes Rational Unified Process in software development. Reviews business requirements, develops prototypes, evaluates third party solutions and creates design and architecture documents. Works in a team environment using a structured development process and delivers applications on time and within budget. Follows up with issues in an efficient manner, including working hand in hand with Quality Assurance Operations, Project Management and/or Business Analysts. Regularly communicates project progress, issues, and risks to project manager.

The wage offered is $80,400 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The position requires a Bachelor's degree or equivalent in Comp Science, Engineering (any) or Information Systems + 2 years of experience in the job offered or 2 years of experience as a Software Engineer, Programmer Analyst, Software Developer or Senior Software Developer. Employer regards a foreign degree as equivalent to a US Bachelor's degree as determined by an accredited education evaluation service. Related experience must include two years of software development software engineering, Lotus Notes Development (including Domino R5 and Lotus Script), ASP/HTML Development (including VBScript), Visual Basic, and SQL Server design and development (including Stored Procedures and ER Diagrams).

Please send your resume w/ C.V., referencing Job Order Number **WEB4600662** to the PA CareerLink, 701 Crosby Street, Suite B, Chester, PA 19013. EOE.

Client/Server Programming Consultant. Design & develop innovative web-based solutions to strengthen relationships between financial institutions & their customers. Apply object-oriented design, analysis & development skills using JAVA, J2EE platform. Analyze client's business & technical objectives to determine high level client/server application requirements (e.g., addressing cross-functional business processes or workflows, re-engineering business processes, creating object oriented business functional models). Design architectural components of the client/server environment (e.g., data marshaling, simulation layers, class libraries). Perform high level coding activities (e.g., codes device drivers using C/C++, codes architectural components, codes objects). Develop & coordinate the testing process for major application releases & enhancements. Research & recommend products & new technologies for the client/server environment & may act as a formal project leader for development projects. Req: a Bachelor's Degree or for. Equiv. in Eng., Comp Sci., Math., or related field, plus 5 yrs of progressive exp in the position offered, interface screen design/develop or client/server programming develop. Qualified candidate must have at least 1 yr of working exp. in architectural design for web-based client/server environment. Job located in Jacksonville, FL. $94,000/yr 40 hrs/wk, M-F, 8am - 5pm. Send resumes to: Workforce Program Support, Ref: FL-2562142, P.O. Box 10669, Tallahassee, FL 32302-0669

SW Eng'rs: Dsgn, dev'lp, test web-based bus. sw app'ns w/ ColdFusion 4.5/5/MX, ASP, Java w/ Struts; Dsgn & prog'm CFML pages & custom tags w/ JavaScript, MVC, Fusebox; Analyze & dsgn db module w/ Oracle8i, T-SQL, PL/SQL RDBMS, SQL Svr. 8-5; 40hr/w. BS or foreign equiv. eff. in Comp Sci, 3 yr wk exp in job or any posit'n w/ ColdFusion, Java/Struts, & T-SQL. Resume to PowerSabre Mahesh@powersabre.com fax: 904 730 5677.

IT Professionals needed for IT development & consulting firm headquartered in the Atlanta region but w/projects for clients located throughout the U.S. Multiple positions open. The positions open are for client server & web-based developers, GMALAN Engineers, Embedded software developers. Some of the skill sets needed immediately include:

- Development of real-time systems using 32-d microprocessors. Required skill sets include GMLAN network operating system based development, ANSI C, basic H/W analysis & debugging, working w/stakeholders to define & refine requirements. Exp. w/Vector, CANtech automotive network design & simulation tools (CANalyzer & CANoe), & GMLAN handlers.
- Perform ETL (Extract, Transform & Load); design exception handling strategies & engage in performance tuning of databases work w/Oracle, DB2, SQL Server, MS Access, & Informatica.
- Japanese speaking Test Engineers & Embedded Software Engineers. Should be able to read, write & speak Japanese. Exp w/ either Honda (GA-NET, HBUS) or equivalent protocols w/ Nissan or V850 (abstractBear keywords NEC V850, V850 Microcontroller, V850 32-Bit, V850-SA1, V850 RISC processor).
- Unix/Linux system administrator, SAN developers.

All positions require a B.S. degree in either computer science, math, engineering, or business. Competitive salary is offered. Exp required varies from 1-6 yrs. exp. in skills identified above. Send resume to: careers@datamatics.us Applicants must have authority to work permanently in the U.S.

Sr. Programmer Analyst for health org in Sacramento, CA. Must have Bach's in comp sci/comp eng or rltd field & 2 yrs exp. Send resume to: Sutter Conect, 10470 Old Placerville Rd, Suite 100, Sacramento, CA 95827, attn: Carla Alegado.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Business Application Analyst. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree or equivalent" in computer science, math, statistics, business or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with SQL, CGI environment and J2EE environment also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Marc Blackburn, FedEx Corporate Services, 4200 Regent Blvd., Irving, TX 75063. EOE M/F/D/V.

Java Developer Provide application development services to create new web based applications and maintain existing applications to support business unit requirements using Java technologies. Support the design and development of web based applications through requirement development and documentation, programming, testing, and other tasks related to the systems development life cycle. BS in Information Systems or related field. 3+ years exp with enterprise-wide application development, Object Oriented programming and experience with database design and modeling. Strong middleware and front end skills with a thorough understanding of web architecture and design. Submit resume to Ned Bernard, Director of Recruiting, Alliance Consulting Associates Inc., 2005 Market Street, 32nd Fl, Philadelphia, PA 19103.

Systems Analysts to work as consultants at client sites in the U.S. and abroad. Imprint, customize & upgrade Oracle ERP s/ware pkgs. Reqs: BA/BS in Comp Sci, Eng'g, Bus, Logistics, HR, or related field + 2 yrs exp w/Oracle Apps or DB's. Send resumes, refs, and salary req's to Attn: HR, IT Convergance, 150 E. Gilman St, Suite B2200, Madison, WI 53703 or resume@itconvergence.com.

Web Software Engineers needed to dvlp OSS s/ware for telecommunications mkt. Req Bach in Com Sci, Comp Eng, MIS or related tech'l field & 3 yrs exp in job or 3 yrs exp in web-based s/ware dvlpmt using MS tools, ASP & VB based COM/COM+, hitting SQL Server databases. Resume to RiverRock Systems, Attn: HR, 14901 Quorum Dr., Ste 250, Dallas, TX 75254.

Technical Architect/Sr. Software Developer wanted. Must have Bach. deg. in Comp Sci., Math, Physics or related field & 3 yrs. middleware, integration & web technology exper. includ exper. with IBM WebSphere Application Server & IBM WebSphere MQ & 1 yr. exper. providing tech support to customers in the energy &/or utilities industries. (Exper. can be concurrent) Send cover letter and resume to Corporate Recruiting, Code EUAF, LogicaCMG, 32 Hartwell Ave., Lexington, MA 02421. No third parties or phone calls please. LogicaCMG is an EEO, M/F/V Employer.

DATABASE ADMINISTRTOR to develop, implement, and maintain the company's database and information systems; design, install, manage and maintain the performance of SQL Server 2000 databases across the unified enterprise, develop and maintain custom inventory, invoice system and sales reports and modify standard reports using VB and PL/SQL; write queries for reports for accounting and finance department; create various databases and maintain database management software using server/client application, including SQL and object oriented programming language. Require: Bachelor's in Computer Science/Information Systems. Competitive salary offered. Mail resume to: President, King Kong USA, Inc., 800 Iowa Ave., Riverside, CA 92507.

Global IT Solutions USI, Inc (GITSUSI, Inc.) has positions open for its branches in Portland, ME and Dakota Dunes, SD. Prog. Analysts to analyze, design/develop s/w appls using Java, JavaScript, VBScript, ASP, HTML, Weblogic, Oracle, SQL, COBOL, DB2, CICS under Windows, Unix & MVS OS, perform unit, functional, integration, regression and systems level testing; analyze user reqs, prepare design documents; develop & enhance online & batch programs; implement, install, test, debug and modify new/existing appls. Require BS or foreign equiv. in CS/Engg. (any branch) & 2 yrs exp. in IT. Travel involved. Competitive Salary. F/T. Please specify desired location when sending resume. Resumes to: HR, GITSUSI, Inc., 1133 East 35th Street, Suite 2D, Brooklyn, NY 11210.

2Wire, Inc. in San Jose seeks Sr. SW Embedded Engr: BS CS in Eng'g or related field + 6 yrs relevant exp. (alt MS CS in Eng'g + 4yrs relevant exp). Send resumes to: tnguyen@2Wire.com www.2Wire.com

Sr Programmer Analysts: manage teams to analyze, design, maintain software appls using J2EE, Java, JSP, ASP, HTML, XML, Oracle, SQL Server on Windows/UNIX OS; perform requirements analysis and conduct functional testing/debugging; document, maintain & update use cases, GUI design, BPR scenarios. Require: BS or foreign equiv. in CS/Engg (any branch) and 2.5 years exp in IT OR MS in CS/Engg (any branch) and 6 months exp in IT. Travel involved. F/T position. Comp. salary. Resume to: HR, Quest America, Inc., 211 East Ontario Street, Suite 1800, Chicago, IL 60611.

Data Warehouse Specialists, Inc. is looking IT professionals. Duties include: design applications for Business Intelligence, On-Line Analytical Processing (OLAP) & Datawarehousing using various tools. Competitive wage with full benefits. Please send resumes to info@dwspecialists.com. EOE.

DocOptions, Inc. seeks high skilled Software Engineers to design & develop applications using Object Oriented Analysis/Design tech, TCP/IP, XML, XSL. Applicants must have MS in computer science with 1-2 IT experience. Please send resumes to 1851 Camellia Dr., Tracy, CA 95376.

Product Manager required for leading digital printing products firm to analyze clients' product specifications and marketing requirements. Understand market trends, clients' software functionality needs and forecasting models to oversee development of software prototypes using C+, ORACLE, SQL Server, Excel and other decision modeling tools. Assist in design, position, massage, and launch software and software services into the market to create valuable and ongoing client relationships. MBA in Business Administration or Marketing and relevant experience in marketing and IT project management. Send resume to Elena Kotanova, Office Manager, Caslon & Co., 5150 El Camino, Suite 614, Los Altos, CA 94022.

Sr Programmer Analysts to lead teams to analyze, design, develop appls using OOP, Java, JSP, Servlets, EJB, XML, HTML, JavaScript, Weblogic, JDBC, Oracle, etc in UNIX, Solaris, Windows OSs; develop Oracle stored procedures and data modeling; implement appls and perform strategic planning/operations support; provide end user training. Require BS or foreign equiv in CS/Engg (any branch) & 3 yrs exp. in IT Comp salary, F/T, travel involved. Resume to HR, Ordusion Technologies, Inc., 3883 Rogers Bridge Road, Suite 504, Duluth, GA 30097.

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Red Hat, Inc., located in Raleigh /Durham, North Carolina, has an immediate need for a Programmer /Analyst to be responsible for providing programming/analysis/production support for Oracle ERP applications. Specific duties include: providing functional and technical support on the Oracle ERP module, including AR, GL, AP and iStore, designing and developing technical reports to meet the needs of the ERP users; performing programming utilizing the following: Red Hat Enterprise Linux, Java, Perl, and shell scripting; customizing/extending Oracle applications utilizing Oracle Developer Tools, iStore and Workflow; and, participating, periodically, in a 24x7 on-call, technical support rotation. Requires a Bachelor's degree in Computer Science, Engineering or other closely related field, together with the demonstrated ability to integrate and extend enterprise applications using Java and XML technology in an Oracle environment. Must also have demonstrated skills involving SQL, J2EE, Apache, Tomcat, SOAP/WSDL, XML, EAI tools, RDBMS and Oracle ERP or CRM. Annual salary is $65,000. Qualified applicants respond to job code: BKT101 to martham@redhat.com

Multiple openings for software engineers to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in J2EE, XML, Oracle and Apache Server. Requirements: Bachelor's Degree, educational or functional (3 years experience=1 year of college) equivalent, in Engineering, Computer Science or related field and two years experience as a software engineer or computer programmer. Knowledge of J2EE, XML, Oracle and Apache Server. Salary $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Site Administrator, Greene County CareerLink, 4 West High Street, Waynesburg, PA 15370, Job No. WEB461155

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design, direct software system testing procedures using expertise in J2EE, EJB, Struts, JSF, Oracle, Tivoli and JBuilder. Requirements: Bachelor's Degree, educational or functional (3 years experience=1 year of college) equivalent, in Engineering, Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of J2EE, EJB, Struts, JSF, Oracle, Tivoli and JBuilder. Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: BECS/CareerLink Program Supervisor, Indiana County CareerLink, 300 Indian Springs Road, Indiana, PA 15701, Job No. WEB460299.

IT CAREER OPPORTUNITIES

DELAWARE - Network Engineering Services Analyst. Deliver telecommunications services related to internet/firewall and perimeter security for South American clients. Position requires a BS and relevant experience, a combination of experience and college level education may be accepted. The flexibility to travel and be on call may be necessary. Must be fluent in Spanish and/or Portuguese. Proof of legal authorization to work in the U.S. is required. Please forward your resume to Computer Sciences Corp., Attn: J. Le, 2100 E. Grand Ave., Mail Code A30B, El Segundo, CA 90245.

Software Engineer - Web Technology Architect scalable middleware components using Oracle Enterprise Java Bean (EJB) and enterprise-scale distributed computing systems; analyze and design database layer middleware architecture to support access to central customer profile data from Oracle databases; design function implementations through BEA weblogic server in distributed cluster environments; apply techniques in the field of distributed artificial intelligence for business intelligence; design cache and pagination functions to process large amount of enterprise data; enhance managed information base systems for various database schemas to support management functions for e-business data; develop techniques to support requirements for special data types for distributed systems; tune system performance to reduce system down time and improve systems stability. Requires a Masters degree in Mechanical Engineering or Computer Science and either 2 yrs. exp. in the job offered or 2 yrs. exp. in architecting scalable middleware components using Oracle EJB and enterprise-scale distributed computing systems. Salary is $93,500/yr., 40 hrs/wk, 8AM to 5PM, Mon.-Fri. To apply submit 2 copies of resume to Case #200300375, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st floor, Boston, MA 02114

SYSTEMS ANALYST to analyze, design, develop, implement, install and maintain complex application software based on client-server/e-commerce/web technologies and distributed computer environment using Visual J++, MFC, Visual Basic, Crystal Report, ActiveX, HTML, DHTML, COM, XML, CSS, VB Script, JavaScript, SQL Server, Developer 2000, Designer 2000 and Oracle under Windows 95/98/NT/2000 and MS-DOS operating systems. Require B.S. degree (or equivalent) in Computer Science, or a closely related scientific discipline with 2 yrs of exp in the job offered or as a Programmer/Analyst. Each 3 yrs of progressively responsible work exp in the field will be considered equivalent to 1 yr of college education. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to Rambabu Kumaraswamy, Nexgen Technologies, Inc., 2980 Ennisfield Lane, Duluth, GA 30096. Attn: Job JB

Software Developer, Boca Raton, FL, 40-hr wk, 9 AM - 5 PM, $85,027/yr., 2 yrs exp in job offered & Bachelor's in Comp. Sci, Comp Eng., Elect. Eng or electronics; in lieu of degree, will accept 4 yrs exp in software dev or software programming, including FoxPro DOS & data modeling. Supv 3 employees; develop, implement & maintain application software to establish standards & specifications; dev. application software using FoxPro/Visual FoxPro & other approved programming language; implement approved changes to application software; Submit resume: Agency for Workforce Innovation, P.O. Box 10869, Tallahassee, FL 32302; JOB#FL-2558750.

Programmer Analyst (Micro/Web) - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analyses, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B, or 2 of A and 1 of B, or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SQL, SQL*FORMS, ESQL/C, GUPTA SQL Progress, 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS ASP, Front Page, Perl and Java Development Kit (JDK). High mobility preferred. 40 hrs/week, 8 am - 5 pm, $66,533 - $78,000 per year. Qualified applicants should contact or send resume to Armstrong County CareerLink, ATTN: CL Program Supervisor, 1270 North Water Street, PO Box 759, Kittanning, PA 16201-0759. Refer to Job Order # WEB 460361

Programmer Analyst (IBM Mainframe) - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance, support and conversion of large volume online transaction processing and batch application systems in a multi-hardware/multi-software environment over centralized database systems using relational/hierarchical/network database management systems, Third Generation Languages (3GLs), Fourth Generation Languages (4GLs), CASE tools and Transaction Processing Software. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science /Business-Commerce and 1 yr experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 1 of B and 1 of C, or 1 of A and 2 of B, or 1 of A and 2 of C. A includes DB2, IMS DB and IDMS DB, and B includes CICS, IMS DC, IDMS DC, ADS/O, QMF, VSAM and IMF Workbench, and C includes TELON, IEF, ADW, CSP and APS. High mobility preferred. 40 hrs/week, 8 am - 5 pm, $66,533 - $78,000 per year. Qualified applicants should contact or send resume to Fayette County CareerLink, ATTN: CareerLink Program Supervisor, 135 Wayland Smith Drive, Uniontown, PA 15401. Refer to Job Order # WEB 460344

PROGRAMMER/ANALYST to analyze, design, develop and implement complex mainframe-based application software using COBOL, CICS, DB2, VSAM, IDMS, Datacom and JCL under ISO 9001 and SEI CMM quality procedures. Require: B.S. degree in Computer Science, an Engineering discipline, a closely related field with 2 yrs. of exp in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Sophia Mookerji, Software Paradigms International, Inc., 3801 Roswell Rd, Ste 134, Marietta, GA 30062. Attn: Job PK.

How to Contact COMPUTERWORLD

We invite readers to call or write with their comments and ideas. It is best to submit ideas to one of the department editors and the appropriate beat reporter.

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Hot Servers

both those combinations make things hotter — that's all there is to it," said Thomas Roberts, director of data center operations at Trinity Health in Novi, Mich., which operates hospitals and outpatient facilities.

Roberts said he would like to install a row of blade servers at a disaster recovery site, but his 14-inch raised floors, which are stuffed with cabling, can't produce enough air pressure to cool the servers. "Not everyone can build a data center to meet their cooling needs," he said.

Orange, Calif.-based AFCOM is an association of data center professionals.

The importance of cooling was evident to conference attendees, said Steve Helms, an IT specialist involved in data center design at biotech firm Amgen Inc. in Thousand Oaks, Calif. He noted that two of the biggest displays were for power and cooling equipment suppliers Liebert Corp.



> **"The amount of power delivered and required [by servers] far exceeds our current techniques for cooling data centers."**
>
> **BRUCE EDWARDS,** PRESIDENT, CCG FACILITIES INTEGRATION INC.

in Columbus, Ohio, and American Power Conversion Corp. in West Kingston, R.I.

The presence of those vendors and others focused on facility issues is "telling me that there is a very serious issue out there, and a lot of people are already experiencing it, and the rest of us are going to get it soon," Helms said. "Blade servers are probably going to be in everybody's data center sooner or later."

Cooling "is the issue," said Bruce Edwards, president of CCG Facilities Integration Inc., a data center consultancy in Baltimore. Improper cooling can shorten a server's life or cause failure, he said.

"We are now presented with equipment that can use more power then ever before in a smaller footprint," he said. "And the amount of power delivered and required far exceeds our current techniques for cooling data centers."

Blade server racks come in a variety of sizes with different levels of power consumption. Large rack systems with 98 blades spread over seven chassis can consume as much as 24 kilowatts of power. That exceeds the capacity of the latest cooling systems, which can handle 20 kilowatts, manufacturers say.

Patrick Luma, data center manager at Stanford University, said he would like to see server vendors "concentrating less on condensing the size of the machines, such as having gone to 1U, and concentrating more on reducing the heat within the machine." A 1U device is 1.75-in. high.

Vendors said they're working to make systems more efficient but face a catch-22, with some users complaining about heat and others calling for more speed, said Darrel Ward, manager of server technology and product planning at Dell Inc. Dell has made design trade-offs for its 1U and blade servers, taking a moderate approach in order to control heat, he said.

Adding cooling technologies to the server itself will come at a cost, Ward added. "If you introduce something besides traditional fans, heat sinks and airflows to a commodity server, that $2,000 server is not going to be $2,000 anymore," he said.

Server Economics

Server vendors buy industry-standard components but try to distinguish themselves through efficient design, said Scott Tease, worldwide product marketing manager for IBM's eServer BladeCenter line. For example, IBM built in cooling technologies that direct airflow and reduced the number of heat-generating fan motors, Tease said.

The economics are complex. Very dense systems may require more cooling but take up less real estate. However, data center consolidations are increasing the sizes of IT facilities. Fast processors use more power to deliver greater computational capabilities at less wattage per MIPS, but this Moore's Law advantage is offset by users who install more of these increasingly powerful commodity servers in their data centers. **49853**

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Mainframe tools: CA zSeries and zOS tools are available in a pay-as-you-go plan. **QuickLink 49828 www.computerworld.com**

IBM On-Demand Data Centers in the Works

ATLANTA

IBM announced last week that it will expand the number of its on-demand data centers from one to 11 by the end of the year as part of a push to offer users virtual IT resources that can, in effect, be pooled and made available where needed.

The technology underpinning these data centers can be provided as an outsourced service or incorporated into a company's existing IT infrastructure. For instance, even if a user doesn't want to adopt pay-as-you-go pricing with a service provider, it may want to use the model to measure internal business unit consumption of IT resources.

The cornerstone of this offering is IBM's Universal Management Infrastructure, a set of software, architecture and best practices that allows multiple business units to draw on virtualized resources.

"We have clients today that say they want utility infrastructure in place 'that allows me to scale up and down more easily, that allows me to take the assets that I have in my data center and make them more efficient,'" said Mike Riegel, director of IBM Global Services.

Not Sold

But some users appear more willing to accept the idea of deploying an architecture for resource pooling than moving to an outsourcing model with utility pricing.

Michael Crumpler, manager of server support at Atlanta-based media conglomerate Cox Enterprises Inc., is a heavy user of Sun Microsystems Inc. servers and said he has heard similar pitches from that company. The major concern Crumpler has with outsourced models, regardless of whether the equipment is at an outsourced location or in his data center, is the issue of control. With on-demand computing, "I'm not controlling my assets anymore," he said.

Crumpler said he isn't willing to give up control of IT operations except for servers running noncritical services, such as conference room scheduling.

Dan Rhoden, a data center manager at Liberty Mutual Group Inc. in Indianapolis, said he has similar feelings. "It's like your personal life. . . . The stuff that you use, you want to own," he said.

Crumpler and Rhoden were among the data center managers at the AFCOM conference here last week.

But Ayman Nassar, data center manager at Prince George's Community College, a 30,000-student school in Largo, Md., said he's interested in the utility model. The college already leases its hardware, which he said is a first step toward utility pricing.

"We are moving toward that model of paying for what you only really need, as you need it," he said.

IBM operates some 300 data centers around the world, and some of the new on-demand centers, which are planned in the U.S., Germany, Italy, Sweden, the U.K., Australia, Japan and Singapore, will be coupled with the company's existing centers. IBM plans to open four or five more on-demand centers in early 2005, Riegel said.

– Patrick Thibodeau

MORE ONLINE

For additional data center coverage, visit our Web site. **QuickLink 49849 www.computerworld.com**

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FRANK HAYES ■ FRANKLY SPEAKING

Under the Volcano

I'M SITTING HERE under the volcano, waiting. (OK, I'm not actually *under* Mount St. Helens. I'm some 40 miles away. But that's plenty close, thanks.) Some days, I can watch the volcano spit clouds of steam and ash thousands of feet into the sky, as experts say a major eruption could be hours away. Other days, the same experts say it might be months or even years before anyone in my neighborhood has something to worry about. But there are still reports that small earthquakes constantly shake the volcano and that the lava dome is rising. I know that sooner or later, something's going to happen.

If you're a PeopleSoft customer, you probably feel that way too.

After all, since the start of October, the Department of Justice has given up on its efforts to block Oracle from buying PeopleSoft, and PeopleSoft's board has fired Craig Conway, the antitakeover CEO who had just spent a week reassuring customers at the company's annual user conference. PeopleSoft's board is still rejecting Oracle's takeover bids but now says it's willing to do a deal if the price is right.

And PeopleSoft users? You know something's going to happen. You can't stop it, you can't choose the timing, and you don't know exactly what sort of chaos will come raining down on your heads. You just know the situation could blow up on you at any time. And the experts — the pundits, analysts and columnists — say the deal could come within weeks and it's probably too late for you to do anything to prepare for it.

Of course, we've heard that before.

Specifically, we heard it during the summer of 2003 — just after Oracle announced its play for PeopleSoft. Back then, pretty much all the experts agreed that PeopleSoft couldn't stave off Oracle's hostile bid for long. And that when Oracle CEO Larry Ellison announced that he wouldn't be selling PeopleSoft products after the takeover, it was already too late for PeopleSoft's current customers to avoid becoming orphans.

PeopleSoft users were out of time and out of luck, the experts said.

And the experts were . . . well, a little bit off.

If you had listened to the experts — if you had believed it was too late to do anything — you'd have lost the past 16 months. You wouldn't have spent that time developing contingency plans. And renegotiating contracts. And smoothing out your PeopleSoft implementation, in case you needed to migrate.

You can get a lot done in 16 months. You *did* get a lot done in that 16 months, didn't you?

If you did, you already know what to think of the most recent pronouncements from the industry's deep thinkers. Yes, maybe PeopleSoft's board *will* accept a sweeter Oracle offer. Maybe it *is* now inevitable. After all, Oracle has been sliding. Right now, Oracle needs a PeopleSoft deal — and needs to keep PeopleSoft's customers happy, too.

Maybe a month or two from now, that deal will be done.

On the other hand, maybe Oracle won't sweeten the deal enough. Maybe the PeopleSoft board will change its mind. Maybe the lawsuits over the deal will have to grind through to their verdicts and appeals. Maybe Oracle will drop its bid. That deal might not close for years. It may never close.

So when the pundits, analysts and columnists tell you it may be too late for PeopleSoft customers to do anything in the face of a once-again-impending Oracle takeover, consider their record.

Then, if you haven't already, start working out those contingency scenarios. Start squaring up your installation, just in case. Start making plans and considering choices. If you really are out of time and luck, you'll waste a little effort. But if it turns out you've got another year or two, you'll have made good use of it.

And this is one volcano you can't afford to just wait for. ● 40913



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Where There's Smoke . . .

"I think my monitor is on fire!" user tells help desk pilot fish. Call the fire department, fish says immediately. "But can't you just come look at it?" user asks. "I don't see flames, but it went black and I smell smoke." Hang up and call the fire department! fish tells her. So she does. "They came and took her burned popcorn out of the microwave," sighs fish. "And her screen came back when she moved her mouse."

SHARK TANK

Oops!

At this state agency, the administrator password is changed regularly on all 3,000 PCs. "We are also mandated regularly by the network security supervisor that disclosing this password is grounds for disciplinary action," says an IT pilot fish there. But one day, just hours after the change, an order comes down to change it again. Why? Fish reports, "It looked out that the network security supervisor, in his haste to get something done, inadvertently divulged the network password to an outside contractor."

Bugs? Nah!

It's the late 1970s, and a secretary discovers an easy way to spend work time with her co-worker boyfriend: using the command to move the cursor on a mainframe-based text editor to Line 0. That causes a crash, and everyone gets a 20-minute break. "Finally, someone ratted on the secretary and told IT," says a user pilot fish. "But those higher beings in IT refused to believe until it was demonstrated: Line 0, and down goes the mainframe. There's nothing funnier than seeing IT jump to the floor at the same time."

That's Not It

Pilot fish watches two software testers working on a complex workflow project. One tester's test scripts keep failing, while the other's scripts run fine. "Tester 1 even asks Tester 2 to run one of his tests, and then the test completes just fine," says fish. "So he says to Tester 2, 'I can see your tests look OK, and mine have failed. Should we swap computers?' "

You Know, the Anonymous Ones

Pilot fish sends out an employee satisfaction survey as a Web form embedded in e-mail. That way, responses remain completely anonymous, users are assured. Next day, one user complains to fish that he's tried sending the form three times, but there's still nothing in his e-mail out-box. "What kind of system makes us fill out a lengthy survey and then not even send it?" user grumbles. Fish explains it's sent via the Web to keep it anonymous. "Oh," user says. "Well then, just remove my entire answers from your database."

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Another top exec is out at PeopleSoft. PAGE 12



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Users Buoyed By Monthly Patch Releases

Microsoft's approach makes process more predictable, execs say

BY JAIKUMAR VIJAYAN

Microsoft Corp.'s move to a monthly patch-release cycle one year ago this month has made it easier to install security updates for Windows and other products, IT managers said last week — even as they were greeted with a barrage of new fixes, many for flaws that were given "critical" severity ratings by Microsoft.

The October patch rollout was one of Microsoft's largest this year, consisting of 10 patches designed to address a total of 20 vulnerabilities across a wide range of the company's products. Seven of the security updates were rated as "critical" for users to install, and the other three were labeled "important."

ADDITIONAL COVERAGE

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Security Updates

The "critical" patches released by Microsoft last week include:

MS04-032: Fixes several security holes in Windows NT, XP and Server 2003 that could allow attackers to take complete control of unprotected systems and view, change or delete data on compromised machines.

MS04-033: Patches a remote code execution vulnerability in several versions of Excel for Windows and Macintosh systems.

MS04-034: Addresses a flaw in the way that Windows XP and Server 2003 process compressed files.

The massive release highlighted Microsoft's continuing struggles with software security. Nevertheless, six users said the monthly cycle that the vendor has followed for almost all the patches released since last October has made the patching process more predictable and manageable.

"Overall, the [monthly patching] schedule is a good thing," said Hugh McArthur, information systems security officer at Online Resources Corp., an online bill-processing company in McLean, Va. "It has been helpful for planning purposes and in allowing us to evaluate the patches once a month, versus having

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IT Scrambles to Meet Sarb-Ox Controls Deadline

Slow starts, miscommunication put companies under the gun on technology-related mandates

BY THOMAS HOFFMAN

IT departments at many large companies are racing to document, remediate and test IT-related controls to meet a year-end reporting deadline for Sarbanes-Oxley compliance.

ONLINE

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The rush is on because many companies failed to grasp the amount of work that would be required and because of miscommunication between IT managers and the finance departments that typically run Sarbanes-Oxley Act compliance projects, according to users and analysts who were interviewed last week.

"What I've seen is a 'Let's drop everything and get this done' approach on dealing with IT controls from the second quarter until now," said John Hagerty, an analyst at AMR Research Inc. in Boston.

Hagerty and several other analysts and consultants said they expect that most companies that need to show Sarb-Ox compliance by year's end will get the bulk of their IT controls documented and tested in time. But some analysts predicted that in annual 10-K reports early next year, as many as 25% of the so-called accelerated filers will have to report controls-related exceptions that require additional remediation. Depending on the severity of the problems, companies could be fined by the U.S. Securities and Exchange Commission.

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Stretching Your Storage Dollars



Demand for data storage is far outpacing the growth of IT budgets, so something has to give. This special report identifies cost-saving strategies to help you cope. **Stories begin on page 35.**



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IT departments at many large companies are racing to document, remediate and test IT-related controls to meet a year-end reporting deadline for Sarbanes-Oxley compliance.

ONLINE

Read more Sarbanes-Oxley news on our Web site

QuickLink a3250

The rush is on because many companies failed to grasp the amount of work that would be required and because of miscommunication between IT managers and the finance departments that typically run Sarbanes-Oxley Act compliance projects, according to users and analysts who were interviewed last week.

"What I've seen is a 'Let's drop everything and get this done' approach on dealing with IT controls from the second quarter until now," said John Hagerty, an analyst at AMR Research Inc. in Boston.

Hagerty and several other analysts and consultants said they expect that most companies that need to show Sarb-Ox compliance by year's end will get the bulk of their IT controls documented and tested in time. But some analysts predicted that in annual 10-K reports early next year, as many as 25% of the so-called accelerated filers will have to report controls-related exceptions that require additional remediation. Depending on the severity of the problems, companies could be fined by the U.S. Securities and Exchange Commission.

Sarb-Ox, page 16

KNOWLEDGE CENTER

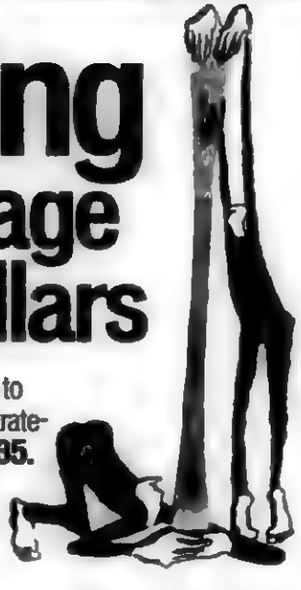
Stretching Your Storage Dollars



Demand for data storage is far outpacing the growth of IT budgets, so something has to give. This special report identifies cost-saving strategies to help you cope. **Stories begin on page 35.**



Exclusive results from *Computerworld*'s storage survey, in downloadable PowerPoint slides. ◆ QuickLink 40498



NEWSPAPER

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Microsoft

Your potential. Our passion.™

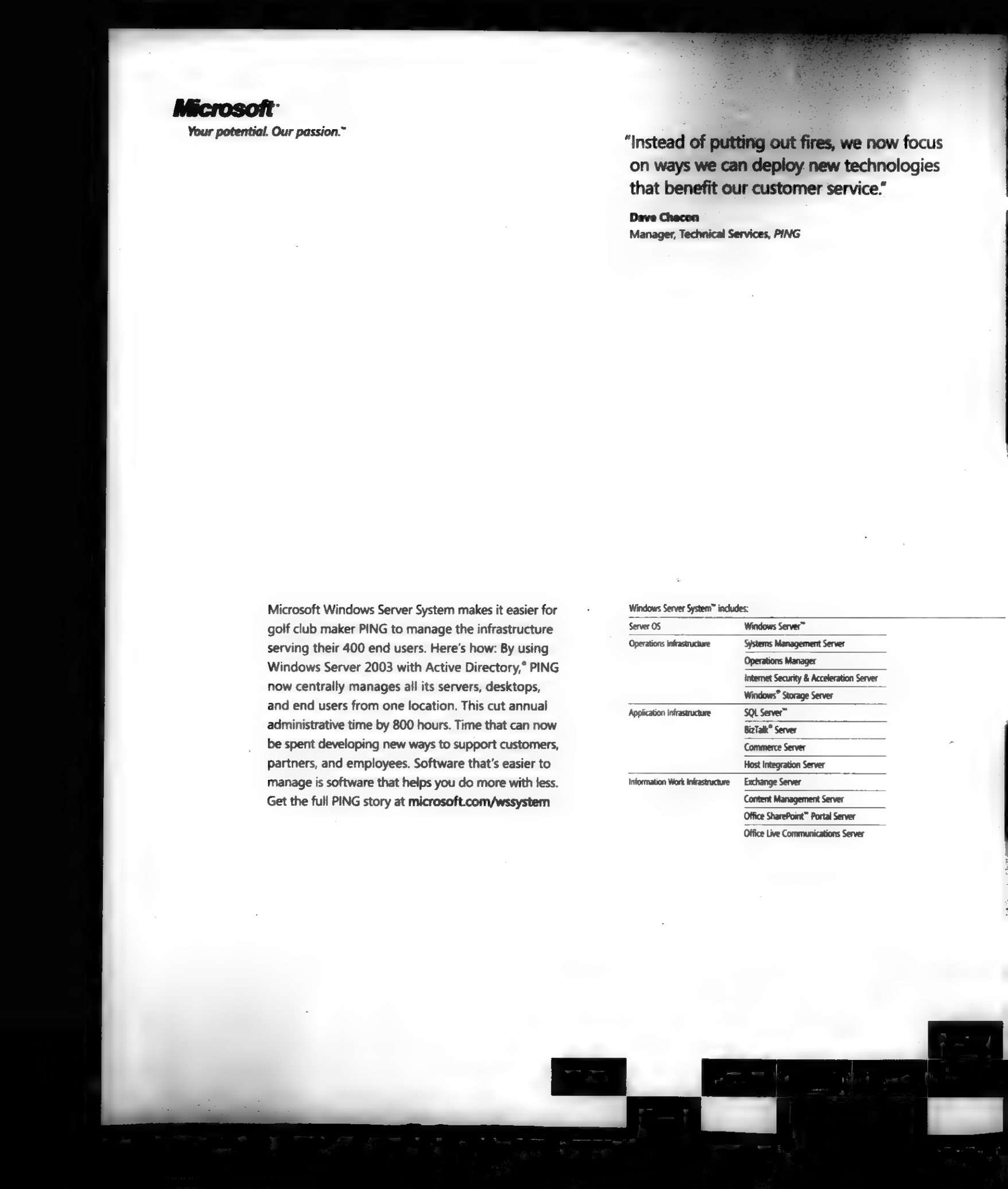
"Instead of putting out fires, we now focus on ways we can deploy new technologies that benefit our customer service."

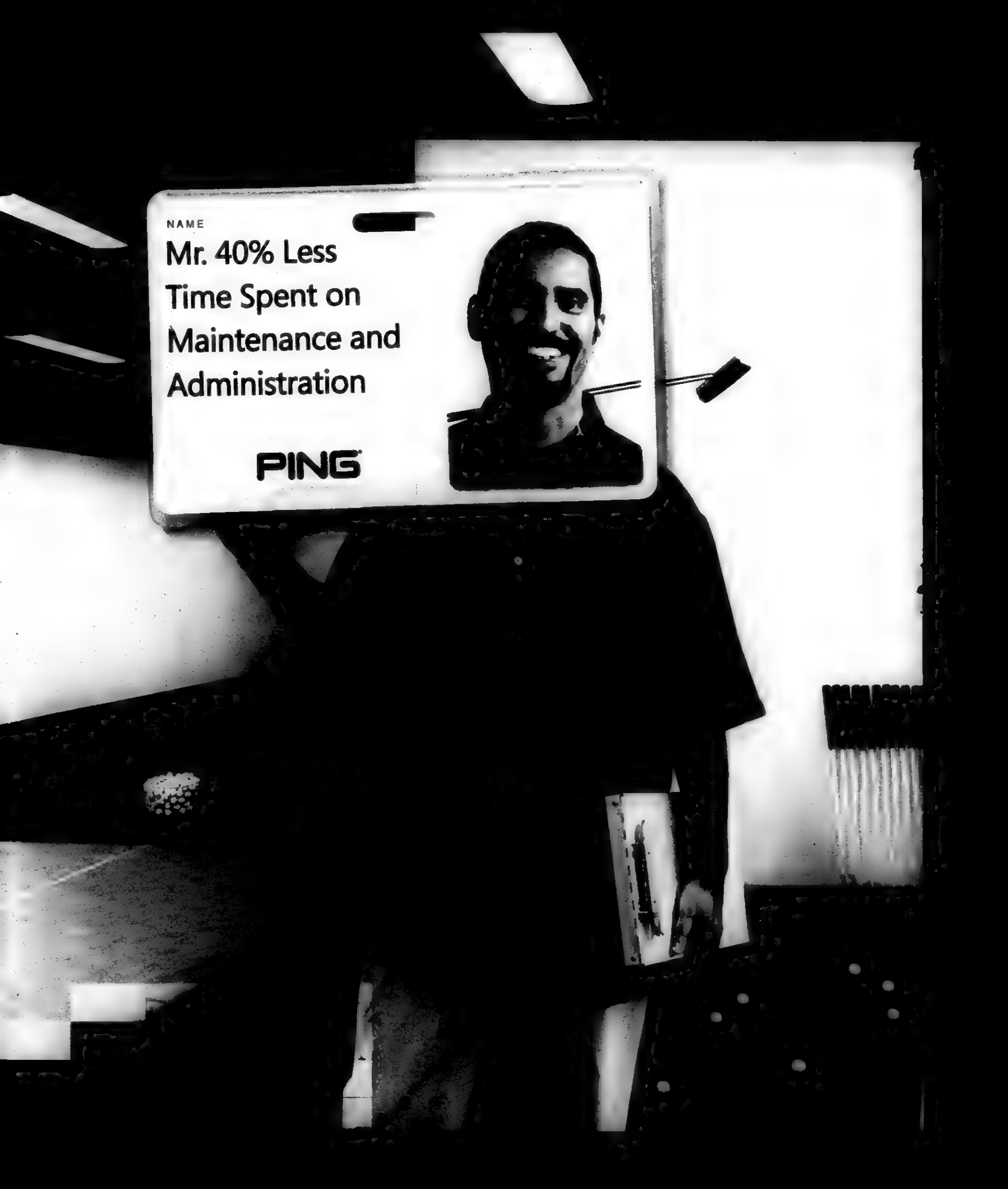
Dave Chacon
Manager, Technical Services, *PING*

Microsoft Windows Server System makes it easier for golf club maker PING to manage the infrastructure serving their 400 end users. Here's how: By using Windows Server 2003 with Active Directory,® PING now centrally manages all its servers, desktops, and end users from one location. This cut annual administrative time by 800 hours. Time that can now be spent developing new ways to support customers, partners, and employees. Software that's easier to manage is software that helps you do more with less. Get the full PING story at **microsoft.com/wssystem**

Windows Server System™ includes:

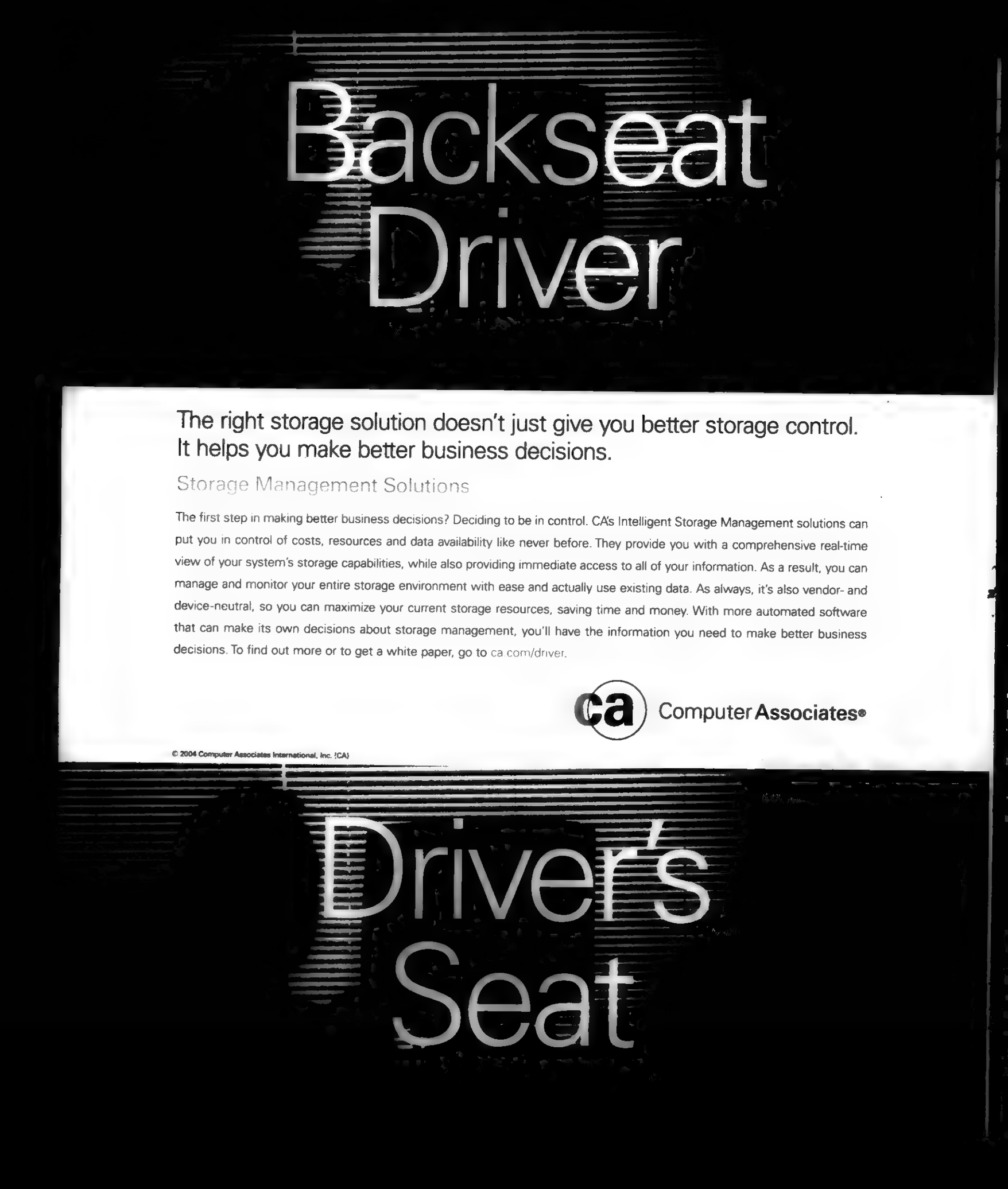
Server OS	Windows Server™
Operations Infrastructure	Systems Management Server
	Operations Manager
	Internet Security & Acceleration Server
	Windows® Storage Server
Application Infrastructure	SQL Server™
	BizTalk® Server
	Commerce Server
	Host Integration Server
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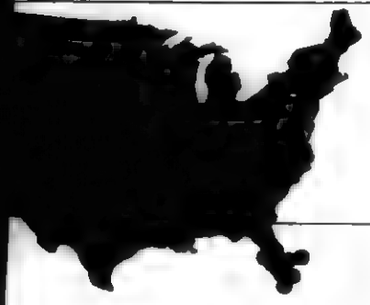



Make a name for yourself
with Windows Server System.
Windows
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Backseat
Driver
The right storage solution doesn't just give you better storage control.
It helps you make better business decisions.
Storage Management Solutions
The first step in making better business decisions? Deciding to be in control. CA's Intelligent Storage Management solutions can put you in control of costs, resources and data availability like never before. They provide you with a comprehensive real-time view of your system's storage capabilities, while also providing immediate access to all of your information. As a result, you can manage and monitor your entire storage environment with ease and actually use existing data. As always, it's also vendor- and device-neutral, so you can maximize your current storage resources, saving time and money. With more automated software that can make its own decisions about storage management, you'll have the information you need to make better business decisions. To find out more or to get a white paper, go to ca.com/driver.
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10.18.04



E-vote at Risk

In the Technology section: Despite assurances from election officials and vendors, researchers say the the security and reliability of electronic voting systems is in doubt because of substandard development and testing practices. **Page 25**



The Extra Mile

In the Management section: Rebuilding your bare-bones IT shop? It's a great time to commit to getting diversity right. Here are some practical tips from companies that know how. **Page 31**

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4 **Starbucks customers** can now use HP tablet PCs to burn music CDs while sipping their coffee.

5 **IBM and Borland add tools** that bring business process automation to software development.

8 **India's IT hiring boom** continues, and the growing demand for offshore services could lead to rate increases.

10 **IBM completes** its Power5 lineup by adding 64-way pSeries and iSeries models.

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20 **Don Tennant** is still waiting for something substantive to come out of the accord Sun and Microsoft signed in April.

20 **Michael Gartenberg** has heard it all before when it comes to scary stories about the security threats posed by USB devices.

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28 **Robert L. Mitchell** thinks companies are missing the point if they dislike how quickly information (about their products' flaws, for example) is disseminated on the Web.

34 **Barbara Gonolski** realizes that IT careers have lost their allure for many, but if you've got a budding techie at home, she has some advice.

56 **Frankly Speaking: Frank Hayes** says that while you might want to jam wireless transmissions in your offices, you can't jam the future.

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KNOWLEDGE CENTER STORAGE

Stretching Your Storage Dollars

Skyrocketing demand for data storage is outpacing the growth of IT budgets, and something has to give. This special report identifies cost-saving strategies to help you cope.



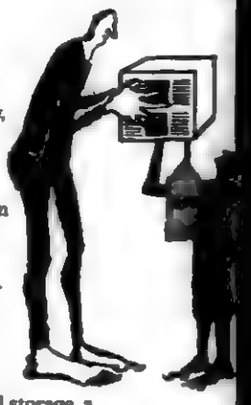
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36 Thrifty Storage Strategies. To maximize storage savings, some larger companies are homing in on long-term planning initiatives.



38 Long Distance, Short Money. IT execs like Don Bolton of Teppco Partners say they're cutting their long-distance data back-up costs with storage-over-IP technology.

40 Secondhand Savings. Buying used storage equipment is cheaper than buying new, and customers can also reap the benefits of faster acquisition cycles and more flexible maintenance programs. But there are risks involved.



44 QuickStudy: A primer on grid storage, a model similar to grid computing that allows companies to deploy and manage storage distributed across multiple systems and networks. **ONLINE:** Learn more about the first grid storage product. QuickLink 40072



45 The Almanac. E-mail, business intelligence and CRM are driving forces behind the need for more storage capacity; e-mail archiving has hidden costs; and a prototype holographic disc is emerging from an R&D lab.

46 Opinion: Columnist Mark Hall was planning to write about the impending demise of tape. But then he looked a bit closer and discovered it has a bright future.



Editor's Picks: A collection of Computerworld's best stories about data storage, including regulatory compliance issues. QuickLink 40077

Data Points. Our newest collection has storage factoids to download for your PowerPoint presentations. QuickLink 40086

Storage Networking World Highlights. News and survey results from Computerworld's twice-annual storage conference. QuickLink 40039

AT DEADLINE

Cisco, Microsoft Bridge Security Gap

CISCO SYSTEMS INC. and **MICROSOFT CORP.** today will announce a collaborative effort designed to bridge a divide between their emerging network access-control architectures.

The two companies said on Friday that they have agreed to share application programming interfaces and jointly develop protocols intended to improve interoperability between Microsoft's Network Access Protection technology and Cisco's rival Network Admission Control offering.

NAP and NAC are designed to help companies enforce security policies on network endpoint systems such as PCs and mobile devices. The technologies let IT managers set rules that prevent a client device from accessing a network unless it complies with policies on antivirus software updates, firewall configurations and other issues.

But Cisco's plan is to integrate the functionality into its routers, switches and virtual private network devices, while Microsoft's strategy is focused on embedding NAP in its operating systems.

The agreement to collaborate means that users shouldn't have to worry about interoperability issues, said Joel Conover, an analyst at Current Analysis Inc. in Sterling, Va. "Microsoft and Cisco needed to do this," he said. "A lack of cooperation would have resulted in competing standards or no standards at all, both of which are unattractive to enterprises."

Cisco released an initial set of NAC products in June [QuickLink 47781]. Microsoft will add VPN Quarantine support in the first service pack for Windows Server 2003, due by mid-2005. But Steve Anderson, director of networking in Microsoft's Windows Server group, said full NAP support won't come until the Longhorn version of Windows, expected in 2007.

Microsoft had planned to fully support NAP in an update to Windows Server 2003 that's due in the second half of 2005. Anderson said the delay is being caused by the deal with Cisco and a decision by Microsoft to add IPsec enforcement in addition to Dynamic Host Configuration Protocol enforcement.

– Jaikumar Vijayan and Carol Sliwa

IBM Adds High-End, Midrange Disk Arrays

Performance, capacity boosted in first storage systems based on IBM chips

BY LUCAS MEARIAN
NEW YORK

IBM LAST WEEK unveiled two new enterprise-class disk arrays. One is aimed at the high end and one at midrange environments, but both have compatible software that allows the boxes to be managed through a single interface and data to be replicated between them.

The TotalStorage DS8000, the next generation of IBM's high-end Enterprise Storage Server, also known as the Shark, boosts performance as much as sixfold, and the 192TB capacity is more than three times that of its predecessor. The midrange TotalStorage DS6000 array is a rack-mountable, 3U-high unit that scales from 580GB to 67.2TB. (1U is 1.75-in. high.)

Both boxes represent the first time IBM has used native Fibre Channel disk drives instead of SCSI with Fibre Channel bridges. Charles Lickel, vice president of software and storage development at IBM, said the arrays will be offered with less-expensive Advanced Technology Attachment disks by the end of 2005.

The arrays will ship Dec. 3. The DS8000 and DS6000 can be used as primary storage for IBM zSeries and iSeries mainframes as well as for Unix, Linux and Wintel servers. The DS8000 can be upgraded on the fly from two to four processors.

For the first time, IBM used its own server processors for storage. The refrigerator-size DS8000 uses the pSeries processor, and the DS6000 uses an IBM PowerPC chip.

Compatibility a Plus

Users at a press event here said they were impressed by the increase in performance and the ability to use a single management platform across all of IBM's storage products.

"It's easy to talk about the new stuff, but when you've got an existing infrastructure, you've got to have something that blends into that," said Bob Venable, manager of enterprise systems at BlueCross BlueShield of Tennessee Inc. in Chattanooga. The users also said they looked forward to an upgrade that, as with a mainframe, will allow multiple logical partitions to be created automatically in response to application needs. IBM pledged to add that capability over the next year.

Currently the DS8000 can be manually split into two separate systems.

Tony Asaro, an analyst at Enterprise Strategy Group Inc. in Milford, Mass., gave the new IBM disk arrays high marks for their price, compatibility, four-year warranty and use of IBM-built processors. But he added that IBM must still address the network-attached storage and content-addressed storage markets, like chief competitors EMC Corp. and Hitachi Data Systems Corp. have.

Both arrays use an internally switched architecture instead of Fibre Channel arbitrated loop, which brings IBM up to speed with similar boxes from its major competitors.

Dale Collier, senior vice president of technology at Regions Financial Corp. in Montgomery, Ala., said he likes the compatibility between the DS8000 and DS6000. He's considering buying both to replicate between a data center in Montgomery and a secondary one in Birmingham, Ala. Regions' infrastructure includes IBM mainframes and Shark arrays and EMC's high-end Symmetrix arrays.

"Today, we're dealing with SunGard for disaster recovery, and at best that's a 24-hour [recovery time objective]," Collier said. By replicating the DS8000 and DS6000 between data centers, he could recover data in seconds, he said.

John Dick, CIO at Regions Financial, said he likes the new arrays but added that the technology also offers him a chance to get older-model Shark arrays at a cut-rate price. **50078**



IBM Storage Arrays

DS8000
- Retail starting price: $134,000
- 256GB of cache
- Supports 96 petabytes of external storage
- 128 Fibre Channel or Ficon ports
- In 2005, will be expandable from two to eight processors and 512GB of cache

DS6000 (processor server)
- Retail starting price: $37,000
- Configured through Web-based interfaces
- 4GB of cache
- 16 Fibre Channel or Ficon ports



Starbucks Taps HP for Music Download Service

STARBUCKS CORP. last week said it will use hardware and software from Hewlett-Packard Co. to serve up a vast digital library of songs to customers along with its coffee.

Starbucks customers will be able to use tablet PCs supplied by HP to listen to songs, download them and burn them onto CDs.

A nationwide launch of the new setup, which Starbucks is calling its Hear Music "media bar," is scheduled to begin today at 15 outlets in Seattle and will expand to 30 coffee shops in the Austin area starting next Monday.

Starbucks is installing HP tablet PCs, workstations and printers to support its new in-store music-download and CD-burning service.

Vendors Upgrade Development Tools

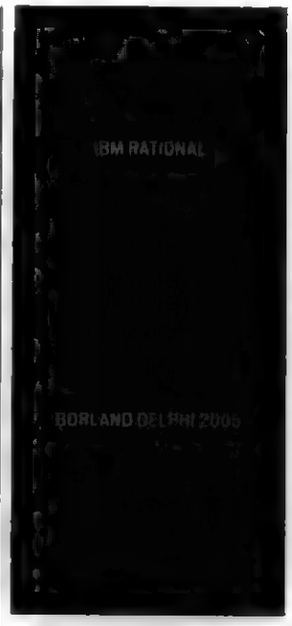
IBM, Borland aim to bring business process automation to app design work

BY HEATHER HAVENSTEIN

IBM and Borland Software Corp. last week separately brought out upgrades to their development tool lines that executives said add support for heterogeneous environments and more closely link software creation to business goals.

IBM unveiled an expanded Rational Software product line that it had previewed under the code name Atlantic at the annual Rational user group conference last summer (QuickLink 48365). Meanwhile, Borland rolled out a new version of its long-running Delphi Windows development tool family. Observers said both companies are maneuvering to infuse their platforms with business process automation commonly used in other corporate operations such as core product design and manufacturing.

"What we're seeing today in IT shops is the need to [start] thinking more strategically about IT priorities and how the overall IT assets and resources can be best matched to deliver business value," said Melissa Webster, an analyst at market research company IDC.



IBM's release of the Rational tool set brings all the offerings into the Eclipse 3.0 framework, an open-source development platform that promises deeper integration of the various products, Webster said. Eclipse replaces proprietary application programming interfaces previously used to integrate the Rational tools.

The Rational tools lineup includes Portfolio Manager, Software Architect, Software Modeler and Manual Tester.

The modeling tool includes support for Unified Modeling Language 2.0 for visual-based modeling. IBM will continue supporting the older Rational Rose and Rational XDE modeling systems.

IBM will acquire the portfolio management software through its planned purchase of Systemcorp ALG Ltd. (see story, below right).

Diamondback Strikes

Meanwhile, Borland this week unveiled Delphi 2005, which incorporates support for .Net Win32, Delphi and C# in one environment while integrating with Borland application lifecycle management tools.

Code-named Diamondback, Delphi 2005 supports Borland's Software Delivery Optimization plan to apply business process automation to software development tools, the company said.

Delphi 2005 also provides an alternative to the end-to-end development platforms from IBM and Microsoft Corp., said Gartner Inc. analyst Mark Driver. Many IT managers with systems from both Microsoft and IBM contend that recurring features in multivendor tools complicate development projects, he said.

"Borland is one of the very few pure tools vendors of any serious size left in the industry, [and] they have to play both sides of the fence," Driver said.

Omar Sayed, CEO of Succeed Corp. in Chandler, Ariz., has used Delphi to build e-commerce systems for his customers to store data and operate online auctions. The new features — especially support for Win32, .Net and C# in one environment — will give company developers "more scope to what they can do without having to go outside and bridge things in different environments," he said.

Delphi 2005 is slated to ship next month. The Architect Edition is priced at $3,000 for new users and $1,999 for an upgrade, while the Enterprise Edition lists at $2,500 for new users and $1,500 for an upgrade. The Professional Edition is priced at $999 for new users and $399 for an upgrade.

All of the new IBM products will be available by year's end. Pricing ranges from $5,500 per user for Rational Software Architect to $1,000 per user for the IBM Rational Web Developer for WebSphere. **50105**

MORE ONLINE

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IBM to Buy Systemcorp To Bolster Rational Line

IBM last week agreed to acquire Systemcorp ALG Ltd., a Montreal-based project portfolio management company, as part of a strategy of pushing business process-driven software development.

IBM plans to fold Systemcorp's Web-based PMOffice software into its Rational development platform as Rational Portfolio Manager. The portfolio manager tool can provide a comprehensive view of IT projects across the enterprise, tracking all project deliverables, such as budgets and tasks, until the work is completed, IBM said.

Financial terms of the deal weren't disclosed.

Systemcorp's software can provide Rational users the visibility needed to more effectively manage IT investments, said Roger Oberg, IBM's vice president of marketing for Rational products.

"Software development isn't a discrete set of activities done by testers and developers and architects in isolation, but is a business process . . . that lends itself to automation and integration," Oberg said. "All of the software development investment decisions take place in the broader context of an IT portfolio management decision."

The Systemcorp technology, built using IBM's WebSphere Portal, was designed to complement IBM middleware, Oberg added.

The tool can help CIOs effectively communicate how IT resources are deployed to respond to overarching business priorities, said Melissa Webster, an analyst at market research company IDC. Because the tool tracks costs and other expenses against project milestones, it can link developer teams to the business goals, she added.

"A few years ago, those discussions were held on a rather technical level," Webster said. "It was hard for the lines-of-business people to gain some visibility as to what the issues were when the business priorities change . . . or when projects were delayed, why they were delayed."

– Heather Havenstein

Starbucks has made the HP Tablet PC TC1100 systems more durable by adding an aluminum frame and stronger cables for the headsets, said James Snook, vice president of technology strategy and innovation at the Seattle-based company. He added that touch-screen technology eliminates the need for a keyboard.

"We found a way to complement the existing store environment without changing it to a significant extent," Snook said. Using a custom application on the tablet PCs, customers sitting at a music bar or in nearby chairs will be able to view a directory and hear selections from an in-store database of more than 150,000 songs.

An HP xw4100 workstation will store the songs and support the creation of professional-quality music CDs, while an HP Business InkJet 9670 printer will allow customers to produce personalized CD covers, inserts, graphics and packaging, said Marc Kriz, HP's worldwide alliance manager for Starbucks.

Starbucks plans to charge $8.99 for the first seven songs and 99 cents for each additional one. Credit card data for processing payments will be sent from the tablet PCs to the company's point-of-sale system via in-store Wi-Fi networks.

HP and Starbucks wouldn't disclose the expected cost of the technology deployment.

Snook said the rollout will take years to complete but wasn't more specific.

– Matt Hamblen



Vendors Upgrade Development Tools

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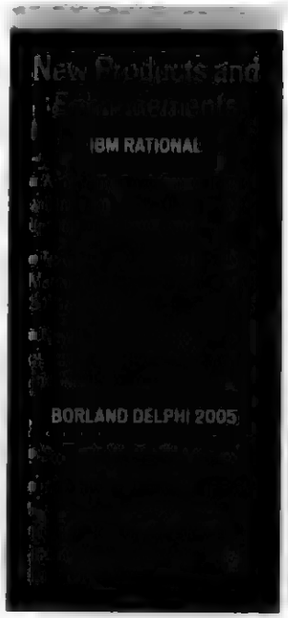
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– *Matt Hamblen*

BRIEFS

Novell Will Defend Open-Source

Novell Inc. said it's prepared to use its patent portfolio to protect its open-source software against lawsuits. The company vowed to employ "the same measures generally used to defend proprietary software products" if other vendors claim that its open-source offerings infringe on their patents. Novell didn't promise that it would never use its patents against other Linux vendors but said that it has no intention of doing so.

SCO to State Case On New Web Site

The SCO Group Inc. said it plans on Nov. 1 to launch a Web site devoted to its legal battles with Novell and other Linux backers. The *www.prosco.net* site will let SCO "tell our side of the story," CEO Darl McBride said at the ETRE conference in Cannes, France. A spokesman for Lindon, Utah-based SCO said the site is being created partly in response to *www.groklaw.net*, an independent Web site that has been critical of SCO.

Cisco Inks Security Deals With CA, IBM

Computer Associates International Inc. said it plans to integrate its antivirus and antispyware tools with Cisco Systems Inc.'s Trust Agent software. Trust Agent, which is part of Cisco's Network Admission Control offering, works with NAC-enabled routers to stop unsecured PCs from accessing networks. Separately, Cisco and IBM said that IBM's Tivoli management software now interoperates with the NAC products.

Short Takes

WAL-MART STORES INC. said it has expanded its data warehouse, which is based on NCR Corp.'s Teradata software. But it didn't disclose any details. (See related items at right.) . . . SAP AG upgraded its business applications for small and midsize companies.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



Orange Everywhere in October? Must Be . . .

. . . Halloween? Or maybe the Syracuse University Orangemen football team had arrived in Seattle to battle the University of Washington Huskies? Neither. The Washington State Convention and Trade Center was mobbed last week by 3,000 database and business intelligence (BI) wizards festooned with orange vests, hats, shirts and even shoes. Many also carried orange travel bags, backpacks and briefcases — not necessarily to display their questionable fashion sense, but to show their colors while attending Teradata's annual user conference. The San Diego-based data warehousing division of NCR Corp. has adopted orange as its corporate color. In addition to doing brisk business in orange clothing and tchotchkes, the company gave users a sneak peek at Teradata Warehouse 8.0, a software upgrade that's due in early December. According to Alan Chow, Teradata's senior vice president for R&D, the new release will conform to Web services and message-passing architectures, linking it more tightly with business applications. Perhaps more important, he says, 8.0 makes it easier to trigger external stored procedures so other applications can automatically react to BI discovered inside a Teradata data warehouse. Chow also brags that 8.0 improves the responsiveness of data warehouses to real-time rates.


CHOW Teradata improves responsiveness to real time.

Near real-time analytics helped boost . . .

. . . Continental Airlines Inc. from worst to first. That's the opinion of Kelly Cook, director of customer relationship management at the Houston-based airline. Cook claims that BI that Continental gleaned from its customers helped move it from last place in travelers' opinions nine years ago to the winner of this year's award for best airline from London-based OAG Worldwide Ltd. The first move Continental made to improve frequent-flier relations back in the mid-'90s was to consolidate 55 databases worldwide into a single Teradata data warehouse. "We wanted one voice of the customer," Cook says. Next, the goal was to identify high-yield customers, create loyalty programs and get more immediate data on the cost of each flight. For example, flight attendants now receive information from the data warehouse about high-value customers on a flight so they can personally express the airline's interest in and knowledge about the customers' recent flying experiences with Continental. And the company's financial analysts can get information about the profitability of each flight instantly after "wheels up," Cook says. She adds that in the future, she wants the data warehouse to use real-time clickstream data to automatically generate targeted offers to Continental's Web site visitors.

Data warehouse cuts costs for . . .

. . . cost-conscious Southwest Airlines Co. The Dallas-based carrier centralized its BI group two years ago around a Teradata data warehouse in order to keep a lid on IT costs through better systems management and more efficient staffing policies. "We're the low-cost airline, so we should have a low-cost infrastructure," says Patrick Bolin, senior manager of enterprise data warehousing at Southwest. Besides helping to hold down IT spending, the 2TB data warehouse helps business analysts cut corporate costs. Bolin pegs the annual savings from ideas generated through use of the data warehouse at between $1.2 million and $1.4 million. As a result of that success, the data warehouse is destined to grow. Bolin estimates that it will increase to 3TB by next summer and possibly double that volume by 2007. He says his team is developing better ways of handling ad hoc query requests from end users and creating dashboard-style tools for the airline's executives.


BOLIN says BI cuts costs.

'Extreme data warehousing' is . . .

. . . just around the corner, predicts Stephen Brobst, Teradata's chief technology officer. The "extreme" future that Brobst envisions for data warehouse managers has three drivers: vast increases in data volume, demand for real-time responsiveness and hordes of new users. Brobst points to potential petabytes of data created by RFID technology. Companies that use RFID had better be prepared to harvest data at rates "two orders of magnitude greater" than they're used to getting, he says. Data warehouse performance will also be critical for BI apps, according to Brobst. A data warehouse that can't index new information "instantaneously or near instantaneously" is going to be all but useless in the coming years, Brobst claims. He adds that CEOs who want their companies to become responsive "real-time organizations" are foolish if they leave out BI. "A real-time enterprise without real-time business intelligence is a real fast, dumb organization," he quips. Finally, Brobst estimates that the number of BI users of a typical data warehouse will leap by a factor of 10 in the next few years. Just to make sure it could handle the load, Teradata last year increased the number of users who can access its data warehouse by a factor of more than 100,000. That should do it. **50060**



BRIEFS

Novell Will Defend Open-Source

Novell Inc. said it's prepared to use its patent portfolio to protect its open-source software against lawsuits. The company vowed to employ "the same measures generally used to defend proprietary software products" if other vendors claim that its open-source offerings infringe on their patents. Novell didn't promise that it would never use its patents against other Linux vendors but said that it has no intention of doing so.

SCO to State Case On New Web Site

The SCO Group Inc. said it plans on Nov. 1 to launch a Web site devoted to its legal battles with Novell and other Linux backers. The *www.prosco.net* site will let SCO "tell our side of the story," CEO Darl McBride said at the ETRE conference in Cannes, France. A spokesman for Lindon, Utah-based SCO said the site is being created partly in response to *www.groklaw.net*, an independent Web site that has been critical of SCO.

Cisco Inks Security Deals With CA, IBM

Computer Associates International Inc. said it plans to integrate its antivirus and antispyware tools with Cisco Systems Inc.'s Trust Agent software. Trust Agent, which is part of Cisco's Network Admission Control offering, works with NAC-enabled routers to stop unsecured PCs from accessing networks. Separately, Cisco and IBM said that IBM's Tivoli management software now interoperates with the NAC products.

Short Takes

WAL-MART STORES INC. said it has expanded its data warehouse, which is based on NCR Corp.'s Teradata software. But it didn't disclose any details. (See related items at right.) . . . SAP AG upgraded its business applications for small and midsize companies.

ON THE MARK

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MATTHEW FAULKNER

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4.2B
Potential users of a single Teradata data warehouse



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FIAT AUTO:

Standardizing on 64-bit infrastructure using HP Integrity servers, they're integrating and enhancing sales and service as well as streamlining the buying process while lowering sales cost.

THE KOEHLER GROUP:

Moving to an environment composed of HP Integrity servers, they gained a 50% improvement in mission-critical performance

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Offshoring Fuels IT Hiring Boom in India

Cost of services could increase as demand, wages rise

BY PATRICK THIBODEAU

IN QUARTERLY financial-results reports released last week, offshore outsourcing firms in India detailed sharp increases in employee head count. But analysts said the growing demand for offshore services and workers is increasing wages in India, raising the potential of rate increases for U.S. customers.

For now, at least, competition in India is keeping billing rates stable. But several analysts predicted that the current situation won't continue indefinitely because competition for experienced employees will increase.

During the quarter that ended Sept. 30, Infosys Technologies Ltd.'s workforce grew from 27,939 to 32,949 — an 18% increase in just three months. At the end of last year's third quarter, Bangalore-based Infosys had 18,580 employees.

Mumbai-based Tata Consultancy Services Ltd. said its head count climbed nearly 12% in this year's third quarter, from 36,636 to 40,948. In June 2003, Tata employed about 24,000 people.

"Bangalore today is like Silicon Valley was five years ago," said Lance Travis, an analyst at Boston-based AMR Research Inc.

The growth in overseas IT employment stems from rising demand for offshore services from U.S. companies, according to Meta Group Inc. Meta estimates that offshore spending by U.S. businesses will reach $10 billion this year and that the use of offshore services will grow about 20% annually through 2008. And that's with more than half of all companies not yet using any offshore services, said Meta analyst Dane Anderson (see chart).

Offshore demand is expected to drive up salaries in India by about 14% this year, especially for experienced workers, said Eugene Kublanov, an analyst at outsourcing consulting firm NeoIT Inc. in San Ramon, Calif. The increases are likely to continue at a similar pace, Kublanov added. An experienced Indian programmer making $7,400 this year can expect to earn about $8,500 in 2005, he said, noting that the same employee may be making twice that amount by 2010.

To cover such increases, offshore vendors will have to become more efficient and add more-sophisticated IT services so they can charge higher prices. Kublanov said that although application development rates in India remain roughly one-third of what they are in the U.S., the costs there are creeping to $19 to $20 per hour this year, compared with $17 to $18 in 2003.

Competition for employees, as well as the threat of increasing turnover, is prompting some companies to try different approaches to recruiting and retaining workers.

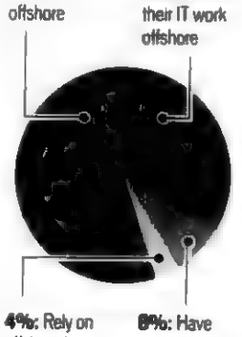
At its offshore outsourcing facility in Hyderabad, Sierra Atlantic Inc. has begun holding "parents day" gatherings for recent college graduates who are considering job offers. The Fremont, Calif.-based company hopes that winning over the parents of potential new hires will increase the likelihood that its job offers will be accepted.

"The majority of college graduates have arranged marriages still," said Marc Hebert, a vice president at Sierra Atlantic. "The parents are very involved in these kids' lives."

Hebert said that in Hyderabad, where Sierra Atlantic has a 700-employee facility, annual turnover has reached about 15%, putting it on par with other large cities in India. The accelerating demand for workers is prompting Sierra Atlantic to consider setting up operations in other regions of India, as well as in countries such as China, he said. 50111

Offshoring Usage

Meta Group's breakdown of offshore outsourcing usage by U.S. companies, based on an analysis of its client base:



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BMC Integrates Tools for IT, Business Management

BY MATT HAMBLEN

BMC Software Inc. last week announced plans to integrate a variety of its systems management tools with a product that lets users track how IT problems affect individual business processes.

Houston-based BMC said an upgrade of its Service Impact Manager software will include links to products such as the company's mainframe and DB2 database management tools and its Remedy help desk and asset management tools. Service Impact Manager 5.0, which is due in December, will also include a built-in configuration management database and other new features (see box).

The upgrade is aimed at broadening BMC's Business Service Management (BSM) offering, which is designed to give IT managers a set of tools for linking computing resources to business priorities.

Peter Armstrong, director of corporate strategy at BMC, said that in addition to the internal product integration capabilities, the BSM software can interoperate with rival management tools such as Hewlett-Packard Co.'s OpenView and Computer Associates International Inc.'s Unicenter. Users who install Service Impact Manager "don't have to rip out their existing products," Armstrong said.

OTHER FEATURES

Service Impact Manager 5.0

- Web-based software portal that provides system status information and customizable dashboard views
- Reporting tools based on technology from Business Objects SA
- A graphical tool that lets multiple users jointly develop business service models
- Integration with an IT asset discovery tool that shows the relationships between systems and applications

Joe Furmanski, technology project director at the University of Pittsburgh Medical Center, said he's testing Service Impact Manager 5.0 for use in monitoring the center's E-Health system, which is used to order medications, manage surgeries and provide patient information to doctors and other employees.

The E-Health system is based on applications developed by Kansas City, Mo.-based Cerner Corp. and is being rolled out at 20 medical facilities in western Pennsylvania as part of a 10-year, $130 million project.

Service Impact Manager is expected to help IT staffers keep the system running around the clock and provide information to business managers when technical problems do occur, Furmanski said.

The medical center chose BMC over other vendors primarily because of an existing software integration partnership between BMC and Cerner, Furmanski said, adding that he expects to fully integrate Service Impact Manager with the E-Health system within three months.

The new capabilities in Service Impact Manager 5.0 will "make BMC's products more manageable in smaller bites," said Dennis Gaughan, an analyst at AMR Research Inc. in Boston. "BMC is trying to make the BSM concept not seem so daunting."

Tim Grieser, an analyst at IDC, agreed that the added ties between Service Impact Manager and other tools will be a big deal to IT managers. BMC "has discovered that IT does not want a rip-and-replace approach to products supporting the business impact of IT," Grieser said.

CA, HP and IBM's Tivoli Software unit have launched technology initiatives similar to BSM, but Grieser said BMC has moved more quickly to flesh out its offering than its competitors have. "BSM is a real thing and not a marketing position," he said. 50096

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BRIEFS

Intel Shelves Plans For 4-GHz Pentium

Intel Corp. said it no longer plans to release a 4-GHz version of its Pentium 4 processor, having decided instead to realign its engineers around new priorities such as the development of multicore chips. The 4-GHz Pentium 4 originally was due by year's end but had been delayed until the first quarter of 2005. Intel said it will now also focus more on steps such as expanding the cache memory built into the processors.

Sun Reports Q1 Loss on Charges . . .

Sun Microsystems Inc. reported a loss for its first quarter, which ended Sept. 26. Sun said it would have had a $13 million profit if not for investment losses and restructuring and legal charges. Revenue was up 4% year over year but fell short of analysts' expectations.

SUN BY THE NUMBERS

	REVENUE	[illegible]
Q1 FY05	[illegible]	($174M)
Q1 FY04	[illegible]	($286M)

. . . And Ships JDS Suite for Solaris

Sun has released a version of its Java Desktop System software for the Solaris x86 operating system. The new release, which supports Sun's Opteron-based workstations, is the first version of the desktop software suite to run on Solaris instead of SUSE Linux. But some of the features that are in the Linux version aren't available in the first Solaris release.

Short Takes

MICROSOFT CORP. today plans to release an upgrade of its Navision business applications that's more tightly integrated with products such as Excel and SQL Server. . . . ORACLE CORP. urged users to apply database patches it issued in August, saying exploit code has been posted for some of the flaws.

IBM Adds 64-Way pSeries, iSeries

Targets server consolidation as Power5 achieves high-end performance levels

BY PATRICK THIBODEAU

IBM LAST WEEK completed its lineup of servers based on its Power5 chips by adding high-end pSeries and iSeries models that can support up to 64 processors, double the previous threshold for CPUs.

The systems are priced from $451,000 for an eight-way system to $4 million for a system with 64 processors, IBM said.

The eServer p5-590 and p5-595 systems can run either Linux or IBM's AIX version of Unix. IBM said that when a server is equipped with AIX 5.3, its processors can be split into as many as 10 partitions that can each run a copy of the operating system and handle different applications.

Dan Olds, an analyst at Gabriel Consulting Group Inc. in Beaverton, Ore., said the key advantage of the p5 systems for large IT shops is their virtualization management capabilities. "Now you're talking about a large Unix server that is a heck of a lot more useful than they used to be," he said.

IBM's eServer i5-595 system, the newest member of the iSeries line that was formerly known as the AS/400, runs the i5 operating system that's compatible with OS/400 releases dating back to 1999. The i5 also runs AIX, Windows and Linux.

Better App Management

An early i5 adopter, Beverly Russell, IT director at E.D. Smith & Sons Ltd., a food products manufacturer in Winona, Ontario, is using a two-processor system to run compute-intensive business intelligence applications. Russell noted that the system's virtualization capabilities can manage application resources at the microprocessor level.

In one instance, the i5 shifted computing resources from one partition to another but carefully managed the reallocation, "never taking it down to the minimum where the performance will be impacted," Russell said. The Power5 processors also boost application performance, she said.

Clay Ryder, an analyst at The Sageza Group Inc. in Union City, Calif., said boosting the iSeries capacity to 64 processors creates "an awful lot of horsepower" for a system that has long been aimed at midsize companies. "It's kind of hard to not think about it as a kind of a miniframe," said Ryder, who sees the i5 systems being adopted for server consolidations.

Power5 Systems

- **IBM completed its Power5 lineup in its pSeries and iSeries systems.** There are a number of configurations.
- **IBM will continue to sell its Power4 chip through 2005.** The company says customers are still rolling out these systems.
- **The pSeries and iSeries can be sold with on-demand capabilities.** Customers can have the processors on hand and turn them on – and pay for them – when needed.
- **The systems will ship Nov. 19.**

Jean Bozman, an analyst at IDC, said IBM is bringing out the systems at a time when IT managers are once again starting to buy high-end systems. Interest in low-cost servers isn't waning at all, Bozman said. But she added that many companies are interested in improving server utilization by consolidating applications onto larger machines.

IBM officials said the new systems are three times faster than their predecessors in the Regatta line, and they cost 40% less than the Regatta products. It also maintained that the new systems offer better pricing and performance than rival products do, but analysts said that's a race that never ends. **50109**

Business Objects Takes Next Step on BI Integration

BY HEATHER HAVENSTEIN

Business Objects SA last week began shipping a beta version of a business intelligence software upgrade that expands the ties between its data analysis tools and the reporting technology that the company acquired when it bought Crystal Decisions Inc.

The new release, called BusinessObjects 11, will knit together query and analysis, reporting, business scorecarding and executive dashboard tools, plus underlying data integration technology, on a single software platform. Lance Walter, vice president of product marketing at Business Objects in San Jose, said general availability is expected by the end of the year.

In June, Business Objects began shipping an upgrade that provided front-end integration between its software and the reporting tools developed by Crystal Decisions, which it acquired late last year. The front-end links include a unified software portal and common Web services application programming interfaces, said Walter, who added that they let users move seamlessly between Crystal-generated reports and analytical applications built around Business Objects' tools.

The back-end connections included in BusinessObjects 11 will provide a unified infrastructure for integrating data and managing metadata, said IDC analyst Dan Vesset. The ability to manage the various business intelligence tools as a single platform could help users lower IT costs, he said. "At the end of the day, you have one BI suite that addresses the needs of a broad range of users," he noted.

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Emergency Medical Associates, a Livingston, N.J.-based emergency-room staffing company, uses Business Objects' Application Foundation framework to deliver electronic patient records that are stored in a data warehouse to end-user dashboards. EMA, which added Crystal's reporting tools to its business intelligence infrastructure before the acquisition, has signed on to beta-test BusinessObjects 11.

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The beta release keeps Business Objects on target to meet the road map it laid out in January for integrating the two product lines, said Mike Schiff, an analyst at Current Analysis Inc. in Sterling, Va.

Next year, Business Objects plans to complete the integration process by releasing BusinessObjects 12, a new suite that company officials said will expand the functionality of all its current products. **50112**

BRIEFS

Intel Shelves Plans For 4-GHz Pentium

Intel Corp. said it no longer plans to release a 4-GHz version of its Pentium 4 processor, having decided instead to realign its engineers around new priorities such as the development of multicore chips. The 4-GHz Pentium 4 originally was due by year's end but had been delayed until the first quarter of 2005. Intel said it will now also focus more on steps such as expanding the cache memory built into the processors.

Sun Reports Q1 Loss on Charges . . .

Sun Microsystems Inc. reported a loss for its first quarter, which ended Sept. 26. Sun said it would have had a $13 million profit if not for investment losses and restructuring and legal charges. Revenue was up 4% year over year but fell short of analysts' expectations.

SUN BY THE NUMBERS

Q1 FY05	$2.63B	($174M)
Q1 FY04	$2.54B	($286M)

. . . And Ships JDS Suite for Solaris

Sun has released a version of its Java Desktop System software for the Solaris x86 operating system. The new release, which supports Sun's Opteron-based workstations, is the first version of the desktop software suite to run on Solaris instead of SUSE Linux. But some of the features that are in the Linux version aren't available in the first Solaris release.

Short Takes

MICROSOFT CORP. today plans to release an upgrade of its Navision business applications that's more tightly integrated with products such as Excel and SQL Server. . . . ORACLE CORP. urged users to apply database patches it issued in August, saying exploit code has been posted for some of the flaws.

IBM Adds 64-Way pSeries, iSeries

Targets server consolidation as Power5 achieves high-end performance levels

BY PATRICK THIBODEAU

IBM LAST WEEK completed its lineup of servers based on its Power5 chips by adding high-end pSeries and iSeries models that can support up to 64 processors, double the previous threshold for CPUs.

The systems are priced from $451,000 for an eight-way system to $4 million for a system with 64 processors, IBM said.

The eServer p5-590 and p5-595 systems can run either Linux or IBM's AIX version of Unix. IBM said that when a server is equipped with AIX 5.3, its processors can be split into as many as 10 partitions that can each run a copy of the operating system and handle different applications.

Dan Olds, an analyst at Gabriel Consulting Group Inc. in Beaverton, Ore., said the key advantage of the p5 systems for large IT shops is their virtualization management capabilities. "Now you're talking about a large Unix server that is a heck of a lot more useful than they used to be," he said.

IBM's eServer i5-595 system, the newest member of the iSeries line that was formerly known as the AS/400, runs the i5 operating system that's compatible with OS/400 releases dating back to 1999. The i5 also runs AIX, Windows and Linux.

Better App Management

An early i5 adopter, Beverly Russell, IT director at E.D. Smith & Sons Ltd., a food products manufacturer in Winona, Ontario, is using a two-processor system to run compute-intensive business intelligence applications. Russell noted that the system's virtualization capabilities can manage application resources at the microprocessor level.

In one instance, the i5 shifted computing resources from one partition to another but carefully managed the reallocation, "never taking it down to the minimum where the performance will be impacted," Russell said. The Power5 processors also boost application performance, she said.

Clay Ryder, an analyst at The Sageza Group Inc. in Union City, Calif., said boosting the iSeries capacity to 64 processors creates "an awful lot of horsepower" for a system that has long been aimed at midsize companies. "It's kind of hard to not think about it as a kind of a miniframe," said Ryder, who sees the i5 systems being adopted for server consolidations.



Jean Bozman, an analyst at IDC, said IBM is bringing out the systems at a time when IT managers are once again starting to buy high-end systems. Interest in low-cost servers isn't waning at all, Bozman said. But she added that many companies are interested in improving server utilization by consolidating applications onto larger machines.

IBM officials said the new systems are three times faster than their predecessors in the Regatta line, and they cost 40% less than the Regatta products. It also maintained that the new systems offer better pricing and performance than rival products do, but analysts said that's a race that never ends. **50100**

Business Objects Takes Next Step on BI Integration

BY HEATHER HAVENSTEIN

Business Objects SA last week began shipping a beta version of a business intelligence software upgrade that expands the ties between its data analysis tools and the reporting technology that the company acquired when it bought Crystal Decisions Inc.

The new release, called BusinessObjects 11, will knit together query and analysis, reporting, business scorecarding and executive dashboard tools, plus underlying data integration technology, on a single software platform. Lance Walter, vice president of product marketing at Business Objects in San Jose, said general availability is expected by the end of the year.

In June, Business Objects began shipping an upgrade that provided front-end integration between its software and the reporting tools developed by Crystal Decisions, which it acquired late last year. The front-end links include a unified software portal and common Web services application programming interfaces, said Walter, who added that they let users move seamlessly between Crystal-generated reports and analytical applications built around Business Objects' tools.

The back-end connections included in BusinessObjects 11 will provide a unified infrastructure for integrating data and managing metadata, said IDC analyst Dan Vesset. The ability to manage the various business intelligence tools as a single platform could help users lower IT costs, he said. "At the end of the day, you have one BI suite that addresses the needs of a broad range of users," he noted.

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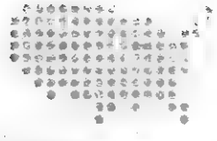
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L.A. Finds PeopleSoft Better The Second Time Around

City applies lessons learned from a disastrous past supply chain project

BY MARC L. SONGINI
LOS ANGELES

THE SECOND major rollout of PeopleSoft Inc. software by the city government here is proving far less troublesome than the first PeopleSoft rollout four years ago, when an implementation was bogged down with internal resistance and inadequate training, among other problems.

This time, said city officials, end users have been convinced that the supply chain software coming in will make life better for them. Installation of PeopleSoft's Enterprise 8.8 e-procurement and strategic supplier software is slated to be completed in February. The new version promises significant changes for users, since the city government will be able to handle supplier transactions directly over the Internet.

"Change is a lot easier when people trust that you are not doing anything that will hurt them," said Robert Jensen, assistant general manager in the Los Angeles municipal government's Department of General Services. Jensen and members of his staff spoke with *Computerworld* last week to detail the implementation and describe how officials avoided the problems caused by the 2001 installation.

Jensen said his department, the project sponsor, learned the hard way that it makes a difference when users "know that you are looking out for them and trying to make their work easier and more manageable."

Even the tone is different this time around: Meetings held with department heads are now "well received," he said. It was quite different a few years ago, when a number of users were hostile to an $11 million PeopleSoft supply chain management software implementation [QuickLink 20455] that changed the authority and responsibilities of many city workers. "We all shared the pain," Jensen said.



MARC L. SONGINI

... to get user buy-in for its second PeopleSoft project

Using the direct-connect methodology in Version 8.8, buyers will, for example, be able to go directly to the Office Depot Web site, grab inventory data and use it to populate the city's own purchase-order documents online.

About 35% of the city's procurement will be automated in that way, reducing the amount of manual data entry needed and streamlining the process, Jensen said.

The new software will also help reduce the number of big-ticket items the city has on hand, such as computers and related equipment. Rather than warehouse those items, the city can ensure that its vendors will have stock nearby and thus be able to deliver it the next day.

In addition, strategic sourcing software will allow the general services department to pull in vendor solicitations from all over the Web and get the best discounts.

Yet those changes haven't caused a repeat of the morale woes of 2001.

In an effort to ensure project success, the general services department will spend money upfront for change management to make sure changes are communicated to city personnel and adequate training on the new system is provided prior to the rollout.

Hard Lesson

Officials said that communication strategy results from a hard lesson learned from the initial rollout — good change management requires a plan that identifies anyone on the city workforce whose role can change because of the new software.

"The plan needs to identify champions, owners, stakeholders and users and what and when you will communicate with them and the media used for that communication," Jensen explained. "The other part is how to self-motivate these folks to want to spread the word that the change is good and should be supported."

There wasn't adequate planning in 2000, Jensen said, and a lack of communication with city personnel caused significant resistance from users, particularly in those departments where the PeopleSoft applications caused employees to lose application support, personnel and buying authority.

"We weren't popular," Jensen said. "Change is hard, so the police and fire and sanitation departments were leading the charge to go back to the thrilling days of yesteryear."

It took almost four years, Jensen said, but the planning effort for the latest implementation has encountered little resistance so far. **50106**

FIXING A SOFTWARE MESS

Jensen explains how L.A. was able to convert user resistance into support.

QuickLink 50107
www.computerworld.com

PeopleSoft Product Exec Follows CEO Out the Door

BY MARC L. SONGINI

Just two weeks after PeopleSoft Inc. ousted former CEO Craig Conway, the business applications vendor said that another top executive — Ram Gupta, who had been executive vice president of products and technology — has left the company.

PeopleSoft spokesman Steve Swasey last week confirmed Gupta's exit from the company but declined to disclose any details, leaving it unclear whether Gupta was fired or left voluntarily. "We don't discuss the departure of employees and personal employee business," Swasey said.



Gupta was the executive in charge of integrating PeopleSoft's applications and the software developed by J.D. Edwards & Co., which PeopleSoft acquired last year. In an interview with *Computerworld* in August, Gupta said the merger had provided J.D. Edwards users with more product choices and better technical support offerings [QuickLink 48964].

But many J.D. Edwards users have said that life under PeopleSoft's ownership has been a mixed bag and that they remain unconvinced about the benefits of the acquisition. And during his keynote speech at PeopleSoft's Connect 2004 user conference the week before he was fired, Conway acknowledged that the company had made well-intentioned errors while trying to implement some of its software licensing and upgrade policies with the J.D. Edwards user base.

PeopleSoft's board removed Conway from his position as president and CEO on Oct. 1, saying that it had lost confidence in his ability to lead the company. Co-founder Dave Duffield, who had given up the CEO job to Conway in 1999, was brought back to run the software vendor.

Stan Swete, who worked as an executive at PeopleSoft between 1992 and 2002 and was one of the principal architects of its flagship PeopleSoft 8 product line, was hired to replace Gupta, according to Swasey. He said Swete's return to the company demonstrates Duffield's commitment "to re-energize PeopleSoft's innovation and technology development."

John Moore, an analyst at ARC Advisory Group Inc. in Dedham, Mass., said Gupta's departure was more a matter of when than if following Duffield's return and the appointment of PeopleSoft board member Aneel Bhusri as vice chairman with responsibility for the company's product and technology strategy.

An open question is whether an 18-month-old initiative for simplifying installation and management of PeopleSoft's applications will now fade away, Moore said. Conway and Gupta had championed the Total Ownership Experience initiative. The simplification strategy was well received by users, Moore said, but he added that as a way of gaining new business for PeopleSoft, "it fell flat." **50100**

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–Laura DiDio, The Yankee Group, April 2004
Linux, Unix, and Windows TCO Comparison

The Yankee Group, a global research and consulting firm, concluded that a significant switch to Linux from Windows or Unix could cost three to four times as much without delivering tangibly better performance or business value. These findings are based on a non-sponsored worldwide survey of 1,000 IT administrators and C-level executives in midsized and large enterprises.

To get the full study, visit **microsoft.com/getthefacts**

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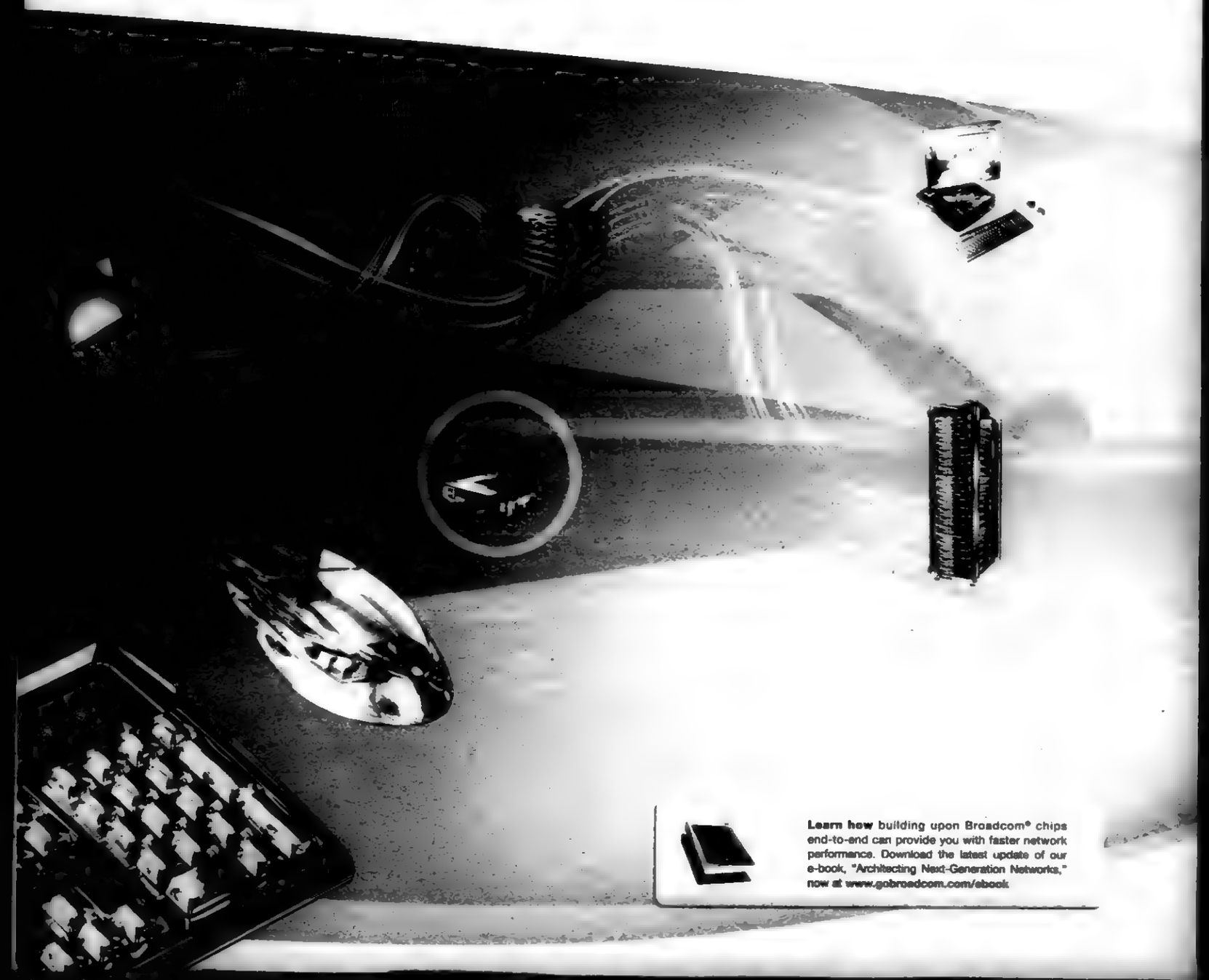
1. IDC, Network Qview, August, 2003.
2. NetIQ Chariot Networking Test Suite (Transmit/Receive), Version 4.4 Broadcom NetXtreme™ BCM5782/5705 GbE vs. Intel Pro 1000MT), September, 2003.



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Kumar Launches IT Investment Firm

BY SCARLETT PRUITT
CANNES, FRANCE

Sanjay Kumar, the former chairman and CEO of Computer Associates International Inc., made a surprise appearance at the ETRE 2004 conference here last Monday, three weeks after he was indicted in U.S. District Court for securities fraud and obstruction of justice.



Kumar, who is charged with taking part in a fraudulent accounting scheme at CA during 1999 and 2000, wasn't listed as a speaker on the conference's preliminary agenda. He didn't comment directly about his indictment, but he described his departure from CA in June after 17 years with the software vendor as the start of a new chapter in his life.

"There are still tremendously exciting things to do," Kumar told the audience of IT industry executives and venture capitalists. "I'm focused on building new technology companies today." He said he hopes to mentor start-ups, adding that emerging technologies such as voice-over-IP telephony are creating marketing opportunities for vendors.

In a follow-up interview, Kumar said he attended the ETRE conference to network and to hunt for companies to invest in. He said that after leaving CA, he took a vacation, thought about what he wanted to do and decided to launch a technology investment firm. "I think it's a really good way to give back to the industry and create jobs," Kumar said.

Advice 'On Demand'

OnDemand Partners LLC, which he started two months ago with a group of other IT veterans, offers advice, money and development support to start-ups. Kumar said that because of his background in enterprise software and his endorsement of subscription-based pricing approaches, he is focusing on those two areas.

The Locust Valley, N.Y.-based firm's name is a play on words that refers to both on-demand computing and the way in which the company's partners will step in to help companies "on demand," Kumar said. OnDemand Partners currently is working with 10 vendors and is on the lookout for more, he added.

Kumar was indicted last month by a federal grand jury in Brooklyn, N.Y., for allegedly participating in an accounting scheme at CA. Prosecutors charged that CA adopted a so-called 35-day month accounting policy, under which some sales contracts that were signed after a fiscal quarter had ended were backdated so that they appeared to have been completed during the quarter [QuickLink 49647].

Stephen Richards, CA's former head of worldwide sales, was also indicted. Both Kumar and Richards pleaded not guilty. Their indictments were announced on the same day that CA agreed to pay $225 million to reimburse shareholders for the alleged fraud as part of a settlement deal with the U.S. Department of Justice. 50066

Pruitt is a reporter for the IDG News Service.

Continued from page 1

Sarb-Ox

Todd Naughton, vice president and controller at Zebra Technologies Corp., said the Vernon Hills, Ill.-based supplier of printer components "really just started looking" at general IT controls within the past three months.

For the past year, Zebra has focused on documenting, remediating and testing application-level controls throughout the organization, including mapping defined job roles to the system access levels they require, said Richard Jaszka, the company's internal audit manager.

"That said, we're concerned about our ability to meet the Section 404 requirements of Sarbanes-Oxley for the other IT controls," said Jaszka. For example, although Zebra has documented policies for key areas such as change management, systems development and mission-critical computer operations, "it will be a challenge to properly test these controls and address any necessary remedies by year-end," Jaszka said.

He added that regulators haven't specified which IT controls need to be documented and tested.

Compliance Gap

Stan Lepeak, an analyst at Meta Group Inc., said he wouldn't be surprised if 25% of accelerated filers are found to have inadequate controls. He based his estimate on several factors, including discussions with clients, Sarbanes-Oxley readiness surveys conducted with client firms, and concerns expressed by customers who outsource IT that service providers won't be able to document the IT controls in time.

"It really depends on how strict external auditors will be in determining what are material weaknesses or deficiencies in controls and what aren't," said Lepeak.

Herman Miller Inc., a Zeeland, Mich.-based maker of office furniture, decided this past spring to adopt a set of guidelines for evaluating IT controls called Control Objectives for Information and Related Technologies, or Cobit, created by the IT Governance Institute and the Information Systems Audit and Control Association, both of which are based in Rolling Meadows, Ill., said Rich Russell, director of application development.

"We worked with our auditors to determine which of the Cobit processes were in scope for [Section] 404 and then we focused on those," said Russell, whose company has until May 31, 2005, to attest to its IT and financial controls.

Wyndham International Inc. has been working with several consulting firms since last year to document its IT controls, said Mark Hedley, senior vice president and chief technology officer at the Dallas-based hotel chain.

As a result, Wyndham "has very high confidence in our IT key internal controls that will receive the scrutiny of our Sarbanes audit team," he said. 50063

AT A GLANCE

Sarbanes-Oxley

WHAT IT IS: The Sarbanes-Oxley Act requires most large companies to submit to the financial and IT controls they have in place for fiscal years that will end on or after Nov. 15, 2004, in their annual reports.

WHY IT MATTERS: Few IT staffers know much about the controls that support general IT activities. That is typically overseen by internal audit, unless IT staff does it on its

MORE ABOUT SARB-OX

Documentation software helps companies that have more time to comply.

QuickLink 50060
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Later Timetable Gives Some Filers More Wiggle Room

SOME COMPANIES that can wait until 2005 or later to meet the initial Section 404 requirements of the Sarbanes-Oxley Act have already spent months working on IT control assessments and are well positioned to complete their documentation and testing efforts ahead of schedule.

For instance, Science Applications International Corp. in San Diego began evaluating its IT controls in July 2003 and started documenting them last December – even though the research and engineering company doesn't have to attest to those controls until Jan. 31, 2006, said John R. Hartley, SAIC's director of accounting operations.

While SAIC isn't an accelerated filer, "that doesn't alter the priority, attention or resources that we place on our Sarbanes-Oxley activities," said CIO Cora Carmody. "It has been, and will continue to be, my top priority in IT and the corporation's top priority."

Herman Miller Inc., a maker of office furniture, began evaluating its IT controls in March and expects to finish internal testing by year's end. External auditors will conduct tests in February 2005 to meet the May 31 deadline, said Rich Russell, director of application development.

"At the outset of our compliance efforts, we did not understand the requirements for IT controls – we were more focused on application controls," he said. Russell and his colleagues discovered that IT is a foundational piece of Herman Miller's controls architecture after a more thorough study of the company's IT control issues.

Even though Portland General Electric Co. doesn't have to meet its Section 404 requirements until December 2005, the utility recently completed its IT control design assessment and is planning to begin testing those controls by the end of this month, said Ross Wescott, chief IT auditor at the Portland, Ore.-based electric utility.

Said Wescott, "It is our goal to practice for a year, so when it comes to reality, we're ready."

– *Thomas Hoffman*

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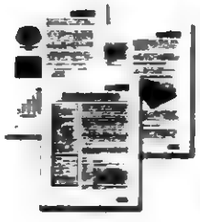
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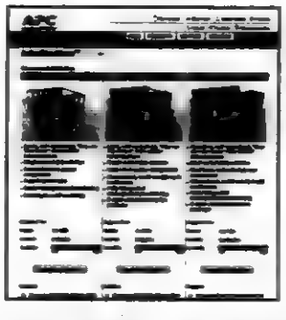


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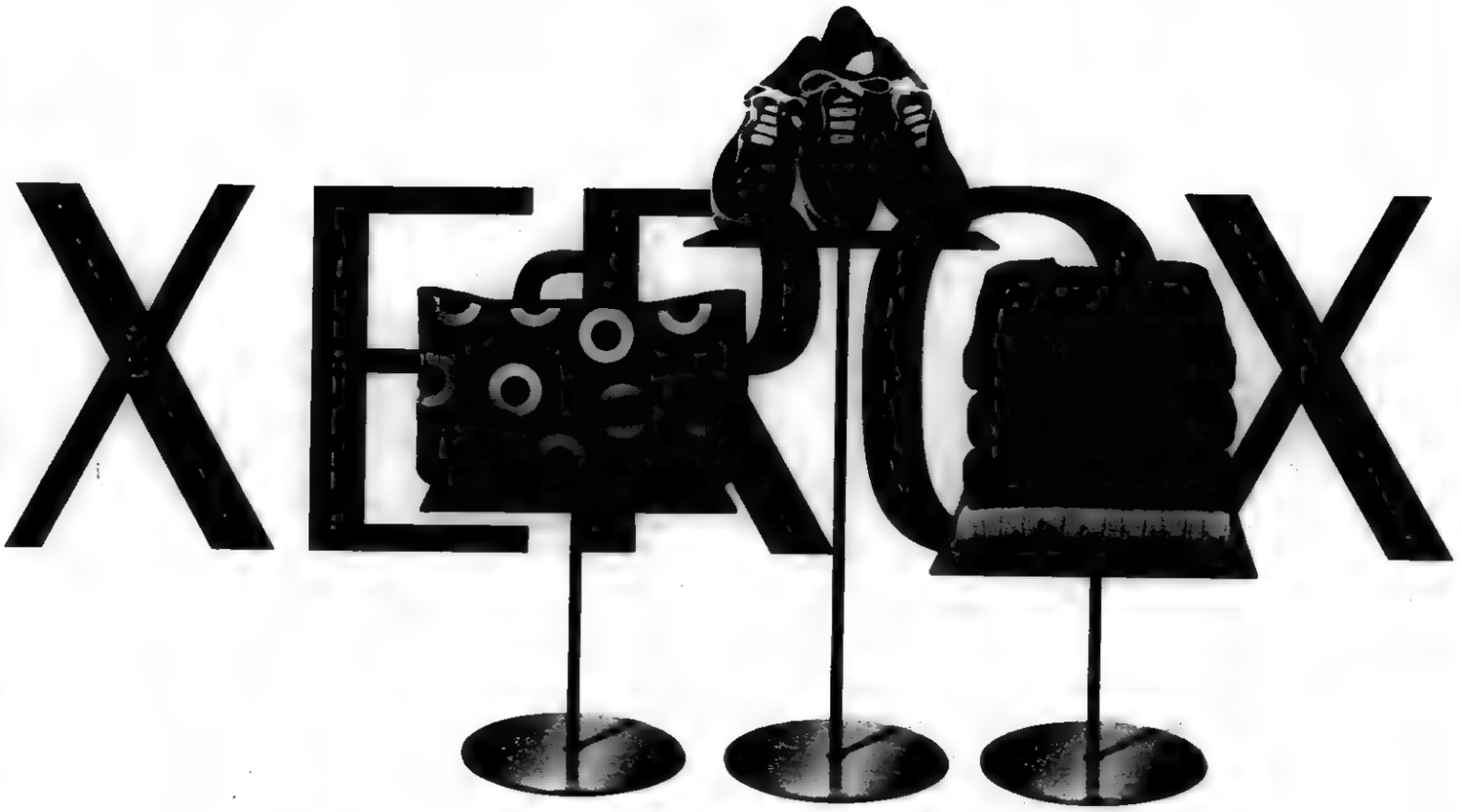


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Oracle Exec Defends Pricing Policy on Multicore Systems

BY THOMAS HOFFMAN

The development of servers based on multicore processors, in which two or more CPUs are placed on a chip, has raised concerns among some IT managers that the new technology will result in significant software cost increases [QuickLink 49648]. Jacqueline Woods, vice president of global licensing and pricing strategy at Oracle Corp., discussed the company's multicore pricing plans with Computerworld this month.



What is Oracle's position on software licensing for dual-core processors? We don't have a position with respect to dual-core processors. A core is equal to a CPU, and all cores are required to be licensed. Therefore, you are required to have two processor licenses.

Does this represent a change in Oracle's licensing policy? We have not changed. We have not increased our prices. At the end of the day, the consumption of the Oracle software is unchanged.

Has multicore server software pricing become a contentious issue between Oracle and your customers? Not at all. IBM does not sell any single-core CPU machines. All of their machines are dual-core and have been for some time. It's particularly interesting that a hardware vendor that I won't necessarily mention who came out with a [dual-core] UltraSparc III chip on a single wafer should try to change the way the software is licensed. When it was called into question, we clearly made sure that everyone understands that a core equals a processor.

So if a user moves from a single-processor server to a two-way server, do they essentially have to pay double for software on the newer machine? If I have more processors, do I pay more money? Yes. You have to pay for the one incremental processor that you have not licensed. If you had a four-way node and you want to go to an eight-way, you need more incremental processors. Do you pay for eight processors? Yes.

Some analysts and IT managers believe that large software vendors like Oracle and IBM are taking advantage of multicore systems to drive higher revenues following a period of weak tech spending. How would you respond? That's not an accurate statement. We have had this policy for years. We had it during the downturn, and we have it now. It hasn't changed. If someone licensed software on a dual-core machine during the downturn, they paid for two processors. I don't see the recovery of the economy as an opportunity to leverage the advent of multicore, considering this had been the same policy when the economy was worse off than it is now. **50053**

Coding Error Shuts Down PayPal

BY TODD R. WEISS

PayPal Inc.'s online payment Web site slowly returned to normal operations last week after an unspecified coding error virtually shut down the site for four days.

The problems began on Oct. 8, when a failed routine monthly code update wreaked havoc for many eBay users who couldn't make or collect payments. The PayPal.com Web site is owned by eBay Inc.

Sara Bettencourt, a spokeswoman for San Jose-based PayPal, said the company doesn't know how many users were affected. After PayPal and eBay engineers worked around the clock for days early last week fixing the problem, Bettencourt said, the system was allowing "most users to transact without incident." She wouldn't disclose the type of coding error.

PayPal.com has about 50 million user accounts, 15.5 million of which are active, Bettencourt said. Account data and personal information weren't compromised, according to PayPal.

A Virginia-based eBay seller, who asked that his name not be used, said he wasn't sure whether the glitches with PayPal.com reduced his sales over the weekend of the failure. But he noted that the upgrade problems are reminiscent of frustrating incidents he has experienced with eBay site changes that were touted as "improvements."

"EBay would change formats on the site and had the same problem" with users having difficulty logging in and making purchases, he said. **50050**

XEROX

Dillard's department stores hire over 10,000 people a year. Storing and retrieving application, training and benefits packets had become costly. So Dillard's bought into something smart: a Xerox Office Document Assessment (ODA).

Xerox examined their work process across all 14 Dillard's business units and recommended key improvements.

First, all analog copiers, stand-alone printers and fax machines were replaced by Xerox DocumentCentre® multifunction systems. Then Xerox DocuShare® was installed on Dillard's network.

This cross-platform document system, along with Xerox imaging software, digitized key business processes.

Now, instead of storing and distributing hard copy documents with each new hire, store managers go online for hiring packets and print forms on the spot. No paper inventory. No outdated information. $1.6 million saved. To see what you can save, call us or visit our website.

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XEROX.

DON TENNANT

Expect Nothing

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READERS' LETTERS

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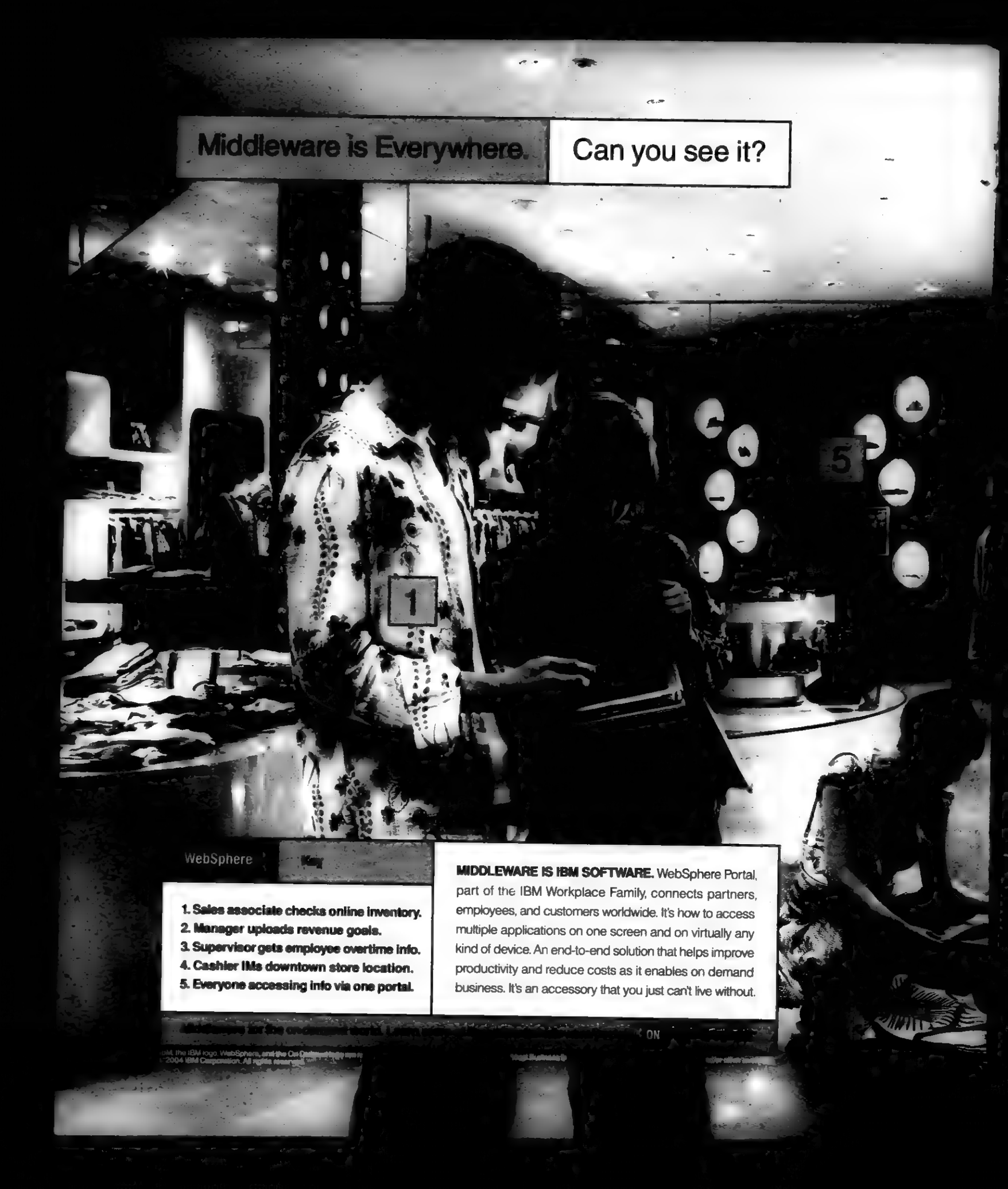
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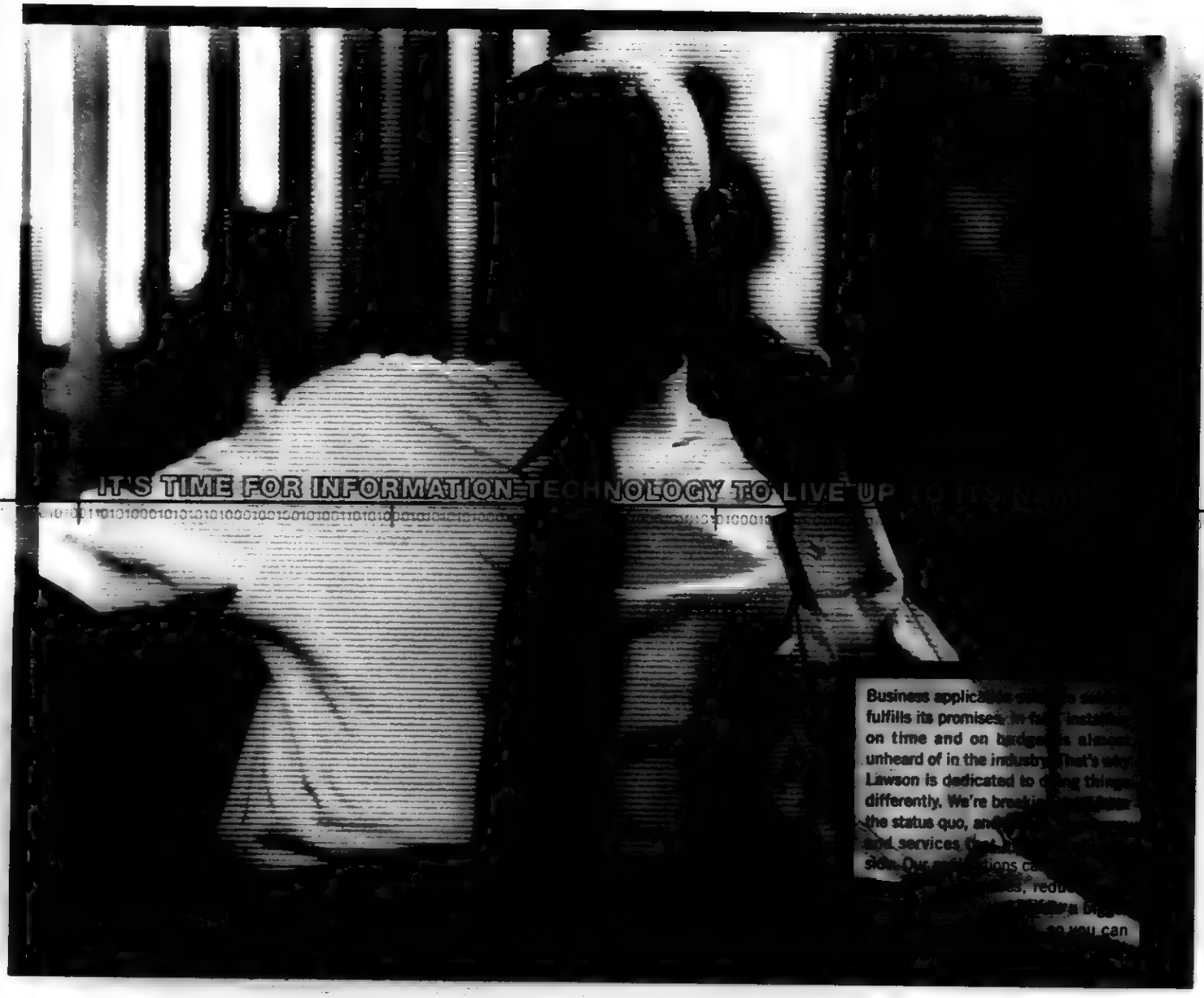
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Middleware is Everywhere.
Can you see it?
WebSphere
1. Sales associate checks online inventory.
2. Manager uploads revenue goals.
3. Supervisor gets employee overtime info.
4. Cashier IMs downtown store location.
5. Everyone accessing info via one portal.
MIDDLEWARE IS IBM SOFTWARE. WebSphere Portal, part of the IBM Workplace Family, connects partners, employees, and customers worldwide. It's how to access multiple applications on one screen and on virtually any kind of device. An end-to-end solution that helps improve productivity and reduce costs as it enables on demand business. It's an accessory that you just can't live without.


3
IBM



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E★VOTE AT RISK

Despite vendor assurances, researchers remain concerned about the security and reliability of electronic voting systems. BY DAN VERTON

THIS NOVEMBER, as many as 50 million Americans could vote for president using some form of electronic touch-screen system, the vast majority of which have been designed by McKinney, Texas-based Diebold Election Systems. That has some IT and security researchers holding their breath because of the faulty track record of Diebold's technology and a government-endorsed testing and certification process that they say is deeply flawed.

Those critics say that direct recording electronic (DRE) voting systems remain vulnerable to manipulation and malfunction, particularly in states that have ignored some recommendations of independent researchers, like Maryland has.

State election officials, on the other hand, say they are confident that appropriate safeguards are in place to ensure the security and accuracy of the 2004 vote.

Among the most pressing issues cited by critics are a lack of technical standards governing DRE software development, the failure of the government to impose transparency on the software testing and certification process, and the lack of technical security knowledge throughout the many state and local jurisdictions that oversee elections where DREs will be used.

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Jonathan Gossels, founder of SystemExperts Corp. in Sudbury, Mass., says his review of the Diebold code showed that it was "amateurish" in its design. More important, the amount of code that has been studied and found wanting "is only the tip of the iceberg" of the millions of lines of C++ and Microsoft Windows-based code that powers the Diebold touch-screen systems and back-end management servers, says Gossels.

E-VOTE AT RISK

Despite vendor assurances, researchers remain concerned about the security and reliability of electronic voting systems. BY DAN VERTON

THIS NOVEMBER, as many as 50 million Americans could vote for president using some form of electronic touch-screen system, the vast majority of which have been designed by McKinney, Texas-based Diebold Election Systems. That has some IT and security researchers holding their breath because of the faulty track record of Diebold's technology and a government-endorsed testing and certification process that they say is deeply flawed.

Those critics say that direct recording electronic (DRE) voting systems remain vulnerable to manipulation and malfunction, particularly in states that have ignored some recommendations of independent researchers, like Maryland has.

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WHERE E-VOTING WENT WRONG

A snapshot of various places around the country where problems with electronic voting systems have been reported.



SOURCE: VOTERSUNITE.ORG

1. CALIFORNIA, 2003: Diebold installs uncertified software without notifying authorities.
2. CALIFORNIA, 2004: State Senate committee passes an urgent bill to ban all computerized voting in 2004.
3. CALIFORNIA, 2004: Secretary of state decertifies Diebold for November election.
4. ALAMEDA COUNTY, 2004: Diebold central modules fail to start up.
5. ORANGE COUNTY, 2004: Hart InterCivic Inc. DREs trip circuit breaker and shut down when batteries die; voters are turned away from the polls.
6. ORANGE COUNTY, 2004: Hart access-code confusion causes 7,000 voters to receive the wrong ballots.
7. SAN DIEGO COUNTY, 2004: Diebold DREs lose votes; central modules fail to start up properly.
8. BERNALILLO COUNTY, 2002: Insufficient memory results in failure to count 12,000 of 49,000 votes.
9. ARAPAHOE COUNTY, 2004: Failure to maintain DRE battery charge results in expenditure of more than $100,000 to replace batteries.
10. DALLAS COUNTY, 2002: Election Systems and Software Inc. (ES&S) Votronic systems mark incorrect choices on voting screens.
11. HARRIS COUNTY, 2002: Hart DREs don't start; voters must use makeshift paper ballots.
12. REEDS COUNTY, 2000: DREs overheat and break down; election invalidated, then rebuild.
13. INDIANA, 2004: ES&S installs uncertified software on Votronic system and admits the older, certified version won't tabulate votes.
14. FLOYD AND COVETA COUNTIES, 2002: Diebold DREs lock up; access cards malfunction; wrong candidates are marked on screen.
15. BRYAN AND TERRELL COUNTIES, 2002: Diebold DRE ballots display wrong races and omit some altogether.
16. MUSCOGEE COUNTY, 2002: DREs register "yes" when voters vote "no."
17. GEORGIA, 2004: Diebold ballot encoding mix-ups prevent voting in primary.
18. MONTGOMERY COUNTY, 2004: Diebold DRE shows incomplete ballot when font is magnified.
19. SARASOTA COUNTY, 2004: ES&S DREs fail to count 100 votes.
20. WAKE COUNTY, 2002: ES&S Votronic software loses 436 ballots.
21. BROWARD COUNTY, 2002: ES&S Votronic error results in failure to count 22% of the votes.
22. BROWARD COUNTY, 2004: ES&S DREs lose 134 votes; margin is 12 votes.
23. MIAMI-DADE COUNTY, 2002: ES&S Votronic system fails to count 8.2% of the votes.
24. MIAMI-DADE COUNTY, 2004: Severe audit log bug in ES&S Votronic system is revealed; it had been detected exactly a year earlier.

The testing procedures of vendors, particularly Diebold, are also under suspicion. Jerry Rudisin, CEO of Agitar Software Inc., a software testing company in Mountain View, Calif., says he suspects that the original Diebold code wasn't subjected to unit testing based on the lack of change-control documentation. And because of this, "a lot of bugs end up getting through to the deployed systems," he says.

A January 2004 study by the Innovative Solutions Cell at Columbia, Md.-based RABA Technologies LLC tested Diebold systems that were to be deployed for Maryland's March 2004 primaries. The study found the general lack of security awareness in the Diebold code "a valid and troubling revelation." In addition, the report confirmed Rubin's assertion that there was little evidence that widely accepted standards of software development had been followed.

MYSTERY TESTS

One of the most critical aspects of the voting system development process is the testing and certification of hardware and software to ensure that they meet voluntary federal voting standards for security and reliability. Three vendors act as so-called independent testing authorities (ITA). However, IT experts are highly critical of the testing process because of its secrecy.

"Election officials are buying a software package, and there's not a lot of transparency," says Rudisin. "With voting software, you pretty much buy a pig in a poke."

Ciber Inc. in Greenwood Village, Colo., and SysTest Labs LLC in Denver act as the two software ITAs. Wyle Laboratories Inc. in El Segundo, Calif., is the hardware ITA. All of them refuse to provide details on how they test the voting equipment or on their findings.

"The ITAs that test these machines are hired by the vendors, so they are not independent and not neutral," says Rubin, who hasn't been allowed by Diebold to re-evaluate the source code since his initial study.

Diebold spokesman David Bear says the company stands behind the testing and source code reviews conducted by "independent, unbiased third parties." The reviews are done at the federal level using standards recommended by the Federal Election Commission and at the state level, he says.

Bear also says voting systems are only a small part of the election process, which has many built-in security precautions and redundancies. "The voting machines are completely stand-alone," he says. "No network connection of any kind — wired or wireless — is used during the voting process. The only connection to the machine at the polling place is the AC power cord."

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Eric Lazarus, president of New York-based DecisionSmith, says the testing model for e-voting systems "is broken."

Lazarus, lead author of a report by the Brennan Center for Justice and the Leadership Conference on Civil Rights on improving DRE reliability, says 2% of systems should be put through exhaustive testing that simulates Election Day activity. The testing process most states use is based simply on how individual machines count a few test votes.

SUPPORTING ARGUMENTS

Election officials for Maryland, Virginia and California, which have invested millions of dollars in Diebold DRE systems, say they're confident that the voting process can be made secure and reliable even if technical vulnerabilities exist hidden in the software.

"We will not overreact to scare-tactic headlines that do not reflect the long-established security protections required by law, policy and procedure," says Jean Jensen, secretary of the Virginia State Board of Elections (SBE), which hired Arlington, Va.-based CACI International Inc. to conduct an independent security assessment of the Diebold systems. She also points out that few of the e-voting critics "have presented any credentials regarding their expertise in election law or the policies and procedures."

All 46 localities in Virginia where DREs from six vendors will be used are developing security policies and procedures based on the CACI recommendations, and those procedures will be audited during the election, says Barbara Cockrell, spokeswoman for the IT manager at the Virginia SBE.

A DRE must be tested in an actual election before it can be sold in Virginia, says Cockrell, who adds that logic and accuracy tests are a key part of the certification process and that no system touches the public Internet.

Linda Lamone, administrator of the Maryland SBE, criticizes RABA's study of DRE use in Maryland, saying the researchers didn't "conduct the exercise in a polling-place environment under the purview of trained election workers . . . and bipartisan election judges observing voters' activities."

But Michael Wertheimer, the primary author of the RABA report, says he's convinced that the state's election is a disaster waiting to happen. "Despite our recommendations, Maryland has decided that each county will get only one password to protect their precincts. That means only three passwords protect these counties," he says. "If any one of these passwords is compromised and exploited, Maryland is up for grabs. All it takes is one election official to allow someone five minutes' access to the server to completely rig the election."

Not quite, says Lamone. First, she says, no servers are located at polling places. Second, "neither the staff at the local boards of elections nor the election judges know the cryptographic keys to the units or the server administrative passwords," she says. "The alphanumeric keys are created at my office and are only known to people on my staff who need to know." Lamone adds that creating keys unique to each precinct would present "a logistical nightmare" and could endanger the security and efficiency of the election.

Wertheimer remains skeptical about the state's preparations to use DREs. "Maryland refuses to put a firewall on servers that are connected via dial-up modems," he says. "They refuse to upgrade the Windows 2000 operating system with the latest security patches — they were 16 patches behind in January of this year."

Lamone says security experts hired by the state determined that since no component of the voting system is connected to the Internet, the firewall and patches recommended by RABA aren't necessary. Moreover, she adds, "a person would have to have knowledge of the encrypted security controls in place for sending the unofficial results by modem, as well as user identification requirements and passwords, to gain access to the server."

STILL TIME?

Lazarus and Gossels say there is still time for states to implement procedures that can lessen the likelihood of malfunctions and malicious activity and have jointly devised a scorecard that election administrators can use to rate the security and reliability of DRE systems (see box). "The best that we can do in terms of security at this point is still not very good," Lazarus says. "But there's no excuse for not doing some of the easy things."

The bottom line, say Gossels, Lazarus and Wertheimer, is that there will be problems with DREs next month, ranging from malfunctions that cause polling places to close to potentially more nefarious incidents of tampering that nobody is able to detect.

"I am worried that election officials fail to recognize that elections run by computers require a completely different model than those run by paper," says Wertheimer. "It will take a catastrophic voting 9/11 to force change."

QuickLink 49640

ELECTION OFFICIALS' CHECKLIST

The following measures will help ensure the security of e-voting, say DecisionSmith's Eric Lazarus and SystemExperts' Jonathan Gossels:

- **All machines should be tested using automatic self-test scripts executed on the machines.**
- **Audio and other accessibility interfaces should be tested.**
- **All ballot positions should be tested in all languages.**
- **Intensive hand testing should be conducted simulating Election Day on at least 2% of machines, using test scripts that include casting votes for every candidate on ballots of every style.**
- **Audit logs from voting machines and election management systems should be inspected to reconcile the number of ballots cast with the votes reported.**
- **Records of the chain of custody for voting machines, blank ballots, voted ballots and physical copies of electronic records, including seal numbers and who had custody, must be routinely subject to postelection audit.**
- **Different machines must have their own cryptographic keys and passwords.**
- **Votes and vote totals sent by modem should be cryptographically signed to prevent alteration or forgery.**
- **At least two poll workers from opposing parties must accompany electronic or paper ballots to the counting facility.**

MORE ABOUT E-VOTING

Q&A: Frank Wiebe, president of DRE vendor AccuPoll, talks about developing and testing e-voting systems.
QuickLink 49639

Raising questions: More than one research study has found flaws in e-voting software code and testing.
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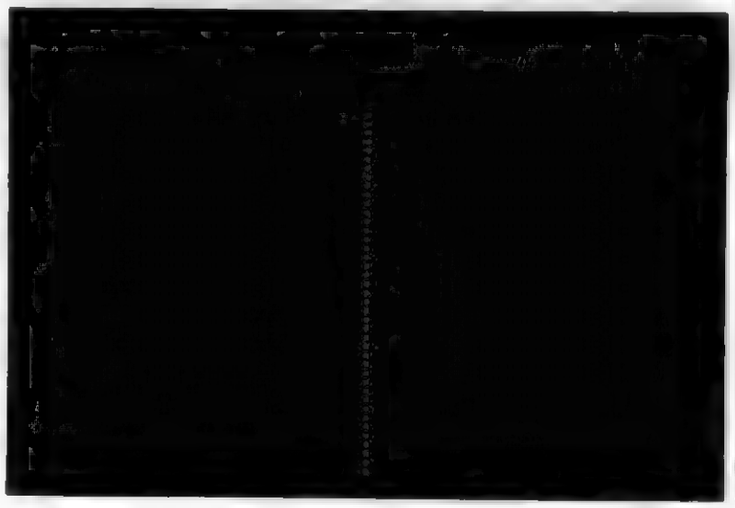
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To: can't afford not to
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BRIEFS

IBM Rolls Out Xeon Chips in Servers

IBM last week announced five new blade servers with the Xeon chip that's capable of 32- and 64-bit x86 processing. The systems can support two SCSI drives internally. A chassis will fit 14 SCSI-based blades. The systems, with processor speeds from 2.8 to 3.6 GHz, will be available Nov. 12, starting at $2,090. IBM also detailed an eServer blade server with a 2.2-GHz Power processor that will be available Oct. 29, starting at $2,999.

Alcatel Announces New Switches

Alcatel announced the Alcatel OmniSwitch 6602 Layer 3 workgroup switch, starting at $2,140; the Alcatel OmniSwitch 6600 U24 fiber-to-desktop switch, starting at $3,495; and power-over-Ethernet capability for its OmniSwitch 6600 family, starting at $3,195. They're available now.

SGI Launches Linux Workstations

Silicon Graphics Inc. has announced its new Silicon Graphics Prism line of Linux-based computers for users who require advanced graphics capabilities. The machines use Intel Itanium 2 processors, open standards, ATI graphics accelerator cards and a shared-memory architecture, said SGI. Pricing starts at $30,000.

CA Makes Update To Database App

Computer Associates International Inc. last week said it was shipping Release 11 of its Unicenter Database Management application for IBM's DB2 database running on the z/OS operating system. The new iteration will support Version 8 of IBM's DB2 for z/OS, and its enhancements include improved reliability and faster response times, according to CA. Pricing wasn't disclosed.

ROBERT L. MITCHELL

The Internet Holds No Secrets

ONE OF MY FIRST JOBS out of school in the early '80s was working technical support for a PC clone vendor. It was there that I learned firsthand how the benefits of information technology don't always trickle down to workers — or the customer.



My work life was run by a PC that divvied up technical support calls and monitored the average call time and the quantity of calls I completed. Each morning started with a review of our call statistics and the day's call quota. The promise: Those who met the day's per-worker goal could leave the phones and work on software quality assurance testing for the rest of the day. QA was a much more relaxing and desirable assignment. If a worker reached the goal, the monitoring PC would beep loudly, and the person whose name appeared on the display would be done — an event that became known as "beeping off."

In my six months there, I never beeped off before 5:30. Eventually, I came to realize that management already had a full-time QA department but was always short on technical support staff. So it became very good at using the PC-based statistical analysis tools to keep that carrot just out of reach.

The worst part, though, was what the vendor did to its customers. While reviews lauded the quality of its machines, in fact the system BIOS and graphics subsystems had fatal compatibility problems with many applications. Popular business programs that reviewers tested, like Lotus 1-2-3, worked. But many others did not.

Fixing those problems meant returning the PCs under warranty — an expense that management wanted to avoid. So we were ordered not to acknowledge them. When customers called in, we dutifully walked them through all possible solutions, told them their program should work fine, documented their complaint and promised to let them know if a fix became available. This is why my career in technical support was a short one, but to this day, I'm amazed that those problems stayed under the radar despite the fact that we continued to ship defective machines.

What a difference 20 years makes. Today, Internet chat rooms, newsgroups, e-mail lists and Web sites would be buzzing about that company's breach of trust with its employees and customers. Online communities would have quickly identified the company as an undesirable place to work and dubbed its machines lemons.

Information now travels so fast that companies are often left scrambling to contain the damage when bad news hits. Kryptonite, the maker of bicycle locks, was the latest company to face that challenge after word spread on the Internet last month that many of its locks could be picked using a ballpoint pen. The Bic revelation, quickly picked up by the news media, dealt a blow to the company's brand and forced a recall.

Kryptonite may not have known about the flaw, but it was clearly penalized for failing to find and correct the problem before the public did.

The Internet is ruthlessly efficient at disseminating information. To avoid such disasters, businesses need to rigorously, iteratively and methodically test their products for all possible problems and have policies to ethically and directly respond to issues in real time.

But the destructive power of the Internet hits more than business. In the case of Kryptonite, its customers may have suffered collateral damage. The rapid release online of detailed instructions on how to defeat the lock — including a video — let the world know how to steal any bicycle secured with this popular product.

Is it right that such information should be immediately and widely disseminated, no matter how destructive or who might get hurt? Microsoft would say no. It recently criticized a company that publicly claimed to have identified a vulnerability in Word 2000 without first giving Microsoft a chance to verify the problem and develop a patch to protect its customers.

Microsoft's thinking doesn't fly with Daniel Weitzner, a Kryptonite lock user and occasional *Computerworld* columnist whose bicycle was stolen prior to the disclosure. Had he known about the flaw earlier, he might still have his bicycle, Weitzner says.

It's true enough that such disclosures can hurt customers who don't get the news before the bad guys do. But immediate disclosure also empowers users to protect themselves.

Whether doing so is right or wrong is irrelevant in the end, since the Internet doesn't make such distinctions, and we can't put the technology genie back in the bottle. Rather than complain about the situation, both customers and vendors are just going to have to adapt. 48000

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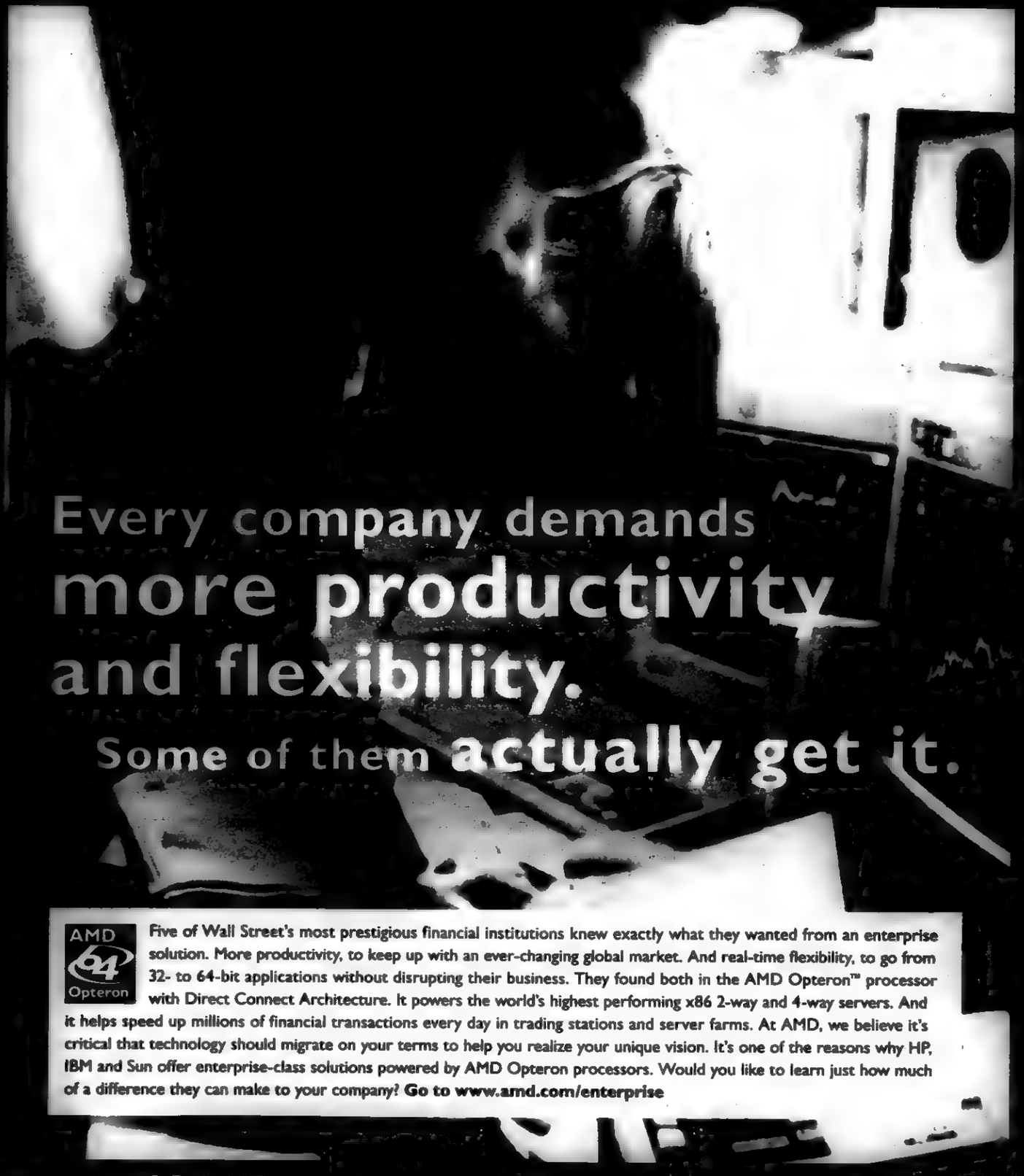
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Five of Wall Street's most prestigious financial institutions knew exactly what they wanted from an enterprise solution. More productivity, to keep up with an ever-changing global market. And real-time flexibility, to go from 32- to 64-bit applications without disrupting their business. They found both in the AMD Opteron™ processor with Direct Connect Architecture. It powers the world's highest performing x86 2-way and 4-way servers. And it helps speed up millions of financial transactions every day in trading stations and server farms. At AMD, we believe it's critical that technology should migrate on your terms to help you realize your unique vision. It's one of the reasons why HP, IBM and Sun offer enterprise-class solutions powered by AMD Opteron processors. Would you like to learn just how much of a difference they can make to your company? **Go to www.amd.com/enterprise**



ROBERT NEUBECKER

The Extra Mile

If you're ready to really commit to diversity in your IT shop, here's how to achieve it.

By Kathleen Melymuka

UNLIKE THE WILD HIRING OF THE '90s, the slow rebuilding of bare-bones IT shops over the next few years will provide an opportunity to staff up thoughtfully. It's another chance to get diversity right.

Lots of IT organizations talk about diversity, but some are better at achieving it than others. We spoke with representatives of five IT groups that have been repeatedly cited as diversity leaders by the Black Data Processing Association to discover how companies can find, recruit and retain top minority talent in IT.

They all agreed on two things: Achieving diversity isn't quick or easy, and it requires an ongoing, comprehensive commitment. "Diversity is not a one-time event; it is a way of doing business, a part of our culture," says George Hall, senior vice president of information resources human resources at Bethesda, Md.-based Marriott International Inc.

"Diversity is a business strategy," says Andy Baker, senior manager of human resources recruitment and selection at The Allstate Corp. in Northbrook, Ill. "Our company focuses on diversity across the board, in our succession management, recruitment and leadership development."

With that overall approach as the context, here are some of the innovative tactics diversity leaders use:

DEDICATED STAFF

Nothing says commitment like having human resources staff dedicated to achieving diversity in your workforce. At Bank of America Corp. in Charlotte, N.C., Melissa Thompson is vice president of staffing diversity. "I was hired by BOA in October of last year to focus on diversity staffing," she says. "It's a new role. My job is to focus on finding and hiring top diversity talent across the technology space."

PIPELINE RECRUITING

It's hard to be concerned with diversity if you're scrambling to fill holes in your organization. Knowing that, committed companies have learned to look ahead. "We try to anticipate resource needs and recruit skills in a proactive way rather than with such urgency that we can't pay attention to the demographic mix of our population," says Greg Tahvonen, vice president for human resources at Delta Technology Inc. in Atlanta. Looking ahead gives the Delta Air Lines Inc. subsidiary the luxury of grooming a pipeline of talented minority people. "We look to our fu-

ture skill needs, and we look at developmental programs such as student intern programs to be sure we have the right mix of folks in the queue to select from," he explains. Delta also makes sure it's training interns for the jobs it will need to fill when they're ready to enter the workforce.

RELATIONSHIP RECRUITING

Commitment to diversity doesn't stop when hiring slows down. "When the supply side outstrips the demand side, it's extremely important to continue to maintain relationships" with talented minority workers, says Hall. To do that, Marriott relies on "relationship recruiting" he explains. "When we don't have the demands, our associates, including our management team, maintain relationships with those people we would otherwise want to attract."

Relationship recruiting addresses the passive job seekers Hall is trying to connect with. "We're going after the top 5% of the market, and many of those aren't actively seeking opportunities, so the normal channels don't reach them," he says. But relationship recruiting does.

For example, for the past two years, Hall has maintained a relationship with "a very senior individual whom we would love to have" but for whom no suitable opportunity has been available. Hall phones the person, exchanges e-mails, meets for coffee, reports on how things are going — stays in touch. "So if an opportunity does open up, we don't have to re-establish the relationship," he says. "It continues to keep our name out in front of people's minds."



EXPLORATORY INTERVIEWS

Thompson uses what she calls exploratory interviews to recruit top minority talent, even during a hiring slowdown. "We talk to candidates, even though there is no position open," she explains.

The exploratory cycle begins with a quarterly résumé roundtable, where managers go over the résumés of candidates Thompson hopes to recruit, even though no specific positions may be open. They tell her which applicants look most promising, and she calls them in and explains the situation. "I do some coaching so they understand that there is no opening, but if they sell themselves, anything could happen," she says.

It frequently does. "The managers often say, 'Well I was going to hire in Q3, but since you're sitting here, I'll hire you now,' " Thompson says. "We've found it gets managers thinking outside the box. The more exploratory interviews we've done, the more successes we've seen."

TARGETED RECRUITING

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Hall agrees. "We have found that talented individuals tend to associate with other talented individuals," he says. "Using associate referrals is a very impactful way to identify candidates. We use it to the greatest extent possible."

Marriott has a formal referral program with cash awards. "So there is responsibility all across the business to recruit," Hall says.

At Allstate, the employee-referral program is used so widely that it's been responsible for the recruiting of about 40% of new hires, says Baker. Allstate also has a strong community presence. "I get phone calls all the time from employees who say, 'My church is hosting an event. Come and set up a booth about openings at Allstate,' " Baker says.

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Through community service, companies can do good while attracting potential hires. At Marriott, for example, employees devote one workday each year to causes such as Habitat for Humanity International Inc., Children's Miracle Network or local events in the surrounding communities. "I've done everything from digging fence posts to helping to refurbish a local amusement park," Hall says. He notices that interest from minority candidates usually increases markedly after these activities.

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Backing up diversity talk with real accountability makes a difference. At Bank of America, diversity targets are an integral part of each manager's performance and compensation plan, Thompson says. "We have accountability from the CEO straight down."

That accountability not only affects the decisions people make on the job, she says, but it also sends a message to minority candidates that the company means what it says. "Diversity candidates — and I was one — love knowing you have that accountability all through the organization right to the top," she says.

The same is true at Delta Technology, where managers are measured on their ability to create and maintain a diverse workforce, says Tahvonen. "Our performance standards allow an objective review of performance," he says.

Progress is carefully measured at Marriott, says Hall. For example, over the past five years, his IT division has increased its total minority representation by more than 5%, although the size of the division overall has decreased by 14%. "So at a time when our head count has gone down, our minority representation is going up," he says. During that period, Marriott increased the number of black senior-level tech associates by more than 100% and promoted seven to director-level positions, he says.

Companies say that once they begin to see progress in diversity, others notice, and then it snowballs. "External recognition helps," says Baker. "When we're named a top company for diversity, people see that." Hall agrees. "Marriott has been recognized by organizations like BDPA, and that helps us reach potential candidates. Generally, the number of e-mails and phone calls from interested candidates will increase because they read the articles." 49738

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Milt Haynes, immediate past president of the Black Data Processing Association, offers three tips for recruiting and retaining black IT talent:

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2 Recruit through historically black colleges and universities, and associations like the BDPA. These are the best places to find highly qualified African-American candidates.

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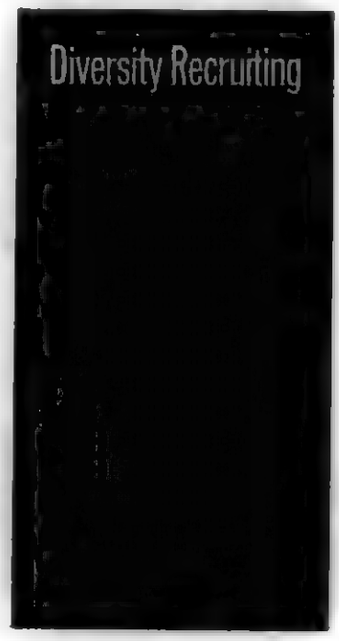
ture skill needs, and we look at developmental programs such as student intern programs to be sure we have the right mix of folks in the queue to select from," he explains. Delta also makes sure it's training interns for the jobs it will need to fill when they're ready to enter the workforce.

RELATIONSHIP RECRUITING

Commitment to diversity doesn't stop when hiring slows down. "When the supply side outstrips the demand side, it's extremely important to continue to maintain relationships" with talented minority workers, says Hall. To do that, Marriott relies on "relationship recruiting" he explains. "When we don't have the demands, our associates, including our management team, maintain relationships with those people we would otherwise want to attract."

Relationship recruiting addresses the passive job seekers Hall is trying to connect with. "We're going after the top 5% of the market, and many of those aren't actively seeking opportunities, so the normal channels don't reach them," he says. But relationship recruiting does.

For example, for the past two years, Hall has maintained a relationship with "a very senior individual whom we would love to have" but for whom no suitable opportunity has been available. Hall phones the person, exchanges e-mails, meets for coffee, reports on how things are going — stays in touch. "So if an opportunity does open up, we don't have to re-establish the relationship," he says. "It continues to keep our name out in front of people's minds."



EXPLORATORY INTERVIEWS

Thompson uses what she calls exploratory interviews to recruit top minority talent, even during a hiring slowdown. "We talk to candidates, even though there is no position open," she explains.

The exploratory cycle begins with a quarterly résumé roundtable, where managers go over the résumés of candidates Thompson hopes to recruit, even though no specific positions may be open. They tell her which applicants look most promising, and she calls them in and explains the situation. "I do some coaching so they understand that there is no opening, but if they sell themselves, anything could happen," she says.

It frequently does. "The managers often say, 'Well I was going to hire in Q3, but since you're sitting here, I'll hire you now,' " Thompson says. "We've found it gets managers thinking outside the box. The more exploratory interviews we've done, the more successes we've seen."

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Thrifty Storage

Long-term planning is the ticket to big savings.

By Drew Robb

THERE ARE DOZENS of ways you can shave a little here and a little there when it comes to overall storage costs. But at the end of the day, storage is still going to be a whopping part of you budget. That's why companies that are serious about real savings take a long-term strategic view and push their plans through to completion.

Take the case of Cisco Systems Inc. Utilization of just 20% to 30% on a direct-attached storage architecture was costing a fortune. "With no accurate method for tracking consumption and no way to plan for growth, our storage spending grew out of hand between 2000 and 2002," says Bill Williams, manager of enterprise storage operations. "That's why we decided to focus on achieving a consolidated storage model to raise utilization levels and lower TCO."

In a relatively short time, the company has taken major strides toward achieving that goal. In 2001, Cisco's 750TB of data was almost all direct-attached storage, with a few storage-area network islands interspersed. Today, Cisco has 2.1 petabytes of managed data, but only 20% of that is direct-attached storage; 55% is on a Fibre Channel SAN, and 25% is network-attached storage. This shift involved migrating nearly 1 petabyte of data to Cisco's MDS 9500 Series Multilayer Directors and consolidating 80 smaller EMC Corp. frames to eight large ones.

Cisco's experience is far from uncommon. Escalating storage costs are pushing most companies to look for cost-saving and -avoidance strategies. While some save cents here and there on quick fixes, the real savings come through long-term planning. Large organizations, in particular, are finding that the sheer volume of data that exists in disparate systems necessitates the rearchitecting of the storage infrastructure.



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Taking the Long View

By consolidating storage and migrating to networked storage, Cisco has taken annual total cost of ownership from 40 cents per megabyte to 10 cents per megabyte, says Williams. And there may still be room for improvement. Cisco has a target of 8 cents per megabyte this year.

Other organizations are taking a similarly long-range view to slash their storage budgets. The 45th Space Wing of the U.S. Air Force, for example, experienced problems with its direct-attached storage architecture. Backups were slow, systems took too long to recover, and performance suffered badly.

The 45th Space Wing has spent the past several years implementing a centralized storage environment consisting of BrightStor Enterprise Backup software from Computer Associates International Inc. and storage hardware from Brocade Communications Systems Inc., EMC and Exabyte Corp. By pooling storage in large repositories, capacity increased by 600% to 6.5TB, file and print servers were reduced by 33%, and backup times decreased by 83%.

"From 12 hours per night for backup, we are down to four hours," says Glenn Exline, manager of advanced technology at Patrick Air Force Base. The economic payoff has been impressive. The costs to date have totaled about $1.4 million, he says, while the savings are about $2 million.

To prevent storage costs from mushrooming, Exline stresses understanding the specific SAN design. Almost all

COMPUTERWORLD

Executive Bulletin

Our Hottest Security Tips

Sage advice for protecting corporate assets in a dangerous world.

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The Grand Challenges

A RECENT SURVEY OF 104 EXECUTIVES fingered IT security as the No.1 technology pain point in corporations. Why? For one thing, the threats come in many forms and from many directions: disgruntled employees, fired employees, clueless employees who succumb to social engineering, passwords left on Post-it notes, wide-open instant messaging and increasingly powerful hacker tools in the hands of teenagers.

"Companies must understand that the corporate perimeter dissolved with the very first Internet connection," says Lynne Ellyn, lead author of a security report from Cutter Consortium in Arlington, Mass. "Every business-to-business supply chain connection, every Internet storefront, every reverse auction that a company puts into operation opens the corporation's virtual doors. Once connected to the World Wide Web or the Internet, a company actively occupies a virtual space that is peopled with competitors, terrorists, children, environmentalists, lawyers — every segment of society — or, actually, every segment of nearly every society on earth."

New security and privacy laws are being passed, and the risk of cyberterrorism looms. Plus there are seemingly mundane issues: The telecommuter working at his kitchen table from a home PC — connected to your corporate network — could be the weakest link in your security defenses. "We got hit with the Blaster worm when a home user tapped into a machine he didn't really require access to," says Rich Dase, technology director at Knowles Electronics LLC in Itasca, Ill.

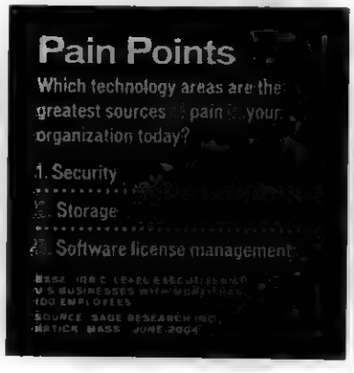
It's no wonder that some companies throw up their hands and let contractors that have security expertise — known as managed security service providers — handle the work. The threats are "outpacing the enterprise's ability to keep up with the latest countermeasures and techniques to thwart attacks," according to a recent report by The Yankee Group. The researchers predict that enterprises will outsource 90% of their security activities by 2010.

But the outsourcing approach is no panacea — it has it's own challenges. And many corporations don't want to turn the keys to the castle over to an outside firm. "You cannot outsource risk. You should never outsource everything," says Yankee Group analyst Eric Ogren.

Insider Threats

One of the biggest security threats comes from inside the organization. According to the American Society for Industrial Security, current and former employees and on-site contractors with authorized access to facilities and networks continue to pose the most significant risk to intellectual property such as research data, customer files and financial information.

It's especially important to lock down security during a merger. U.S.-based multinational companies plan to increase their merger and acquisition activity over the next two years, with 70% expecting to be involved in such deals in that period, according to a recent PricewaterhouseCoopers Barometer Survey of 170 executives. That will mean a lot more work for chief security officers — before the deal is signed and afterward, when security technologies and policies have to be integrated. You'll need to ensure that data, networks and systems remain as secure as possible during the often turbulent times that accompany a merger or acquisition.



For example, you'll need to analyze the security policies and technologies at the other company and determine how vulnerable it is — well before the actual merger. "Spend a lot of time learning about the company and its culture, where it does business, whether security [management] is centralized or decentralized, and how the company values security," says Bobby Gillham, manager of global security at ConocoPhillips in Houston, who headed security for Conoco during its 2002 merger with Phillips Petroleum.

And you'll need to anticipate social engineering and other security threats from disgruntled employees at both of the companies involved. As soon as an employee has been notified about a layoff, cut off access to all critical services and applications. "You need to pay particular attention to protecting against people walking out with proprietary information," Gillham says.

Hole in the Firewall

Meanwhile, knowledge workers are using consumer-oriented instant messaging applications, opening up your network to more possible mischief. Gartner Inc. has identified IM as one of the top 11 security issues for the corporation. "IM, by its very nature, punches a hole in the firewall,

The Grand Challenges

A RECENT SURVEY OF 104 EXECUTIVES fingered IT security as the No.1 technology pain point in corporations. Why? For one thing, the threats come in many forms and from many directions: disgruntled employees, fired employees, clueless employees who succumb to social engineering, passwords left on Post-it notes, wide-open instant messaging and increasingly powerful hacker tools in the hands of teenagers.

"Companies must understand that the corporate perimeter dissolved with the very first Internet connection," says Lynne Ellyn, lead author of a security report from Cutter Consortium in Arlington, Mass. "Every business-to-business supply chain connection, every Internet storefront, every reverse auction that a company puts into operation opens the corporation's virtual doors. Once connected to the World Wide Web or the Internet, a company actively occupies a virtual space that is peopled with competitors, terrorists, children, environmentalists, lawyers — every segment of society — or, actually, every segment of nearly every society on earth."

New security and privacy laws are being passed, and the risk of cyberterrorism looms. Plus there are seemingly mundane issues: The telecommuter working at his kitchen table from a home PC — connected to your corporate network — could be the weakest link in your security defenses. "We got hit with the Blaster worm when a home user tapped into a machine he didn't really require access to," says Rich Dase, technology director at Knowles Electronics LLC in Itasca, Ill.

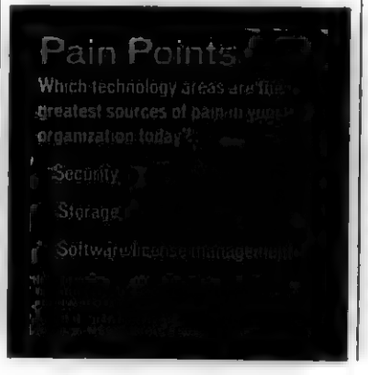
It's no wonder that some companies throw up their hands and let contractors that have security expertise — known as managed security service providers — handle the work. The threats are "outpacing the enterprise's ability to keep up with the latest countermeasures and techniques to thwart attacks," according to a recent report by The Yankee Group. The researchers predict that enterprises will outsource 90% of their security activities by 2010.

But the outsourcing approach is no panacea — it has it's own challenges. And many corporations don't want to turn the keys to the castle over to an outside firm. "You cannot outsource risk. You should never outsource everything," says Yankee Group analyst Eric Ogren.

Insider Threats

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Advice from Your Peers

A sampling of the practical tips you'll find in this report:

ENFORCE a "lowest privilege level" policy for information assets, which means employees get access only to the data they need to do their jobs. No one needs access to everything.

CHANGE systems administrator passwords when key IT staff members leave the company.

SET a time limit – like 15 minutes – for responses from security services firms.

ANTICIPATE social engineering and other security threats from disgruntled employees at both of the companies involved in a merger.

BLOCK file transfers for users of consumer instant messaging.

HIRE trained investigators for computer crime cases. Even great in-house systems administrators can unwittingly foul up the evidence needed for prosecution.

MINGLE with the opposition at the annual Def Con hacker conference in Las Vegas to find out what they're up to now.

and that opens up the possibility of inviting in a dangerous worm," says Internet security expert Douglas Schweitzer.

Battling this onslaught of security problems will require not only savvy but also money. "Back in the good old days, security consisted of a few firewalls and some virus protection," says veteran CIO Doug Lewis. "The threats have outgrown those simple defenses, and the cost has outgrown the approval level of the chief security officer and, sometimes, that of the CIO." That means Fortune 500 companies are finding themselves with security expenditures that require CEO and even board-level approvals.

Boosting Your Budget

In this report, Lewis provides a brilliant plan for developing a rock-solid business case for boosting your IT security budget — with a credible return on investment that even the chief financial officer will love.

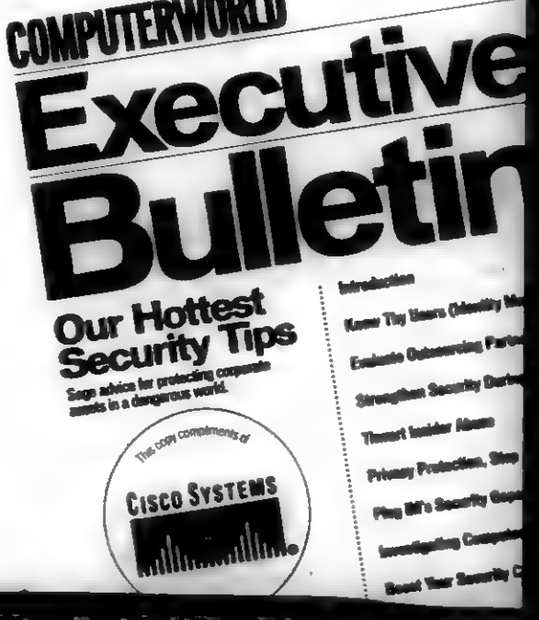
Overall, the report has dozens of practical tips to help you manage the IT risks faced by the modern corporation. But before you implement any of them or buy another security product, do one thing: Stop to identify the three biggest security risks your company faces — whatever would bring your company to its knees. They will vary, depending on your industry and business model. Is it theft of credit card numbers? Embezzlement? Privacy violations?

Be sure to address those high-risk areas first, before looking at more exotic problems. Take care of the basics: passwords, patches, employee training, antivirus software and access controls. And if you can't keep up, consider outsourcing.

Risk – it's everywhere. And no one knows that better than IT security professionals. Disgruntled employees, fired employees, clueless employees who succumb to social engineering, passwords left on Post-it notes, wide-open instant messaging and increasingly powerful hacker tools in the hands of teenagers – this bulletin will help you address those risks with sage advice for protecting corporate assets in a dangerous world.

FREE DOWNLOAD: "Our Hottest Security Tips"
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QuickLink a5020



2:07PM LOG IN TO HOT SPOT 2:08PM NETWORK SECURES THIN AIR 2:09PM TRANSMIT FILES THROUGH THIN AIR 2:25PM UPDATE PURCHASE ORDER 2:35PM EXPENSE COFFEE ORDER

The more freedom you give employees to work anywhere, the more you can achieve. That's good. But, at the same time, the more you expose yourself to intruders and worms. That's not so good. How far can a network travel to protect your office? Now, the answer is everywhere. Cisco networks, with integrated wireless security, protect mobile workers who constantly move outside the safety of the corporate network. So information is secured. No matter where it exists. To learn more about how Cisco can help plan, design and implement your network security, visit cisco.com/securitynow. **SELF-DEFENDING NETWORKS PROTECT AGAINST HUMAN NATURE.**

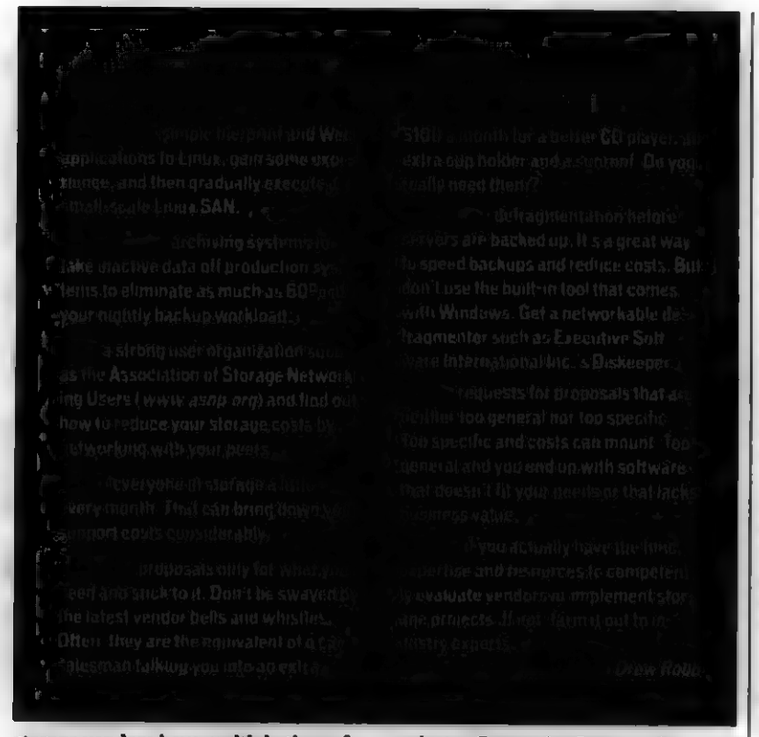


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Strategies



storage vendors have multiple tiers of products. "By understanding your requirements, you can balance performance, cost and future growth," says Exline. "That way, you avoid buying an ICBM when all you needed was a fly swatter."

A case in point: The smaller EMC Clariion array proved a better fit than EMC's high-end Symmetrix array. "There are lots of situations that call for larger systems, but they were overkill in our case," says Exline.

Surviving the Learning Curve

Choosing a system is a decision that can be made only after you do your homework. In reality, however, that may not be possible until you have completed your first SAN. And by then, it may be too late.

"Any enterprise must get a qualified VAR/integrator involved, as there is nothing like experience when it comes to SANs," says Steve Duplessie, an analyst at Enterprise Strategy Group Inc. in Milford, Mass. "There can be a ton of gotchas if you aren't prepared upfront."

Exline agrees. He's seen IT departments attempt huge storage projects with impossible deadlines. There is a learning curve that has to be respected, he says, and he preaches training on new storage products. "By being self-sufficient to a large degree, we save a lot on support," says Exline.

Another way to reduce costs is through consolidation. Golden Gate University in San Francisco is nearing the end of a three-year migration of its storage environment from six operating systems to Linux and Windows. The university is also consolidating servers, databases and enterprise resource planning systems.

"Leveraging Linux with an enterprise storage tier has reduced server acquisition costs by over 20%," says Keith Rajecki, Golden Gate University's IT infrastructure manager. "TCO in our old storage environment was 10 times greater than it is today."

He reports that maintenance would have cost 250% more on a Sun Solaris environment than it does on a Dell/Linux combination. IT operating costs are down 40%, the number of servers has been cut from 100 to about 50, and head count is 20% lower.

"Consolidation and standardization combined with a focus on storage management as an ongoing activity will enable most organizations to cut storage costs," says Rajecki.

No End in Sight

Simple economics dictates planning for the long haul. Cisco, for instance, recently consolidated its storage budget across all business units and has a single budget for all enterprise storage needs. "Because storage is such a major cost, it requires long-term planning to keep costs under control," says Cisco's Williams.

Similarly, the 45th Space Wing is refusing to rest on its storage laurels. It implemented backup to virtual tape via Alacritus Software's Securitus virtual tape appliances. It also added another 28TB of mixed Fibre Channel and ATA storage to support Exchange 2003 clusters, virtual tape backup and cross-site mirroring (using EMC's SnapView and SAN Copy). New tape libraries from Qualstar Corp. were added using Super Advanced Intelligent Tape technology to increase per-tape density and reduce off-site vaulting charges.

"Estimated ROI is 14 months, with a three-year savings of approximately $400,000 just in tape and vaulting charges," says Exline. QuickLink 49416

Robb is a freelance writer in Los Angeles. Contact him at drewrobb@attbi.com.

MORE COST-CUTTING TIPS

Industry experts say reducing storage costs is a step-by-step process that begins with planning that is diligent and ongoing. Here are five key steps:

QuickLink 32848
www.computerworld.com

iSCSI Brings Lower-Cost Storage Networks

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"Companies should be running, not walking, to iSCSI," says Steve Duplessie, an analyst at Enterprise Strategy Group. "The payback is so strong and so fast that enterprises will look silly if they wait. And iSCSI is driving prices down for [Fibre Channel] networks."

One convert is Denver Health Medical Center. Its IT environment consists of 16 buildings connected via Gigabit Ethernet, 22 community health clinics connected via Sonet, 166 clustered servers (125 Windows, 20 Unix and various others) and two SANs – a Fibre Channel SAN and an IP SAN.

"We found FC SANs to be expensive to implement, and they required specialized training and technicians," says Jeff Pelot, chief technology officer at Denver Health. "An IP SAN is so much more affordable, and implementing one is like building something with Lego."

Pelot says he doesn't think his facility requires FC buildout, especially now that IP technology has matured. However, Denver Health fully intends to maintain its existing SAN. With the infrastructure in place, it makes no sense to eliminate it. Instead, the facility chose to expand its storage platform with an IP SAN from LeftHand Networks Inc. in Boulder, Colo.

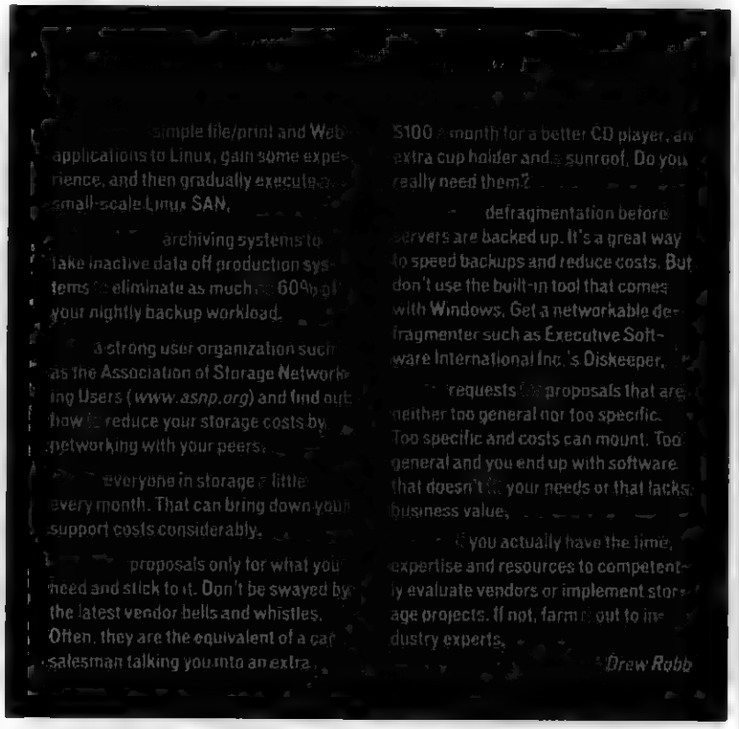
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"Allowing user access to the same data network that is harnessed for storage is a big mistake," says Exline.

However, Pelot says that performance turned out to be far less of a problem than many feared. "Although I/O is very slightly down compared to the FC SAN, the users have never noticed the difference," he says.

– Drew Robb

Strategies



simple file/print and Web applications to Linux, gain some experience, and then gradually execute a small-scale Linux SAN.

archiving systems to take inactive data off production systems to eliminate as much as 60% of your nightly backup workload.

a strong user organization such as the Association of Storage Networking Users (*www.asnp.org*) and find out how to reduce your storage costs by networking with your peers.

everyone in storage a little every month. That can bring down your support costs considerably.

proposals only for what you need and stick to it. Don't be swayed by the latest vendor bells and whistles. Often, they are the equivalent of a car salesman talking you into an extra $100 a month for a better CD player, an extra cup holder and a sunroof. Do you really need them?

defragmentation before servers are backed up. It's a great way to speed backups and reduce costs. But don't use the built-in tool that comes with Windows. Get a networkable defragmenter such as Executive Software International Inc.'s Diskeeper.

requests for proposals that are neither too general nor too specific. Too specific and costs can mount. Too general and you end up with software that doesn't fit your needs or that lacks business value.

you actually have the time, expertise and resources to competently evaluate vendors or implement storage projects. If not, farm it out to industry experts.

Drew Robb

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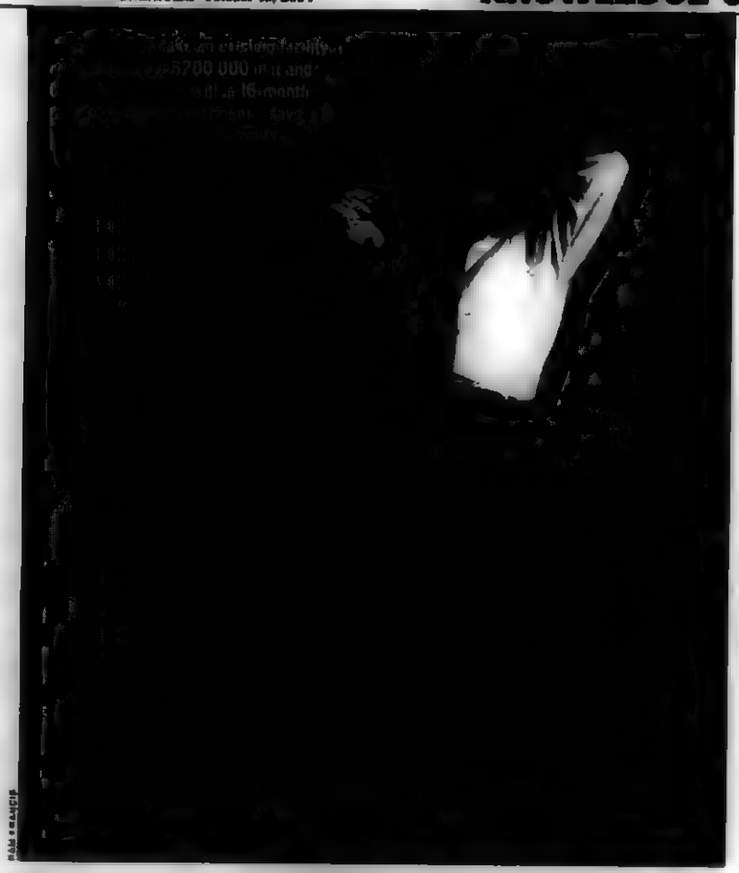
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Long Distance, Short Money

Storage over IP provides a cheaper, faster alternative for data backup. By Lucas Mearian

NATURAL DISASTERS and government regulations have put pressure on companies to back up data farther away from their main data centers than they do now, but achieving that goal can be pricey. Tape is one option, but it's slow to restore. Dedicated networks can replicate data over a WAN, but at a bandwidth price.

In their quest for cheaper alternatives, some companies are turning to a still-developing option. Storage over IP, or the replication of block-level data over leased virtual private networks, allows users to select the type of wide-area service that best meets their budget and application requirements.

"It's a lot faster than tape. And IP is a lot less expensive than a dedicated line," says James Opfer, an analyst at Gartner Inc.

The three main long-distance transmission protocols — Internet SCSI (iSCSI), Fibre Channel over IP (FCIP) and Internet Fibre Channel Protocol — are all significantly different, but they provide a common function: transporting block-level storage over an IP network, which allows administrators to use inexpensive Ethernet-TCP/IP networks to transport and access storage over LANs, WANs or metropolitan-area networks.

ISCSI, which transmits block-level data directly over Ethernet, is primarily a server-to-storage interconnect within the data center. It takes advantage of ubiquitous Ethernet networks to consolidate Windows and Linux server backups by connecting LANs to storage-area networks (SAN). New vendors are now offering arrays that use iSCSI as a tunneling protocol to transmit over long distances.

Savings Spots

The greatest savings in using IP to transport data between data centers comes from reduced bandwidth. Long-distance replication of block-level data can use IP, Synchronous Optical Network (Sonet) and Asynchronous Transfer Mode (ATM) networks to transmit data, with little difference in price as long as it's not a dedicated line.

"It's not the hardware. Every time I talk to people, they say it's the cost of bandwidth services," says Opfer.

But exact savings are hard to pin down: Opfer says bandwidth costs can vary widely by region. If you're using "dark fiber," or surplus fiber-optic cable, "you're going to get wild swings in the price," he says. And with IP, there's no need to hire Fibre Channel network administrators or buy switches or host bus adapters to create the network interface.

But financial firms and other companies dealing with sensitive data are still squeamish about adopting a storage-over-IP framework, says Dianne McAdam, an analyst at Data Mobility Group LLC in Nashua, N.H. "What I do see changing is the small to medium-size businesses, where in the past they looked at doing replication and then got the price tag and said, 'Oh my God,' " she says.

Some large companies say the cost benefits outweigh the risks. For example, Don Bolton, manager of infrastructure and systems services at Teppco Partners LP, an energy company in Houston, understands costs issues associated with disaster recovery. Teppco had been paying $250,000 to $500,000 a year to SunGard Data Systems Inc. in Wayne, Pa., to ensure that should the company's systems go down, they could power up in another region without losing data.

Earlier this year, Bolton says, he decided that Teppco could perform that chore itself by replicating mission-critical, block-level data via a T1 line between data centers in Houston and Tulsa, Okla. — a distance of about 500 miles. That move has cut his costs by more than half with a quick return on investment. "I was able to take an existing facility we had and put $200,000 in it and install like servers with a 16-month payback on our investment. And it's allowed us to grow our infrastructure," Bolton says.

Teppco asynchronously replicates block-level data from Oracle and SQL databases that reside on clustered arrays from Network Appliance Inc. that use NetApp's SnapMirror application. "It's pretty interesting technology. If I was a superlarge shop at Continental Airlines or something, with hundreds of terabytes, I don't know if this would be the solution. But with this size, it is perfect," Bolton says.

In asynchronous mode, SnapMirror provides read-only, online replication of a source file system (volume or quota tree level). In the event of a disaster, Bolton says the mirror site could be used as the primary, converting the SnapMirror replica into a writable file system and replacing the original.

IP Payoff

Edward Jones & Co. has begun to reap the rewards of three years of work and an $80 million investment in a storage-over-IP network [QuickLink 49629]. The system is replicating up to 700GB of data daily to a fully redundant back-up site located 1,600 miles away from the brokerage's main data center, near St. Louis. Edward Jones has created a secondary site in Tempe, Ariz., that's a replica of the primary data center, complete with 450TB of SAN-based data.

Bill Hayden, director of data services at Edward Jones, which is using FCIP over ATM to tunnel its data across the U.S., says prices have continued to drop on network bandwidth. "It doesn't matter whether it's running IP, Sonet or ATM," the prices are the same, he says.

The payback? All of Edward Jones' Oracle databases are replicated nationwide in under five seconds. File services are replicated every four minutes, and mainframe databases are typically replicated in 30 minutes. The company says it can flip a switch and begin using its secondary site as its primary one.

"Our sticking point is our [VSAM flat files] on our mainframe," Hayden says. VSAM flat files still take four hours to replicate, a problem that Hayden says could be resolved by updating Edward Jones' EMC Symmetrix arrays and replication software.

"There are always issues," he says. "We're always looking to get the data there faster and looking for ways to get the data to the point where we can update it at either site." 49621

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BELLE MELLOR

Second-Hand Savings

Buying used storage equipment is cheaper, but riskier, than buying new gear. By Mary Brandel

AT ATA AIRLINES INC., the practice of buying refurbished storage systems started small, with the purchase of a workgroup-size disk array. Over the past six years, the $1.2 billion airline bought more and more used storage equipment, including enterprise-size storage systems, tape libraries and eventually Fibre Channel storage-area networks. Today, "there really isn't a case where we wouldn't consider previously owned storage systems," says Paul Smith, director of information services at Indianapolis-based ATA.

The result: savings that add up to at least 50% off list price for used storage components and 60% to 70% savings for used storage systems.

"Why pay top dollar when you can let someone else take the hit on new equipment?" says Chuck Copell, manager of hardware support services at Affiliated Computer Services Inc., a $4 billion outsourcer in Dallas. "Storage hardware depreciates as fast or faster than an automobile. Whenever possible, I like to buy used equipment."

The hottest used items include tape and optical libraries, as well as other archive and backup products, where performance is less critical and the obsolescence cycle is slower, according to resellers. But the market for newer equipment, such as Fibre Channel SAN switches, is also active, and mid-range disk arrays, such as IBM Shark's and Hitachi Data Systems Corp.'s Thunder system, also sell well.

The benefits go beyond cost savings to include faster acquisition cycles and more-flexible maintenance programs. But there are risks involved. Before doing business with storage remarketers, users should consider the answers to these common questions about secondhand storage equipment.

1 Is It Reliable?

This is perhaps the first question asked by people who have never purchased secondhand storage. But experienced users have no reservations about reliability, as long as they're purchasing from a reputable vendor that sets up, tests and refurbishes the systems. The vendor should also offer a warranty that the equipment is in working condition upon arrival at the customer site and possibly even for 30 days until the system comes under a service contract with the manufacturer or a third-party provider. Some resellers will also offer longer warranties on certain equipment for a higher price.

In any case, "you have to be comfortable with the vendor you choose," says Smith. "It could make all the difference if the system has been in a climate-controlled environment as opposed to a hothouse where the disks have been spinning in 100-degree heat."

2 Can I Get a Service Agreement?

It's important to determine beforehand if the equipment you're buying is eligible for mainte-

Continued on page 42

Meet the Winners at SNW

"Best Practice" Storage Users to Be Announced October 25th at Storage Networking World Conference

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Storage Networking World (SNW), in conjunction with Computerworld and the Storage Networking Industry Association (SNIA), proudly presents the fifth SNW "Best Practices in Storage" Awards Program. This program honors ten IT user "best practice" case studies selected from a field of qualified finalists.

Two awards will be presented in each of the following five categories:

Systems Implementation

Recognizes the successful design, implementation and management of an interoperable environment. This category also demonstrates the ability to source from multiple vendors.

Storage Reliability and Data Recovery

Acknowledges implementation strategies and programs to insure highly available information and data access.

Data Lifecycle Management

Exemplifies solutions and processes to manage the information over its lifecycle.

Industry Regulation Compliance and Corporate Governance

Spotlights solutions being deployed to meet or exceed industry regulations specified by the SEC, Patriot Act, HIPAA, Sarbanes-Oxley, DoD, and CFR.

Innovation and Promise

Successful "pioneering" of leading/bleeding-edge storage networking technology will be recognized in this category.

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Stick With What You Know

WHEN ATA AIRLINES purchased its first SAN, the equipment wasn't available on the refurbished market, and looking back, that's a good thing, says Paul Smith, director of information services.

After installing the new equipment, the SAN didn't perform up to its published specifications, and the manufacturer had to be called in for assistance. "Having that extra layer of the remarketer could have made it difficult," Smith says. "We wouldn't have had the clout, and the problem may not have resonated with the vendor." The lesson: If you're working with an emerging technology or one you're not intimately familiar with, your risk factors rise.

Another point: In the refurbished market, you don't have the honeymoon period when you can call in all of the vendor's resources.

ATA bought its first SAN four years ago. Since then, Smith has turned to the refurbished market when he has needed an additional SAN array.

– Mary Brandel

Continued from page 40

nance from the original manufacturer or from a reputable third party. "Some of the big vendors like HP, IBM and Sun are very strict about what they will and won't support as far as the age of the equipment and the firmware and its interaction with their more modern equipment," Copell warns.

Vendors may also provide maintenance contracts more readily if you buy from an authorized reseller of their equipment. Otherwise, they may require a site visit and an audit to perform necessary upgrades or firmware changes — for a price, of course.

You should also ensure that all the drives within a storage system are original manufacturer drives, or the manufacturer won't place them under maintenance agreements, according to Robert Davie, founder of ITParade.com Inc., a Web-based marketplace for refurbished computer equipment in Cary, N.C. For example, a Sun Microsystems array must have all Sun-manufactured drives in it.

IBM is one of the only vendors with well-defined processes for servicing the secondhand market, says James Davie, a vice president at Canvas Systems, a reseller in Norcross, Ga. It offers a "banding process," by which IBM certifies that the system is "maintenance service qualified" at the time of the sale. The system arrives at the customer site with a silver band around it, IBM engineers implement the system, and IBM provides the maintenance contract. This comes at an additional cost of about $1,000, according to Doug Rengel, a consultant at Xerxes Computer Corp., a refurbished computer reseller in Bloomington, Minn., so customers might choose this option only for higher-end equipment.

Some companies, such as ATA Airlines, don't rely on vendors for service and instead maintain their equipment themselves. ATA even keeps its own inventory of spare parts. "We're an extreme case," Smith acknowledges.

Bruce Caswell, vice president of marketing at World Data Products, a refurbished computer reseller in Minnetonka, Minn., says roughly 80% of his company's customers put their hardware on a maintenance contract, while 20% are self-maintainers. Of those that opt for maintenance contracts, most turn to credible third-party providers such as Northrop Grumman Corp., DecisionOne, Storage Technology Corp. and General Electric Co. to lower their cost of maintenance.

3 Should I Expect Vendor Push-back?

Particularly if you're purchasing a high-end system, many vendors will try to dissuade you from purchasing refurbished equipment by threatening exorbitant "recertification" fees or even refusing to service it. "I know one large insurance company that got strong push-back from Sun at the CFO level and decided not to purchase refurbished because of that," says Robert Davie. On a StorageTek L700 tape drive, the relicensing fee can reach $2,200, he says.

According to many observers, the vendor with one of the worst reputations in this regard is EMC Corp. "EMC has a subtle way of controlling the market in its own used gear," says John Webster, founder of the Data Mobility Group LLC, a consultancy in Nashua, N.H. "They say that the microcode to run the machine is not transferable and that you need to buy a new microcode license — which, by the way, ain't cheap."

EMC defends its relicensing requirements. "Our systems are intelligent storage systems that have software incorporated into them, and it is standard practice throughout the industry that the software license doesn't get transferred when the hardware gets transferred," an EMC spokesman says. "The licensing also ensures that the product operates as it's supposed to for the customer."

It's important to keep in mind that these types of fees are negotiable, resellers say, and that salespeople can reduce or even waive them. A good negotiating point is to suggest that you might opt for third-party maintenance, meaning the vendor will lose the service revenue as well. Robert Davie recommends contacting the field service rep instead of the salesperson, since the service rep is typically compensated on the service contract revenue and is more likely to negotiate with customers to reduce relicensing fees.

Smith advocates having a frank discussion with your vendor about servicing issues. With his company's storage vendor, Hewlett-Packard Co., "it took some time," he says. "There were lightly intimated threats of refusal to put it under warranty and tack on recertification costs." How the vendor reacts, Smith says, can either cement the relationship or end it.

4 Will There Be Compatibility Issues?

One gotcha on used storage equipment is compatibility with newer equipment, particularly in the areas of firmware revisions and interface compatibility. "If you have the luxury of time, it's easy enough to take a look at your operating systems and firmware revisions and patch-level kits and determine whether the equipment will be an easy fit," Affiliated Computer Services' Copell says. "But around here, things are on a deadline mentality, and that's when you find problems."

In some cases, resellers load the latest firmware revisions onto the equipment they sell; in others, their tech support staffs can help with fixes when problems are discovered.

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Also keep in mind that standards change. "You can mistakenly assume that a piece of old gear can do something that's commonplace today," says Marc Farley, president of Building Storage Inc., a consultancy in Saratoga, Calif. For instance, an older Fibre Channel host bus adapter might be available for $20, but it's useless if it doesn't support a fabric log-in, which most SANs use today.

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In a long-term relationship, a remarketer can help you decide what will work best with your environment and what options will save you the most money. "There are tons of prerequisites for purchasing storage — what are you attaching to, what storage adapters are you using, what SAN devices are you using," says James Davie.

"Sometimes, the people selling in the used market have no idea what they're promoting," Farley says. For instance, when he has purchased on eBay, he's been given data sheets that don't match the product being sold. "Clearly, they had no idea what they were doing, but they were sure eager to sell it," Farley says. **49422**

Brandel is a Computerworld contributing writer in Grand Rapids, Mich. Contact her at mary.brandel@comcast.net.

Although the size of the used storage market isn't easy to measure, one estimate puts it at about 5% of the overall used computer market, according to Robert Davie, founder of ITParade.com. The overall market is expected to reach $7.5 billion in the U.S. this year, according to Bruce Caswell, vice president of marketing at World Data Products.

USED EQUIPMENT MARKET

Prices in the secondary market can range from 20% to 30% of manufacturers' suggested prices for new equipment.

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Grid Storage

DEFINITION

Grid storage, analogous to grid computing, is a new model for deploying and managing storage distributed across multiple systems and networks, making efficient use of available storage capacity without requiring a large, centralized switching system.

BY RUSSELL KAY

QUICK STUDY

WE ROUTINELY talk about the electrical power grid or the telephone grid, and it's pretty clear what we mean — a large, decentralized network with massive interconnectivity and coordinated management. A grid is, in fact, a meshed network in which no single centralized switch or hub controls routing. Grids offer almost unlimited scalability in size and performance because they aren't constrained by the need for ever-larger central switches. Grid networks thus reduce component costs and produce a reliable and resilient structure.

Applying the grid concept to a computer network lets us harness available but unused resources by dynamically allocating and deallocating capacity, bandwidth and processing among numerous distributed computers. A computing grid can span locations, organizations, machine architectures and software boundaries, offering power, collaboration and information access to connected users. Universities and research facilities are using grids to build what amounts to supercomputer capability from PCs, Macintoshes and Linux boxes.

After grid computing came into being, it was only a matter of time before a similar model would emerge for making use of distributed data storage. Most storage networks are built in star configurations, where all servers and storage devices are connected to a single central switch. In contrast, grid topology is built with a network of interconnected smaller switches that can scale as bandwidth increases and continue to deliver improved reliability and higher performance and connectivity (see diagrams).

What Is Grid Storage?

Based on current and proposed products, it appears that a grid storage system should include the following:

Modular storage arrays: These systems are connected across a storage network using serial ATA disks. The systems can be block-oriented storage arrays or network-attached storage gateways and servers.

Common virtualization layer: Storage must be organized as a single logical pool of resources available to users.

Data redundancy and availability: Multiple copies of data should exist across nodes in the grid, creating redundant data access and availability in case of a component failure.

Common management: A single level of management across all nodes should cover the areas of data security, mobility and migration, capacity on demand, and provisioning.

Simplified platform/management architecture: Because common management is so important, the tasks involved in administration should be organized in modular fashion, allowing the autodiscovery of new nodes in the grid and automating volume and file management.

Three Basic Benefits

Applying grid topology to a storage network provides several benefits, including the following:

Reliability. A well-designed grid network is extremely resilient. Rather than providing just two paths between any two nodes, the grid offers multiple paths between each storage node. This makes it easy to service and replace components in case of failure, with minimal impact on system availability or downtime.

Performance. The same factors that lead to reliability also can improve performance. Not requiring a centralized switch with many ports eliminates a potential performance bottleneck, and applying load-balancing techniques to the multiple paths available offers consistent performance for the entire network.

Scalability. It's easy to expand a grid network using inexpensive switches with low port counts to accommodate additional servers for increased performance, bandwidth and capacity. In essence, grid storage is a way to scale out rather than up, using relatively inexpensive storage building blocks. For more on scaling up vs. scaling out, see QuickLink a5050. 48829

Kay is a Computerworld contributing writer. You can reach him at russkay@charter.net.

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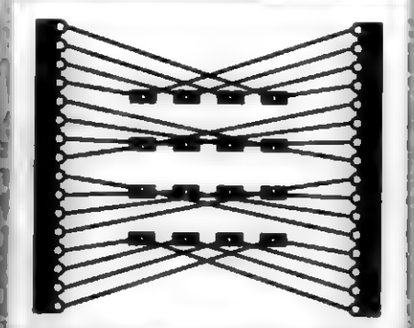
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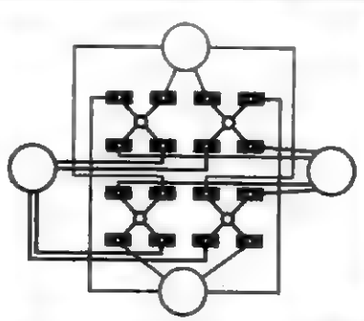
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The Grid Storage Difference



Let's consider a simple network of 16 storage nodes in a high-availability environment, where all nodes require access to one another. The usual way to design this would be with two 16-port switches (the second one for fail-over) in a star configuration. Thus each switch is connected to each of the 16 nodes and each node is connected to both switches, and we have 32 wired connections and two expensive switches. There are two possible paths between any two nodes. If we want to expand the network, we can add more nodes only by also replacing the switches with ones that have more ports available.

Current two-16-node storage configuration



16-node grid storage configuration

In a grid arrangement, we could arrange the nodes in four groups of four, each connected to a simple four-port switch. We would also use four additional four-port switches, each connecting to one node in each of the four groups. Now we have 32 wired connections (like same as before), but eight four-port switches instead of two 16-port units, and each node is connected to two switches. In the event of a failure of any of the switches, there are many possible alternate paths to connect any two nodes. The arrangement is more resilient and less susceptible to catastrophic failure than conventional configurations. To expand the network, we can add more nodes and more small switches without having to re-engineer the whole structure. (Note: We could have achieved a similar result by configuring this with four eight-port switches.)

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From the Labs: The Holographic Disc

■ **OPTWARE CORP.** in Japan (*www.optware.co.jp/english*) has come out with a prototype of what it calls the world's first holographic recording disc for reliable recording and playback of digital movies. The disc (above, left) is 12 cm in diameter — the same as DVDs and CDs — and could be on the market for commercial use in the first quarter of 2006 with a capacity of 200GB. That's the good news. The bad news is that the recorders are expected to cost about $20,000, and the discs will be $100 each. A less-expensive version for home use could be on the market as soon as 2007, the company says.

That could be good for consumers but bad for electronics companies, which will be trying to persuade buyers at about the same time to invest in blue-laser storage discs like Blu-ray Disc or HD-DVD, which have about one-fifth the capacity.

Future development of the Holographic Versatile Disc technology could boost its capacity to 1TB of data, Optware says. — *Martyn Williams and Paul Kallender, IDG News Service*

Storage Capacity: The Tipping Point

■ **How does your organization compare with these benchmarks?** An IDC study of 471 North American organizations found that, on average, 48% of their total storage capacity is currently utilized, and the trigger point for deciding to add more storage is 74%. This means that, on average, their storage systems are nearly "three quarters full" when they add storage capacity. The insurance and transportation industries push the threshold further than other vertical markets, saying their trigger point for adding storage is when it exceeds 81% utilization.

The insurance industry appears ripe for additional storage capacity, IDC says, because a quarter of the insurance companies reported that at least 80% of their capacity is currently used.

Events

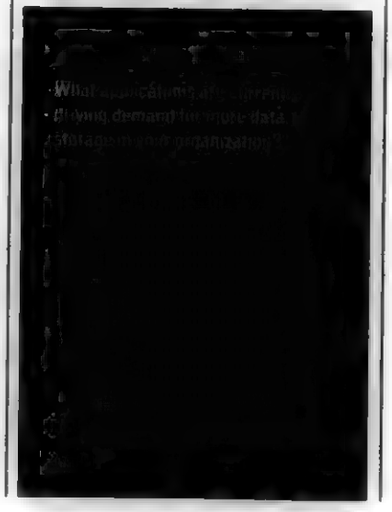
■ **Storage Networking World, Fall 2004**
www.snwusa.com
Oct. 25-28; Orlando

■ **High Performance Computing, Networking and Storage Conference**
www.sc-conference.org/sc2004
Nov. 6-12; Pittsburgh

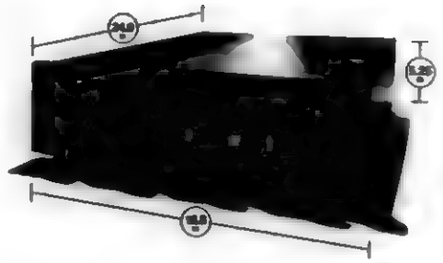
■ **Network Storage Conference 2005**
www.networkstorageconference.com
March 7-9, 2005; Milpitas, Calif.

Hidden Costs of E-mail Archiving

■ Regulatory requirements are helping the e-mail archiving technology market to double this year, according to The Yankee Group in Boston. But large corporations will need to factor in increased storage, systems, networking, software and management costs, a bulletin from the research firm says.



For example, "an enterprise with 5,000 employees will require nearly 4TB of storage every year" for e-mail archiving, the report says. "This will require storage management software and at least one full-time storage administrator." And if the company is using Fibre Channel storage systems, it may need to add networking equipment to the list, The Yankee Group says. **ID 48912**



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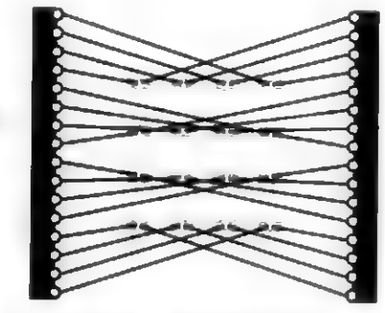
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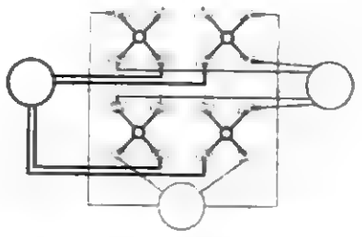
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The Grid Storage Difference



Conventional 16-node storage configuration



16-node grid storage configuration

Let's consider a simple network of 16 storage nodes in a high-availability environment, where all nodes require access to one another. The usual way to design this would be with two 16-port switches (the second one for fail-over) in a star configuration. Thus each switch is connected to each of the 16 nodes and each node is connected to both switches, and we have 32 wired connections and two expensive switches. There are two possible paths between any two nodes. If we want to expand the network, we can add more nodes only by also replacing the switches with ones that have more ports available.

In a grid arrangement, we could arrange the nodes in four groups of four, each connected to a single four-port switch. We would also use four additional four-port switches, each connecting to one node in each of the four groups. Now we have 32 wired connections (the same as before), but eight four-port switches instead of two 16-port units, and each node is connected to two switches. In the event of a failure of any of the switches, there are many possible alternate paths to connect any two nodes. The arrangement is more resilient and less susceptible to catastrophic failure than conventional configurations. To expand the network, we can add more nodes and more small switches without having to re-engineer the whole structure. (Note: We could have achieved a similar result by configuring this with four eight-port switches.)

The Almanac

An eclectic collection of research and resources.



From the Labs: The Holographic Disc

■ **OPTWARE CORP.** in Japan (*www.optware.co.jp/english*) has come out with a prototype of what it calls the world's first holographic recording disc for reliable recording and playback of digital movies. The disc (above, left) is 12 cm in diameter — the same as DVDs and CDs — and could be on the market for commercial use in the first quarter of 2006 with a capacity of 200GB. That's the good news. The bad news is that the recorders are expected to cost about $20,000, and the discs will be $100 each. A less-expensive version for home use could be on the market as soon as 2007, the company says.

That could be good for consumers but bad for electronics companies, which will be trying to persuade buyers at about the same time to invest in blue-laser storage discs like Blu-ray Disc or HD-DVD, which have about one-fifth the capacity.

Future development of the Holographic Versatile Disc technology could boost its capacity to 1TB of data, Optware says. — *Martyn Williams and Paul Kallender, IDG News Service*

Storage Capacity: The Tipping Point

■ **How does your organization compare with these benchmarks?** An IDC study of 471 North American organizations found that, on average, 48% of their total storage capacity is currently utilized, and the trigger point for deciding to add more storage is 74%. This means that, on average, their storage systems are nearly "three quarters full" when they add storage capacity. The insurance and transportation industries push the threshold further than other vertical markets, saying their trigger point for adding storage is when it exceeds 81% utilization.

The insurance industry appears ripe for additional storage capacity, IDC says, because a quarter of the insurance companies reported that at least 80% of their capacity is currently used.

Events

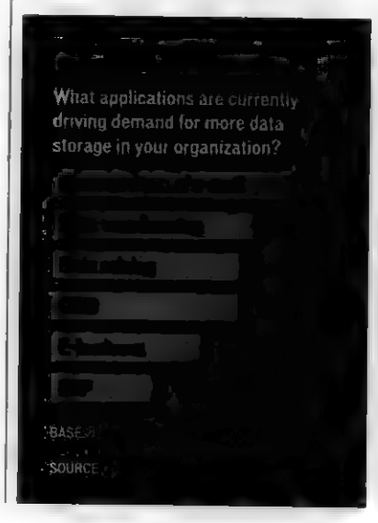
■ **Storage Networking World, Fall 2004**
www.snwusa.com
Oct. 25-28; Orlando

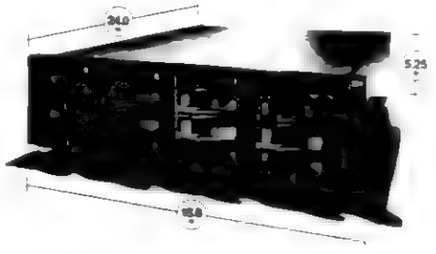
■ **High Performance Computing, Networking and Storage Conference**
www.sc-conference.org/sc2004
Nov. 6-12; Pittsburgh

■ **Network Storage Conference 2005**
www.networkstorageconference.com
March 7-9, 2005; Milpitas, Calif.

Hidden Costs of E-mail Archiving

■ Regulatory requirements are helping the e-mail archiving technology market to double this year, according to The Yankee Group in Boston. But large corporations will need to factor in increased storage, systems, networking, software and management costs, a bulletin from the research firm says. For example, "an enterprise with 5,000 employees will require nearly 4TB of storage every year" for e-mail archiving, the report says. "This will require storage management software and at least one full-time storage administrator." And if the company is using Fibre Channel storage systems, it may need to add networking equipment to the list, The Yankee Group says. **49812**





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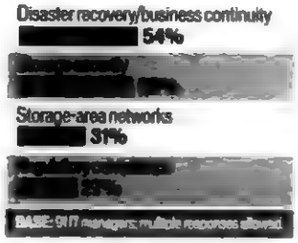
IBM.

Price comparison based on U.S. list prices. Actual customer prices may vary. Compares IBM TotalStorage DS6800 system with 2TBs Operating Environment License software, 116TB using 146GB 10K FC Drives, 4GB of memory, 19 inch rack and FICON Attachment license (zSeries support), and EMC Symmetrix DMX800 with 2TBs Control Center Management software, 116TB using 146GB 10K FC Drives, and 4GB of memory. List prices for EMC Symmetrix obtained from Ideas International www.ideasinternational.com, as of 10/1/04. IBM TotalStorage DS6800 may be used as a stand-alone unit, or mounted into a rack. Size comparison is based on stand-alone use. IBM, TotalStorage and Power Architecture are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. Other company, product and service names may be trademarks or service marks of others. 2004 IBM Corporation. All rights reserved.

SNAPSHOTS

Top of Mind

IT managers say the following storage topics will be "extremely important" over the next three months:



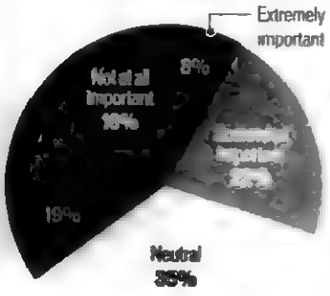
Storage Problems

IT managers say these are the top three storage headaches:



Yawning Over IP

IT managers don't seem very excited about IP storage, with many of them rating it as neutral or unimportant for the next six months.



BASE: 91 IT managers

SOURCE: *Computerworld*'s IT Leader Research Panel, August 2004

MARK HALL

Long Live Tape

I'VE BEEN HANGING AROUND THE RUMOR-MONGERING, low-cost disk drive crowd lately, so I started to think that their ATA drives are making tape obsolete. And when the information life-cycle management forces added their whispers about the improved performance and low cost of archiving data to fixed disks, I became a fervent convert to the notion that tape is all but dead.

In fact, I had intended to write something like my "Farewell Floppy" column of nearly five years ago, in which I (correctly) dismissed the floppy disk as credible IT technology. I had the similar self-righteous vigor of a convert as I set forth to write my "Death to Tape" column.

Alas, I did my research before writing. (A generally wise, although not always accomplished, task among journalists.) Tape is far from dead. If anything, thanks to continued technology improvements and recent corporate management shenanigans and the legislative responses to them, tape for backup and archival storage is experiencing a resurgence.

Take IBM's recent tape business. It has seen four consecutive quarters of double-digit upticks in revenue. And its main competitor for tape systems, Storage Technology Corp., has announced 16 consecutive quarters of year-over-year earnings growth. Those aren't the numbers of a technology in a tailspin, nor are they what I expected to find.



While technology advances and lower costs help keep tape competitive against ATA drives despite drawbacks in performance, it's the work of politicians that is giving tape renewed purpose in life. After all, they've passed Sarbanes-Oxley, the Health Insurance Portability and Accountability Act and other audit-friendly legislation, seemingly with tape in mind.

"A couple of years ago, legislation on corporate governance changed things," says Barry Rudolph, IBM's vice president for tape storage systems. Changed indeed — in a good way for tape storage makers.

That's because top management wants IT archivists to err on the side of saving too much information rather than too little and to spend as little as possible in the process. For today (and tomorrow), that means tape. A 200GB ATA drive sounds cheap at $140, but a $40 tape holds just as much uncompressed data. By the end of the year, IBM will be shipping a 400GB version.

Over at Fuji Photo Film USA in Valhalla, N.Y., Rich Gadomski tells me that his company has already demonstrated 1TB uncompressed capacity on a single tape cartridge and expects to have it on the market in a year or two. And both Fuji and IBM claim that single tapes with 10TB to 15TB of storage will ship by 2010.

Plus, tape archiving systems use 100% of a tape's capacity, while disk-to-disk approaches risk duplicating the same inefficient storage utilization rates on backup disks as on production ones.

With those kinds of capacity and efficiency numbers, it's clear that low-end drive makers will forever play catch-up to tape when it comes to the storage capacity/cost ratio. Plus, you don't have to add the incremental expenses of a full RAID storage system, cooling technology and electricity that you need to make a disk drive useful. Tape is happy just to sit idle, drawing no power, requiring no special HVAC support.

ATA disk drive makers brag that their low-cost technology has at least 100 times the performance that you'll experience retrieving data from tape system. However, in the world of compliance-driven storage, audits aren't done in real time. You can usually retrieve requested information in a few hours — or days — and still meet user needs. That's right up tape's alley.

Tape has an obvious portability advantage over disk. And it offers less-obvious protection against disk-based viruses because you can always revert data on tape to a state prior to an infection. But an infected disk affects the whole drive, regardless of what state the data might be in.

So, it looks like you'll be using tape systems for the foreseeable future. Instead of seeking ways to dump tape, you need to develop tape strategies with the same zeal you have for plans to migrate and upgrade operating systems and applications.

Tape media might reliably retain data for 30, even 50 years. But you shouldn't count on it, especially because the tape subsystems that read and transfer the data change at a much faster rate.

Although applications vary, most companies should overhaul their tape systems every 10 to 15 years. Check to make certain that the new devices efficiently work with old tapes. Also, every 15 to 20 years, bring all your archived data onto newer tape, choosing data formats that abide by industry standards to better ensure future compatibility.

Born in an IBM lab back in 1952, tape, it seems, will never die. 49686

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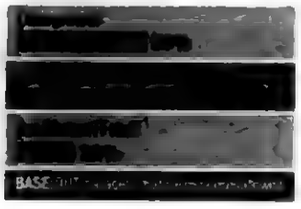
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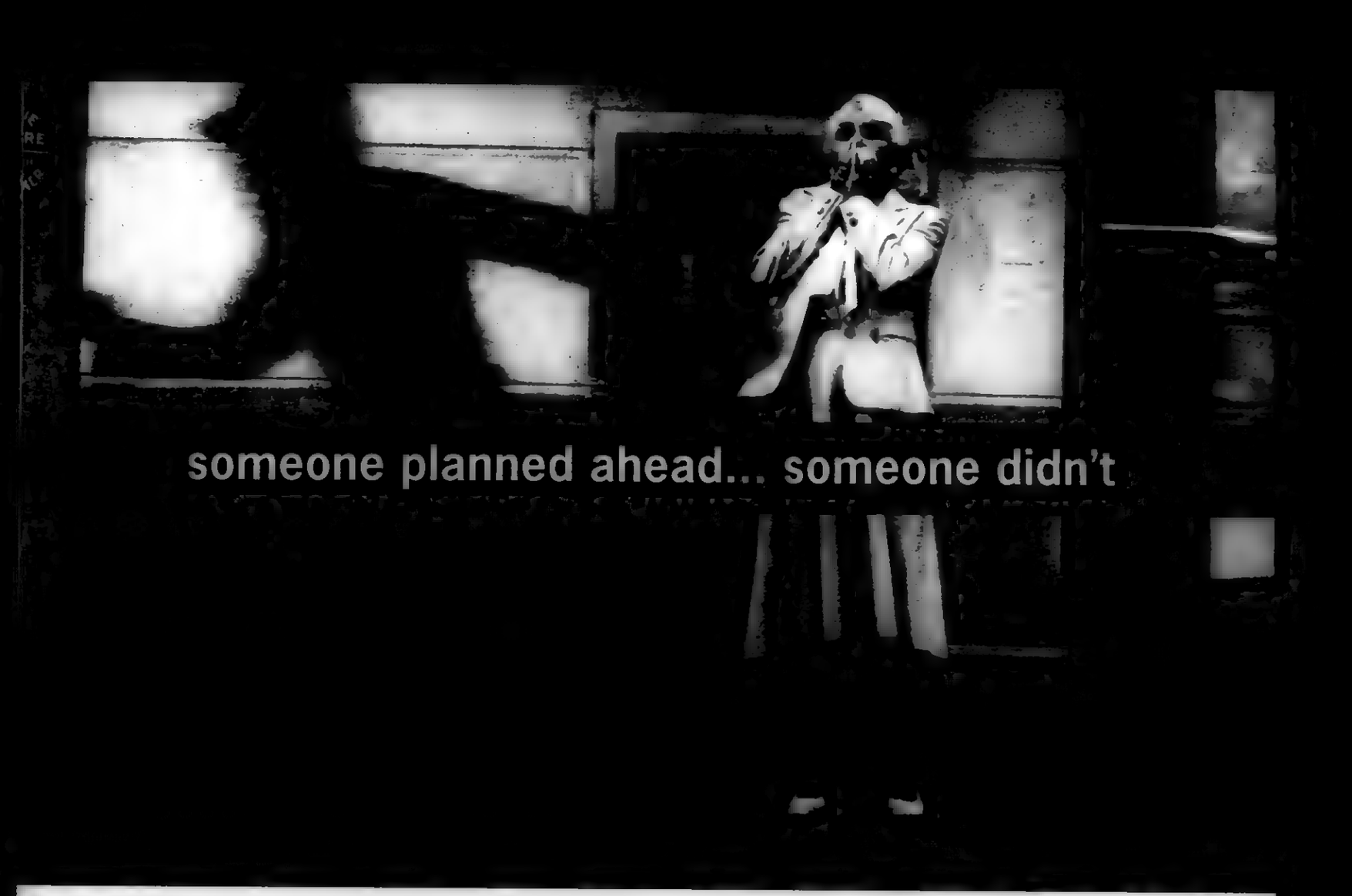
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* Source: Fabric Computing: Beyond the N-tier Data Center, RBC Capital Reports Oct 2003

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Software Engineer sought by D-T-H satellite television company in Littleton, CO to work in Englewood,CO & other unanticipated job sites in the U.S.At a senior level engage in full life-cycle software development of manufacturing & financial software applications in a client/server environment. The applications incorporate the ORACLE relational database management system & operate using UNIX, Windows or DOS operating systems. Analyze requirements; create designs; code, test, debug, modify & implement the software applications. Create documentation & provide customer support as needed. Maintain existing applications & systems, including upgrading applications. Utilize PL/SQL, SheliScript & Developer 2000 in designing & developing the software applications. Requires a bachelor's degree or foreign equivalent in computer science or related field. 2 years experience completing full life-cycle software development of applications in a client/server environment which incorporates the ORACLE relational database management system & using PL/SQL, SheliScript & Developer 2000-type tools. 8AM-5PM, M-F, $75,000/year. Respond by resume to Employment Programs, PO Box 46547, Denver, CO 80202 & refer to job order No. CO5094561.

Computer Professionals (Multiple Openings)

Software Engineer/Systems Analyst/Database Administrator/Network Administrator, Milwaukee, WI. Must have Bachelor's degree or equivalent and experience in some of the following skills: C/C++, Java, Web Methods, Cold Fusion, Microsoft Technologies (Visual Basic, .NET, ASP) CRM (Siebel, Clarify, Vantive), Middle-Ware Technologies (Orbix, Corba, Tibco, Vitria) Data Ware Housing Tools (Informatica, Data Stage, Abinitio, Business Objects, Cognos, Micro Strategy, Brio) ERP (SAP, People Soft, Oracle Apps, Baan), Mainframe (Cobol, CICS, JCL, VSAM) AS-400, Ecommerce, Databases (SQL Server/Oracle/DB2/Sybase), Microsoft Windows (95/98/NT/2000,Exchange), UNIX (Sun Solaris, HP, AIX), Linux and QA (Win Runner, Load Runner, Silk, Quickpro, Manual Testing). **Position requirement: Must be willing to travel and /or relocate per project specification.** Mail your resumes to: jobs@ikusolutionsinc.com.

or

Human Resource Director
IK Solutions Inc
1840 N. Farwell Ave. Suite # 308
Milwaukee, WI 53202

SAP Consultant needed w/2 yrs exp in computer programs using MM, SD, FI, CO, CRM, BW modules in SAP R/3 w/Oracle on Unix & Windows as the presentation server employing Rapid Application Development (RAD) & Object Oriented Methodologies. Mail resumes to: Technisoft Inc. 1279 Colts Lane, Yardley, PA19067.

Senior Client Server Developer/Analyst Code business logic, GUI interfaces and database interfaces using database specific languages. Design and develop GUIs and screens (e.g. develop screen application templates; design windows, dialogues, menus and toolbars for complex processes and workflows) Develop and coordinate the testing process from small application releases or complex software enhancements. Research and recommend products and new technologies for the client/server environment. Req: a Bach. Deg. Or equiv. in Comp. Sci., Eng., Math or a related field, and 2 yrs of exp. in the job offered, Software Applications, Develop and/or software eng. Qualified candidate must have at least 2 yrs exp in interface screen design/develop and/or client/server programming develop. Job located in Jacksonville, FL. $85,267/yr, 40 hrs/wk, M-F, 9am - 5pm. Send resumes to Agency for Workforce Innovation. Ref: FL-2562153, P.O. Box 10869, Tallahassee, FL 32302.

Senior SAP Computer Systems Analyst (National Placement) Must be able to analyze systems supporting business processes, design solutions using SAP R/3 4.6C, perform configuration, testing, develop programs using ABAP to meet business requirements, develop interfaces using EDI, IDocs, BAPIs, perform system validations. Must have minimum 5 years of strong functional experience in customizing, implementing SAP R/3 Logistics - MM/WM, IM, LIV, Procurement, AP, AR, MRP, PP and Batch Management. Thorough understanding of SD, FI & experience in integrating SAP R/3 with i2 TMx suite of products is required. 4 yr Bachelor Degree in Management, Engineering, Computer Science, Mathematics, MIS, CIS or Foreign Equivalent required. $100,000/yr. 40 hrs/wk, 9a - 6p. Send resumes, listing Job Order # WEB461186 to Site Manager, Beaver County CareerLink, 2403 Ninth Avenue, Beaver Falls, PA 15010-3957.

BCCUSA, Inc - South Portland, ME needs experienced Programmer Analyst having a Bachelors Degree with minimum two years of progressive work experience in developing Sybase applications using Sybase/ASE 12.5/12/11.5 T-SQL Actuate and MQ Series. Should have experience in performance tuning of Stored Procedures and SQL queries using Showplan & Statistics I/O. Should have experience in writing scripts using Unix Shell and PERL to automate day to day manual process. Must have used utilities like BCP, DEFNCOPY, FTP. Prefer experience in Database backup and restore. Competitive salary and benefits. M-F, 40 hours/week. Please mail your resume to BCC USA Inc., HR Department, 650 Main Street Suite 301, South Portland, ME - 04106.

COMPUTER GRAPHIC ARTIST/ILLUSTRATOR

Design & create computer graphics, paint illustrations & hand sketches for web sites & marketing material, design logos & other digital imaging / print work. Create animated objects & characters using hand drawing & sketching for products & service presentation. Req. exp in fine arts, graphic design & 3D animation to support internet marketing & Web/Internet efforts. Exp in setting printer services. Job located in Fort Lauderdale. Bachelor in Graphic Design or equiv educ & exp. 2 yrs exp in the job offered. $21.58 per hour, 8:00am-5:00pm, 40hr wk. Send resume to Agency for Workforce Innovation. Ref. JOFL-2565636. P.O. Box 10869, Tallahassee, FL 32302.

Programmer Analyst. Sought by Englewood Colorado consulting company to work in various unanticipated locations throughout the U.S. Duties: Analyze, plan, develop, test and document computer programs including business and database server applications. Evaluate user requests and software program requirements for new and modified programs. Write specifications, code, test and debug computer programs. Analyze and design databases within an application area. Use of SQL Server, PL/SQL, Visual Basic, ASP, XML, Crystal Reports, Oracle and Windows NT Basis. Bachelor or equivalent in Computer Science, Business Administration, Management Information Systems or related field. Plus 1 year in the job offered or 1 year in a related occupation, including Consultant, Application Developer. $55,744/year, 40/hrs/wk, 8:00AM-5:00PM. Respond by resume to WORKFORCE DEVELOPMENT PROGRAMS, PO Box 46547, Denver, CO 80202, and refer to Job Order No. CO5093663.

SOFTWARE CONSULTANT

Analyze & evaluate existing or proposed software systems. Dvlps, implements & improves progs., sys. & related procedures to process data using in-depth knowledge of software dvlpmnt life cycle. Encodes, tests, debugs & installs operating progs. & other sys software utilizing ERP Package software (incl. MFG/PRO, SYMIX & Progress) as well as the Progress 4Gl programming language. Bachelor's degree (or equiv.) in Comp Sci., Math, Engrng, Bus. or Commerce + 2 yrs exp in position offered or as a Software Engnr, Prog Analyst or Sys Analyst reqd. Exp must incl. (a) ERP Package software incl. MFG/PRO or SYMIX, (b) Progress Database & Progress 4GL, (c) Oracle/RDBMS, & (d) UNIX Systems. High mobility preferred. 40 hrs/wk, OT as reqd, 8 am - 5 pm, $86,730/yr. Submit resume to: Mon Valley Regional CareerLink, Donora Industrial Park, 570 Gatella Drive, Donora, PA 15033-1385. Refer to Job Order No. WEB 462523.

Software Engineer For co. specializng in mktg & mnfg of computer software, design, code, implement & test complex product enhancements. This includes researching new feature's concepts & establishing plans & coordinating them, analyze problems & suggest innovative solutions; design & test plans; train & review design work of programmers. Reqs: Bachelors or equivalent w/ computer related coursework and operating systems, programming languages, computer application development. 3 yrs exp in job offered or 3 yrs of programming exp. Exp must incl. Software Configuration Mgmt, incl developing & supporting version control, defect mgmt, change control, Release Engineering, Rational Clearcase version control, Multisite, VOB/View mgmt. ProScency in PERL Scripting, BATCH Scripting, Triggers, Make, ClearMake, Omake, UNIX, Linux, Windows, 40hrs/wk. Send res. R-4, P.O. Box 17182, Phila., PA 19105.

Computer Network Engineer sought by computer networking design company in Greenwood Village, CO to work in Greenwood Village and other unanticipated job sites in the U.S. Under close supervision, performs moderately complex tasks in the design and installation of data communication servers and networks running TCP/IP on Windows NT/2000 or Unix platforms. Implements network servers and hardware utilizing Active Server Pages, OPSK telecommunication devices and hardware level programming for network chipsets. Requires bachelor's or foreign equivalent in electrical, electronics or computer engineering, 1 yr exp performing the core duties and utilizing the technologies described above. M-F, 8am-5pm, $45,000/yr. Respond by resume to Employment Programs, PO Box 46547, Denver, CO 80202 and respond to JON CO5092241.

Programmer for sys. analyses, dzn., & dev. of large enterprise applns. w/ d/base & internet tech. Use obj. oriented dzn & structured sys analyses & dzn., s/w dev & implm on multiple CPU servers. S/W dev w/ J2EE, Java, XML, DTD, Perl, PHP4, C, Pro*C, Socket & Shell-program on UNIX Sys. implm on Sun's 1280 servers w/ SAML, Weblogic, clarnet web servers. D/base dzn & prog. in Oracle using SQL & PL/SQL. Implm. of Kerberos billing w/ ISP's opln. supp. s/w implm of external src agg. s/w w/ online bnkg. s/w. BS in CS + 2 yr exp. in job duties. Comp. salary. Apply Online. Code RV. 4625 Alexander Dr., #110, Alpharetta, GA 30022 with proof of perm. work authori.

Senior Java Web Developer. Wachovia Corp., Charlotte, NC. Responsible for Java dvlp. on authentication and hosting dvlp. team using standard dvlp. life cycle methodology on projects. Reqs. BA Info. Systems or Eng. & 3 yrs exp. in position offered or as a Software Developer, Programmer, or Software Eng. The 3 yrs exp. must incl. Java dvlp using J2SE and J2EE on Windows and UNIX platforms, work with Oracle, SQL, C/C++, developing N-tier Java appl. for appl. servers (i.e. WebSphere, WebLogic, iPlanet) and SDLC methodology and work with cryptography tools. M-F, 8-5. Send resume to Randall Buck, Wachovia Corp., 1525 West W. T. Harris Blvd. Bldg. 3A1, Charlotte, NC 28262. No phone calls.

Senior Programmer/Analyst Responsible for design, development, analysis, test, implementation and maintenance of GUI of FLICA (Flightline Internet Crew Access) for different airlines under client/server, web-based and wireless environments using C++, CGI Script, Delphi, DHTML, JavaScript, Transact SQL stored procedure, multiple-threaded application and object-oriented programming under windows 98/2000/XP/NT. Requirements: A self-starter who is able to work independently with minimum supervision. Bachelor Degree of Computer Science or a related field with five or more years of equivalent work experience. Working Hours: 40hours/week. Salary: $67500/year. Send resume to Mr. Jeff Copelan at: Flightline Data Services, Inc., 404 Line Creek Drive, Suite 4, Peachtree City, GA 30269.

Programmer/Analyst Responsible for design, development, analysis, test, implementation and maintenance of GUI of FLICA (Flightline Internet Crew Access) for different airlines under client/server, web-based and wireless environments using C++, CGI Script, Delphi, DHTML, JavaScript, Transact SQL stored procedure, multiple-threaded application and object-oriented programming under windows 98/2000/XP/NT. Requirements: A self-starter who is able to work independently with minimum supervision. Bachelor Degree of Computer Science or a related field with five or more years of equivalent work experience. Working Hours: 40hours/week. Salary: $67500/year. Send resume to Mr. Jeff Copelan at: Flightline Data Services, Inc., 404 Line Creek Drive, Suite 4, Peachtree City, GA 30269.

COMPUTERS - SENIOR SYSTEMS ADMINISTRATOR - Financial Management firm seeks Senior Systems Administrator to manage, maintain and upgrade Solaris/Unix-based network's central backup system, including STK L6000 library with STK 9940B tape drives. Duties include installation/maintenance of the batch system PBS and of Solaris/Linux systems; central LDAP service; internal company webservice; central CUPS-based print service; user support and security. Master's degree in Computer Science or Computer Studies and 2 years exp. in job duties required. Will accept candidates with 2 years experience as Systems Administrator of high speed networks in UNIX environment. Mail resume to RTC, 600 Route 25A, East Setauket, NY 11733, Attn: JR.

ImageVision Net, Inc. seeks Computer Programmer in our Middletown, PA loc. Analysis & design of software-based solutions using scripting languages in web environ. & latest dev languages. Software testing & documentation. Understand & adhere to project plans. Use Oracle and System Development Lifecycle process & tools including NT based web technologies, IE 5.0 and Netscape 4.72 browsers, HTML, DHTML, VB Script, Java applet, CGI/BIN, ASP and XML. Must have Bachelor in Comp. Science, Bus. Information Systems, or related + 6 months relevant experience. Resume to Carolyn Smith, ImageVision.Net, Inc., Twelve Oaks Center, 1801 Oberlin Road, Middletown, PA 17057.

Intercall, Inc. has five openings for Software Engineers to lead teams to design, develop products for the telecom industry using VB, Power Builder, Developer 2000, Seagate Crystal, Java, XML, HTML, OOP, OOD, Oracle, Sybase, system architecture and programming on Unix, Windows NT platforms, analyze business processes to determine requirements which conform to overall strategic plan and provide operations support, train end users and team members. Require MS (or foreign equiv) in CS/Engineering (any branch)/related field & 1 yr exp in IT or BS (or foreign equiv) in one of the above fields with 3 yrs exp in IT. F/T. Competitive salary. Travel involved. Resumes to HR, Intercall, Inc., 1211 O.G. Skinner Drive, West Point, GA 31833. Please refer Job #CI0904.

Fixed Income Analytics Integration Developer. Wachovia Securities, Charlotte. Provide technological and analytical support to primary trading areas. Reqs. MA in Math or Eng. 2 yrs exp in jobs offered or as a Software Developer, Information Technology Officer, or Mathematician. The 2 yrs exp must incl. work developing and integrating analytics for capital markets trading. 1 yr exp must incl. work with Java, relational databases and object oriented design. M-F, 8-5. Send resume to Meredith Ellerson, Wachovia Corp., 401 South Tryon Street, 15th Floor, Charlotte, NC 28288-0473. No phone calls.

IT Financial Analyst needed to provide account mgmt, sales & bus dvlpmt, resource staffing & outsourcing, product dvlpmt & mgmt of large, mission-critical IT projects; build & manage multi-million $ portfolios; conduct presentations. Resume to: Global Consultants, Attn: Hireme, 25 Airport Rd, Morristown, NJ 07960.

Leading software development company seeks software engineers. Qualified applicants must have Masters degree or (US-equiv) in Computer Science, Computer Information Systems or Computer Engineering, at least 2 years experience in position offered or as a Software Developer, Software Analyst, Systems Analyst or Technical Architect and experience with Java, J2EE, .NET, Clarify, ERP, Oracle, Rational Rose and Unix. Qualified applicants send resume and salary requirements to Princeton Information, Ltd., 13200 Metcalf Ave, Ste 280, Overland Park, KS 66213. Attn: JF.

Analyst/Project Programmer, Lead

The Medical College of Wisconsin is seeking an analyst/project programmer lead for its Bioengineering and Biotechnology Center to develop techniques for analysis of data from microarray and proteomics experiments. Candidates must possess a Master's degree in computer science, computing, bioinformatics or related and have knowledge of microarray data analysis using Singular Value Decomposition, Statistical Modeling of Microarray Data and programming using MATLAB software. Three years of prior experience as a software engineer or computer programmer is also required. To apply send cover letter and resume to Medical College of Wisconsin, Employment Office-JMC1018, 8701 Watertown Plank Rd., Milwaukee, WI 53226, fax: 414-456-6502.

Software Engineer III. Develop, operate, maintain distributed software systems, lead team of programmers developing software projects, utilize MS SQL to program & manage database applications, perform software costing, use 3D programming to build web applications. Requirements: Masters in Comp. Sci. or related field PLUS 3 yrs. exp.* in job or as Software Engineer/Programmer incl. 2 yrs. using MS SQL & 3D programming. *In lieu of Masters & 3 yrs. exp., will accept Bach. in Comp. Sci or related field plus 5 yrs. exp. in job or as Software Engineer/Programmer incl. 2 yrs. using MS SQL & 3D programming. Send CV to Tistronix Software, Inc., attn: HR, 1331 Gemini, #300, Houston, TX 77058, fax: 281-461-9356, email: info@tistronix.com.

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Computer Systems Analyst III, Wachovia Corp., Charlotte, NC Administer Argo ECS 4.0 system and serve as Mid-tier Type Architecture. Reqs. BA in Info. Tech. and 2 yrs exp. in pos. offered or as a Network Tech Consult. The 2 yrs must incl exp. networking GUI for existing mainframe and data in a fin institution (i.e. ARGO/Bankpro) and work designing & implementing a mid-tier architecture platform & troubleshooting network problems w/ Ethernet, IP and SNA protocals, switches, routers and probes M-F, 8-5. Send resume to Jane Higgins, Wachovia Corp., 401 S. Tryon Street, 27th Floor, Charlotte, NC 28288-0475. No phone calls.

Purchaser wanted by a computer components company in Holbrook, NY to purchase computer chips and other components for resale. 3 yrs related exp. req'd and must be familiar with overseas supply sources. Resume only to CMB Components, Inc., 630 Broadway Avenue, Holbrook, NY 11741; Attn: Peter Castellama.

Programming Instructor Development special teaching programs for refreshment courses. Borland Interbase MUI Development. MS Access. VB, Delphi, PL/SQL, ODBC. Win2000/XP.B.S in C.S Provide User training,database troubleshooting, perfom buckup and recovery procedures. Resume A-soft Scientific, P.O. Box 1270, Roswell, GA 30077.

Programmer/Analyst

Leominster, MA – Plan, dev, test & doc comp sftwr for MRPII/ ERP using Win CE, wireless netwk, embedded visual studio, pocket PC, Borland C++, RPG, ASP, XML, HTML, COM, DCOM, VB, Java, PL/SQL w/MS SQL Server & DB2 db's. Bachelor's degree in Comp Sci. Min 2 yrs exp. Send resume to **Director of IT, Alpha Wire Co., 711 Lidgerwood Ave, Elizabeth, NJ 07207**.

Programmer Analysts to design, develop, test, implement apps using Siebel tools, C, C++, Java, ASP, Oracle, JavaScript, VBScript, HTML, JDK, JDBC, Visual Basic, etc using UNIX and Windows OS, develop, enhance components of new/existing appls and databases; perform reqs gathering, analysis, planning, testing, implementation & troubleshooting. Require BS or foreign equiv in CS or Engg(any branch) with 2 yr exp in IT. High salary. F/T position. Travel involved. Resume to HR, Smartsoft International, Inc., 3965 Johns Creek Court, Ste 500, Suwanee, GA 30024.

Programmer Analyst (Multiple Positions) needed w/2 yrs exp to design, develop, deploy & manage appls/solutions, design backup & fault tolerant solutions using Designer, Visio, OEM, Rational Rose, PVCS, TOAD, SQL Plus, PL/SQL, Shell programming with Oracle & SQL Server as RDBMS on Windows & Unix. Mail res to Empower Technology Solutions Inc, 120 Quarry Dr, 2nd Flr, Milford, MA 01757.



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Computers-Programmer /Analysts needed. Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. Part of the req. relevant exp. must include 2 yrs. working with ClearPath IX/ 2200, SSG & DEPCON. Fwd. resume & ref. to: Vennsys, LLC, Attn: HR, 5440 Willow Rd., #117, Waunakee, WI 53597.

Web Developer needed w/Bachelors Degree or Foreign Equivalent & 2 yrs exp in web application using MTS, MSMQ, COM/ DCOM/COM+, C++, SQL Server, Crystal Reports, DB2 Mainframe, Visual StudioNET, ASP.NET, ADO.NET, C# & VB.NET. Domestic travel is req'd. Mail Resumes to: Open Systems Technologies, Inc. 8 Winter Street, 6th Floor, Boston, MA 02108.

Software Engineer w/bach or foreign equivalent in Comp Sci or Engg. or Math + 1 yr exp in Java, Servlets, JSP, EJB, XML, JavaScript, ASP, Visual Basic, SQL Server database, create data warehouse and client server applic. using Oracle, PL/SQL as ETL & Business Objects as OLAP Reporting Tool. Mail res: eBusinesscorp Inc. 209 West Central Street, Suite 106, Natick, MA 01760.

Software Engineer needed w/MS in Comp Sci or Engg or Math & 1 yr exp in s/w applications using VB on Windows. Customizing Test Director using C++, Jasmine II, Uni-Center TNG, HL7 & DICOM, WinRunner, SMS & mathematical modeling using MatLab, Maple & S-Plus. Exp prior to MS degree acceptable. Mail Resumes to: EBusinesscorp Inc, 209 West Central Street, Suite 106, Natick, MA 01760.

DBAs to install, configure, maintain Oracle Appls and Oracle Dev. software; evaluate, design existing/proposed Oracle db structures/systems, analyze database reqs of exisbng/new appls, monitor performance, tune, backup/recovery strategy planning, and troubleshoot problems; maintain security of databases. Require BS or foreign equiv. in CS or Engg (any branch) with 2 yrs exp in database admin. Comp salary. Travel involved. F/T openings in Elgin, IL & Lower Gwynedd, PA. Resume to: HR, Fourth Technologies, Inc., 585 Tollgate Road, Suite 1, Elgin, IL 60123. Specify location desired, Job/ID DB964 on resume.

Clutchpoint delivers innovative IT solutions, has openings for experienced Prog/Systems Analysts, S/W Engineers with any of following skills: Oracle, Sybase, SQL, C/C++, Visual C++, OOD, Java, Web Tech, UNIX, NT, VB, ASP, HTML, SAP, Peoplesoft ERP. Send resumes to jobs@clutchpoint.com. EOE

Techgame Solutions has openings for Software Engineers or other IT staff. Candidates must have BS/MS with experience. Prefer skills in Cobol, JCL, Oracle, SQL, VB, C/C++. Travel may be required for some positions. Competitive salary. Please apply at bapujim@yahoo.com. No calls. EOE.

Software Engineers - Sybor Technologies Inc. seeks qualified Software Engineers. Bachelors degree required with experience in developing and implementing programs using SYBASE ECMAP and SYBASE Adaptive Server Enterprise. Reply by mail to: 3506 Highway 6 South, #249, Sugar Land, TX 77477.

Netnon Corp seeks multiple Systems Analysts to dsgn, dvlp, customize, implmt, & support Peoplesoft applics for clients. Eval client's business process needs, dvlp specs & setup Peoplesoft HRMS applic modules. Conduct data conversion, testing, dsgn documentation & perform related duties. Travel reqd. Associates dsg in sci or engg reltd study is reqd w/2 yrs related exp. Send resume to Netnon Corp., 380 S. Schmale Rd. Ste 202, Carol Stream, IL 60188.

Hetronyx, LLC, based in Detroit, MI seeks Applications Database Administrators and Sr. Programmer Analysts for Detroit and nationwide opportunities. Applications DBA requires bachelor's in computer science, 4 yrs exp. as DBA and working knowledge of Kintana and Tick Mark. Programmer Analyst positions require 3 yrs exp. customizing and extending Oracle e-Business suite of applications and working knowledge of Oracle Work Flow Development Tool. Apply via U.S. Mail with resume to Hetronyx, LLC, 3757 S. Baldwin Road, #223, Lake Orion, MI 48359.

Technical Software Consulting, Inc. seeks software engineers or system/programmer analysts or DBA to develop system applications for clients. Minimum requirement is BS/MS with IT experience. Competitive wage with full benefits, sponsor H-1/ green card. Send resumes to hr@tsc-inc.com. EOE

Multiple openings for IT professionals by Z3 Technologies to design and customize applications. Travel may be required. Candidates must have BS/MS with exp. Following skills preferred: .Oracle, Sybase, SQL, C/C++, Visual C++, OOD, Java, Web Tech. Please contact info@z3technologies.com. EOE

System Analyst. Perform computer system analyses & programming to meet client's business requirements, design & implement computer data networks including install & configure network equipment; work on Spectrum Element Manager Network Management System; use BPCS 6.2, AS/400, RPG/400, RPGLE & AS/SET, OS/400, Win NT 4.0, VAX/VMS 5.2 & variants of UNIX. Req: Bachelor or equivalent (accept 3-yr college+PG diploma as equiv), 6-month exp as Programmer/Analyst or IT Consultant. 40hrs/wk, 8-5pm, $48k/yr. Send resume to: Employment Security, 32 S. Main St., Concord, NH 03301-4857. Re: 2004-469. Employer paid ad.

Software Engineer (Applications) utilizing CAD/CAM in San Jose @ $81k/yr. Travel w/in US req. 40% of the time. Mail to Micronic Laser Systems, Inc, 1922 Zanker Rd., San Jose, CA 95112 or fax (408) 392-2261.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree* or equivalent in computer science, MIS, engineering or related field plus 5 years of experience in systems/applicasbons development. Experience with COBOL, IMS and DB2 also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Jay Boone, FedEx Corporate Services, 40 FedEx Parkway, 2nd Floor Horizontal, Collierville, TN 38017. EOE M/F/D/V

Software Engineer sought by comp services Co specializing in Magic Software to dvlp, imprint, test, document & support customers. As Co. is supporting other Magic dvlprs. Enhanced Magic knowl is necessary. Must have Bach & 5 yrs exp w/Magic prgmg incl version 9.4. Must have exp w/HTML, Java Script, MS-SQL, Oracle, Web-services. Resume to Ronen Canetti, Owner, WizMagic, LLC 4024 Radford Ave., Bldg 2, Rm 201, Studio City, CA 91604.

Jr. Programmer Analyst. Dvlp, create, & modify computer app s/w incl. Oracle databases & new versions of the Oracle RDBMS. Design security for all of the Oracle Databases. Coordinate database dvlpmt, create & design logical & physical models for the OLTP & OLAP appl. using tools incl Erwin, Oracle Designer. Assist in designing the Datamarts & Datawarehouses using Kimballs & Inmons methodologies. Req: BS in Engineering plus 2 yrs. exp. Sal. Open. 40hrs/wk. Job/interview Site: Des Moines, IA. Send resume to: Chuck Griffis, Empiree Consulting LLC @ 200 E Sandpointe Ave, Suite 725, Santa Ana, CA 92707.

Computer Programmer Wanted

To code, test, and document computer programs using JAWA, JSP, Java script, Python, SQL, FreeBSD, Solaris, Windows 2000 server on MS SQL Server 2000 and MySQL databases. Req: BS or foreign equiv. in CS, Engineering, or a related field and proficiency in Java, JSP, MySQL, FreeBSD, and Solaris. 40hrs/wk. Fax resume to HR, Experclick, Inc. at 805-466-0166. Ref. Code: CA-JL.

Systems Integrator II: Deliver complex Interactive Voice Response software applications for customers purchasing company network products. Assist account teams in understanding customer needs, assist w/solution design, document proposed solution in statement of work, develop acceptance criteria, project plan & time estimate. Interview customer's end users to gather detailed requirements, produce & gain customer acceptance of functional specifications document & design, develop, integrate, test, install & place solution in production at customer's location. Support customer throughout acceptance period as well as train them on solution administration. Provide knowledge transfer of solution architecture & administration & problem diagnosis & resolution. Work & support company management, product specialists, projects managers & fellow associates. M-F 40/wk $79,600/yr. B.S. in CS or Engineering + 5 yrs exp in job offered or 5 yrs exp as Software Eng. Exp must include 2 yrs exp in Interactive Voice Response Systems, strong development & system administration skills in various Unix platforms. Must possess knowledge & understanding of call center technical environment, computer telephony interface technologies, Text-To-Speech, Speech Recognition, PBX & Adjuncts. Please forward resumes to: Agency for Workforce Innovation, P.O. Box 10869, Tallahassee, FL 32302. Pls. reference: JOFL#: 2365435

Millennium Software, Inc. has opportunities Programmers, Systems Analysts, Software Engineers, Consultants, DBAs, Architects and Project Managers with 4 or more skills in following environments: Java, J2EE, COM/DCOM, EJB, Shell Scripts, SAS, PLC, Testra, XML, SQL, mq-PCX, PowerBuilder, Rational Rose, Relational Databases, Perl, SAP, Primavera Team Play / P3e, Teradata, MQ-Series, IMS, Adabase, Natural, Websphere, Oracle Workflow, Filenet eprocess, Flowsre Workflow engine, C/C++, HTML, VisualBasic, COBOL, DCE/DFS, AutoCAD, Six-Sigma, ASP.net, Mercury Test Tools, SMS, TCP/IP, Veritas, Tivoli. B. S. or M.S. degree & 1-2 yrs exp reqd. depending on position We also accept the foreign edu. equiv. Or any suitable combination of edu. training or exp. Frequent travel and relocation. Send confidential resume and salary requirements to: 2000 Town Center, Ste 300, Southfield, MI 48075. Visit our website at: www.webmsi.com.

PROGRAMMER/ANALYST to analyze, design, develop, test, enhance and maintain web-based and client/server application software for the insurance industry using Java, C/C++, Java Script, Oracle, JDBC, J2EE, JSP, Servlets, EJB, XML, Struts, UML, SSL, Tomcat Server and TCP/IP under Windows 98/2000/NT/XP, DOS and UNIX/Linux operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered; A M.S. with a demonstrated ability to perform the stated duties gained through academic coursework/previous work experience will be accepted in lieu of the B.S. and 2 yrs of exp. Competitive salary offered. Send resume to: Infinity Property & Casualty Corp., P.O. Box 444, Birmingham, AL 35209; Fax at 205-803-8408; or E-mail at Jobs@ipacc.com; Attn: Job 2D.

Infinite Computing Systems, a Cedar Rapids, Iowa Company is seeking qualified computer professionals. Current positions available must meet the following requirements. All positions require at least a Bachelors degree (3 year fgn Bachelor degrees are acceptable). We may have additional positions available in addition to the ones listed. Multiple positions are likely available in some positions. Candidate's salary offered relative to experience and skills. Candidates must be willing to relocate and travel as needed.

A variety of positions are available, which require between 1-5 years of experience in the below-listed skills. Certain positions may require a Masters degree.

- Java, HTML, XML, Weblogic or Websphere
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- ERP (e.g. SAP, Peoplesoft or Oracle Apps)
- Visual Basic, SQL, ASP.net, SQL Server
- Easytrieve, CMF, Cobol, CICS, SAS, TSO/ISPF
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Please send resume and cover letter to: Raj Inani, President, Infinite Computing Systems, Inc., 230 2nd Street - Ste 214, Cedar Rapids, IA 52401.

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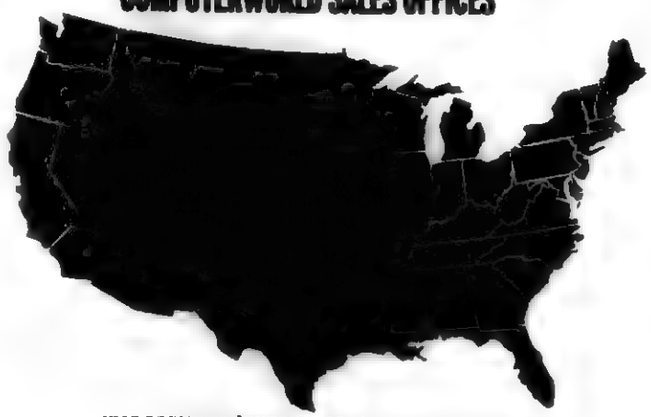
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Patches

them trickle in randomly throughout the day, week and month."

David Krauthamer, director of information systems at Advanced Fibre Communications Inc. in Petaluma, Calif., said Microsoft appears to have become much more aware of the heavy burden that patching systems puts on IT managers. He added that a regular patching schedule reduces much of the instability that results from intermittent releases and eases the challenge of keeping up to date on patches.

"What it gives you is the consistency you need to factor patching into your overall [systems management] process," Krauthamer said. "It's a great thing if you can spend just one night a month doing patches."

From a systems administration standpoint, the predictability of the monthly releases has made it "much easier" to manage the patching of Windows-based machines, said Mike Tindor, vice president of network operations at First Internet Inc., an Internet service provider in St. Clairsville, Ohio.

Debbie Fry Wilson, director of marketing at Microsoft's Security Response Center, said the shift from an ad hoc patch release process to a weekly schedule and then to the monthly one was driven by feedback from users who said they "were not able to plan well because they didn't know in advance when we would have patches for them."

Deeper Testing

The policy of releasing patches on the second Tuesday of each month has also given Microsoft more time to work on improving the quality of its fixes and to do a "deeper level of testing" in the patch development stage, Wilson said.

Even so, users and analysts cited some ongoing concerns with the patching process.

Microsoft's growing habit of grouping together multiple security fixes in large patches can increase the testing burden for IT managers, said Russ Cooper, an analyst at TruSecure Corp., an IT security consulting firm in Herndon, Va.

For instance, last week's crop of patches included one that was designed to fix eight separate vulnerabilities. "Users should get used to the idea of being snowed under on 'Patch Tuesday,'" Cooper said.

A monthly schedule can sometimes also expose users to longer periods of risk, said Andrew Plato, president of Anitian Corp., a systems integrator and consulting firm in Beaverton, Ore. "If a new security flaw is discovered right after an update, waiting 30 days for a patch is too long," he said.

Tindor said that if information about a security flaw were to become public before the next monthly patch release, he would expect Microsoft to be "proactive in pushing the updates quickly rather than waiting to release them at the scheduled time."

Stephen Toulouse, security program manager at the Microsoft Security Response Center, reiterated that the company is releasing combined fixes in response to requests from users.

"We have heard very clearly from customers that when there is an opportunity to have just one update, that's what they want," Toulouse said, noting that Microsoft tries to combine fixes for multiple flaws found in the same source-code files.

In response to concerns about users being exposed to longer periods of risk, Wilson said Microsoft will issue out-of-cycle fixes if the situation warrants it. In late July, for instance, the company rushed out a patch after an active exploit was found to be taking advantage of a flaw in Internet Explorer. **50113**

Microsoft's Fixes Seek to Stop Remote Attacks

THE FLURRY OF FIXES Microsoft released last week was aimed at plugging nearly two dozen security holes, the most severe of which could allow an attacker to take complete control of an affected system and remotely execute malicious code.

Four of the newly disclosed vulnerabilities are particularly dangerous because they can be remotely exploited by malicious hackers, according to an advisory issued by Atlanta-based Internet Security Systems Inc.

"What concerns me is that they are taking such a long time in fixing some of these bugs," said Drew Copley, a senior research engineer at eEye Digital Security Inc., a vulnerability management software vendor in Aliso Viejo, Calif.

For instance, one of the flaws disclosed last week was reported to Microsoft 208 days before the patch designed to fix it was issued, according to Copley.

"That's a long time to expect that no one else is going to find out about it," he said.

Stephen Toulouse, security program manager at Microsoft's Security Response Center, said some patches require extensive testing because of the complexity of the vulnerabilities. "One of the most important things is quality," Cooper said.

The total number of flaws disclosed last week came close to matching the 22 security vulnerabilities that Microsoft released fixes for last April.

–Jaikumar Vijayan

EMC Buys Backup Software Vendor

BY LUCAS MEARIAN

EMC Corp. last week agreed to acquire Dantz Development Corp. in an effort to boost sales to the small-business community as the company continues to expand its software portfolio.

EMC officials said that Walnut Creek, Calif.-based Dantz will become part of the Enterprise Storage Software Group. The deal is valued at less than $50 million, according to EMC.

Observers said the acquisition should help EMC in its competition with Veritas Software Corp.'s BackupExec software and Computer Associates International Inc.'s BrightStor ARCserve backup agent.

Mark Lewis, executive vice president of EMC's software group, said the acquisition should allow the company to boost its offerings for small to midsize businesses. In addition, he said, Dantz's backup software should integrate easily with the EMC NetWorker backup management software produced by EMC's Legato division.

Lewis said that Dantz's Retrospect backup software will be sold separately, even after it's integrated with NetWorker.

Kevin Money, network supervisor at Iroquois Gas Transmission System L.P., whose operation has been using the Dantz Retrospect software for nine years to back up its workstations, servers and field offices, said he wants to know what EMC's plans are for the Dantz operation.

> **"Is [EMC buying Dantz] for its infrastructure, its patents or for its licensing?"**
>
> **KEVIN MONEY,** NETWORK SUPERVISOR, IROQUOIS GAS TRANSMISSION

Shelton, Conn.-based Iroquois has 123 employees and operates a 412-mile natural-gas pipeline that runs from the U.S.-Canada border at Waddington, N.Y., to Long Island. Money said his operation has six servers that run the Retrospect software and back up about 2TB of data nightly. The backup application is simple to manage and works across Windows, Macintosh and Linux platforms, he said.

Money also said he likes Dantz's licensing structure, which is based on the number of servers the software is running on, not on the number of individual clients that are being backed up.

He expressed concern about EMC's plans for the Dantz unit. "Is [EMC buying Dantz] for its infrastructure, its patents or for its licensing?" Money said. "The only other thing I'd be questioning that also always makes people like us nervous is just their licensing [plans]."

According to EMC, there are no plans to change the Dantz licensing schemes.

The company said that Dantz will continue to operate out of its Walnut Creek facilities. Current President and CEO Larry Zulch will continue to oversee the Dantz unit and will report to Lewis and Dave DeWalt, co-leaders of EMC's software group. **50108**

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FRANK HAYES ■ FRANKLY SPEAKING

IT in a Jam

IN FRANCE LAST WEEK, it became legal for movie theaters to use electronic jammers to block cell phone use during shows. In Mexico, some churches recently started doing the same thing during religious services, even though jammers are illegal there. Police in the U.S. use them too, especially during hostage standoffs. That's a violation of federal law, but the FCC has never taken anyone to court over it. Prisons, the Secret Service, the military — the list of jammer users keeps getting longer.

Hey, if they're using jammers to solve their problems, why can't *we* use them to deal with the security issues created by cell phones, Wi-Fi and other wireless technologies?

It sure would make things easier for us. Instead of constantly monitoring networks to look for Wi-Fi hubs that users have smuggled in, we could just shut them down with a jammer. We could block cell phones in conference rooms and jam camera-equipped phones in sensitive areas like research labs (and restrooms). Everything from surveillance bugs to Bluetooth devices could be shut down at once by turning whole office buildings into dead zones.

Yes, we'd be rolling things back to the pre-wireless days. But that means we'd dump all the problems wireless has brought us, from network security holes to the time employees waste on nonbusiness cell calls. And since most of those wireless gizmos are personal, not issued by the company, we wouldn't be losing official IT infrastructure — just shedding annoying complications that users have dragged in.

It's technology applied to eliminate problems introduced by technology. So why shouldn't we use jammers?

Well, they *are* illegal. Maybe the FCC isn't actively looking for violators, but if you blast away with a jammer in the same location long enough, you'll probably get caught.

Then there are the side effects. Never mind users whining about emergency calls they might not get; they got messages about emergencies before they had cell phones, and they can do that now, too.

But delivery and repair people depend heavily on wireless technologies these days. Your building security guards use radios; so do police and firefighters. Broad-spectrum jamming would cut them all off. Jamming would likely affect your neighbors, too, because there's no cheap way to limit the effects of a jamming signal — it won't stay inside your office walls.

Of course, you could limit your jamming to just Wi-Fi's 2.4-GHz band and spend extra for smart jammers that fool cell phones into thinking they're local towers that have run out of bandwidth. Or you could line your office and conference room walls with radioproof material that lets you use Wi-Fi and Bluetooth locally while blocking would-be wireless hijackers and without annoying the people next door — and that approach is legal, too.

Pile on enough antiwireless technology, and you might even be able to block just the things you want blocked. Wouldn't that be great?

No, it wouldn't.

Maybe movie theaters and churches can roll back wireless. Maybe cops and the Secret Service have to create wireless-free zones. We can't — any more than we could roll back the Internet or LANs or PCs when users first brought them in.

Sure, wireless will give us security headaches for a long time. But users have forced us to deal with cell phones, Wi-Fi and the rest. They've forced wireless on us because it's useful to them, even if it's an ongoing pain for us.



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

We can — and should — use vigilance, education and occasional arm-twisting to plug security holes and keep users from straying too far from what we can handle.

But there's no use in wishing for ways to jam or block or limit wireless technology. Not now, not anymore. Users are right — for IT, in many ways, the future is wireless.

And we can't jam the future.

50068

SHARK TANK

Rain, Rain, Go Away

When hurricane season arrives, this pilot fish in Florida isn't worried. The disaster recovery plan is in place. Backups are done. The new generators are fueled. And when a storm hits, everything keeps running – except that it's pretty dark in the data center and the IT staff is monitoring the servers by flashlight. "Did the bulbs blow when the power surged back on? Or maybe the breaker tripped?" fish asks. "No – further investigation revealed that no one had bothered to wire the lighting into the generator."

Sog Story

It's the early 1980s, and this company is moving to a new data center – which is a major undertaking for the one department that still keeps all its data on punch cards and refuses to copy it to tape. "The department head told us he planned to move his many filing cabinets worth of card drawers by hiring a flatbed truck," says an IT pilot fish. "Then the data center manager asked one question: 'What happens if it's raining that weekend?' The department head got a blank look on his face as his jaw started its trip to the floor. The data was moved to disk by the end of the week."

You Said Bring Back All the Computers

This big hospital is shutting down a remote physical therapy office, but the outpatient clinic at the same site will stay open. So after this pilot fish sends two newly hired PC techs to collect the therapy office's computers, he's a little concerned when the connection to the clinic drops off. Maybe it's a power outage from this thunderstorm, he figures. "Hours later, I begin to cry when the techs return and start unloading the equipment: monitors, PCs, mice, keyboards – and then the router, switch and complete patch panel with a spaghetti of cut wires out the back," fish says. "'Why in @#$%! did you remove the networking equipment?' I ask. Then I remember the network closet was located in the therapy office."

Whatever Works

This Gulf Coast facility is big, but it's a long way from the big city – or a really big network connection. So, what's the plan for protecting data when a hurricane strikes? consultant pilot fish asks IT manager. Manager replies, "Because we're so far from any real bandwidth, when we see a hurricane coming, we call everybody on the campus and tell them to make a full backup of their data and bring it to the designated trailer. Once everyone is accounted for, we put all the tapes in my pickup truck and drive north for a few days."

DRIVE BY WITH YOUR STORY. Send me your true tale of IT life at sharky@computerworld.com. You score a snazzy Shark shirt if I use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at computerworld.com/sharky.

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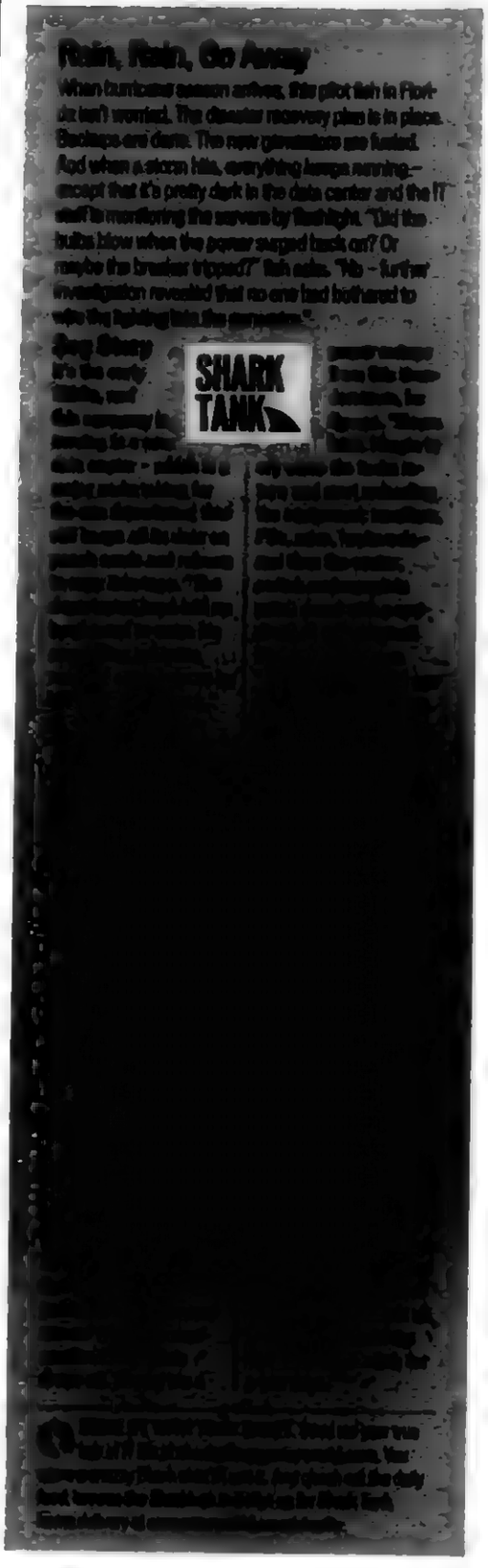
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EDS futurist Jeff Wacker prepares for the coming data flood with context-sensitive text-mining tools.



TRW Automotive's Joe Drouin and other CIOs trade tips on aligning IT with business needs.

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Microsoft Takes Different Tack on Multicore Pricing

Software licensing plan is at odds with IBM, Oracle schemes

BY CAROL SLIWA

Preparing for the wave of servers with multicore processors that's expected to hit data centers over the next year, Microsoft Corp. last week said it won't require users of its database and other server software to buy licenses for each processor core.

All the server software that Microsoft currently licenses on a per-processor basis will continue to be licensed based on the number of chips in a system. That puts Microsoft at odds with competitors such as Oracle Corp. and IBM, which have said they plan to treat each processor core as a separate CPU for software licensing purposes.

For instance, SQL Server users will be able to license the Microsoft database at the same price, whether it runs on a server with conventional processors or one with dual-core CPUs that put two processing engines on a single

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INSIDE

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iSeries Users Doubt IBM's Commitment

Call on vendor to market better, expand its customer base

BY PATRICK THIBODEAU
TORONTO

Year after year, IBM iSeries users have complained that the company isn't doing enough to market that line of midrange systems and expand its user base. And indeed, it didn't seem to matter to many of the attendees at a conference here last week that IBM had just announced its most powerful iSeries machine ever, with up to 64 processors.

Doubts about the future of the iSeries, formerly known as the AS/400, remain among the IT managers who gathered for the fall conference held by Common, a Chicago-based user group.

As attendee Dan Swinehart, project development manager

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Nearing the Boiling Point

COMPUTERWORLD SALARY SURVEY 2004



POLLY BECKER

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Puny pay raises were the norm for most IT workers for the third straight year. Our survey of nearly 10,000 IT professionals also shows that budget cuts and increased workloads are driving stress to an all-time high.

Package begins on page 49.

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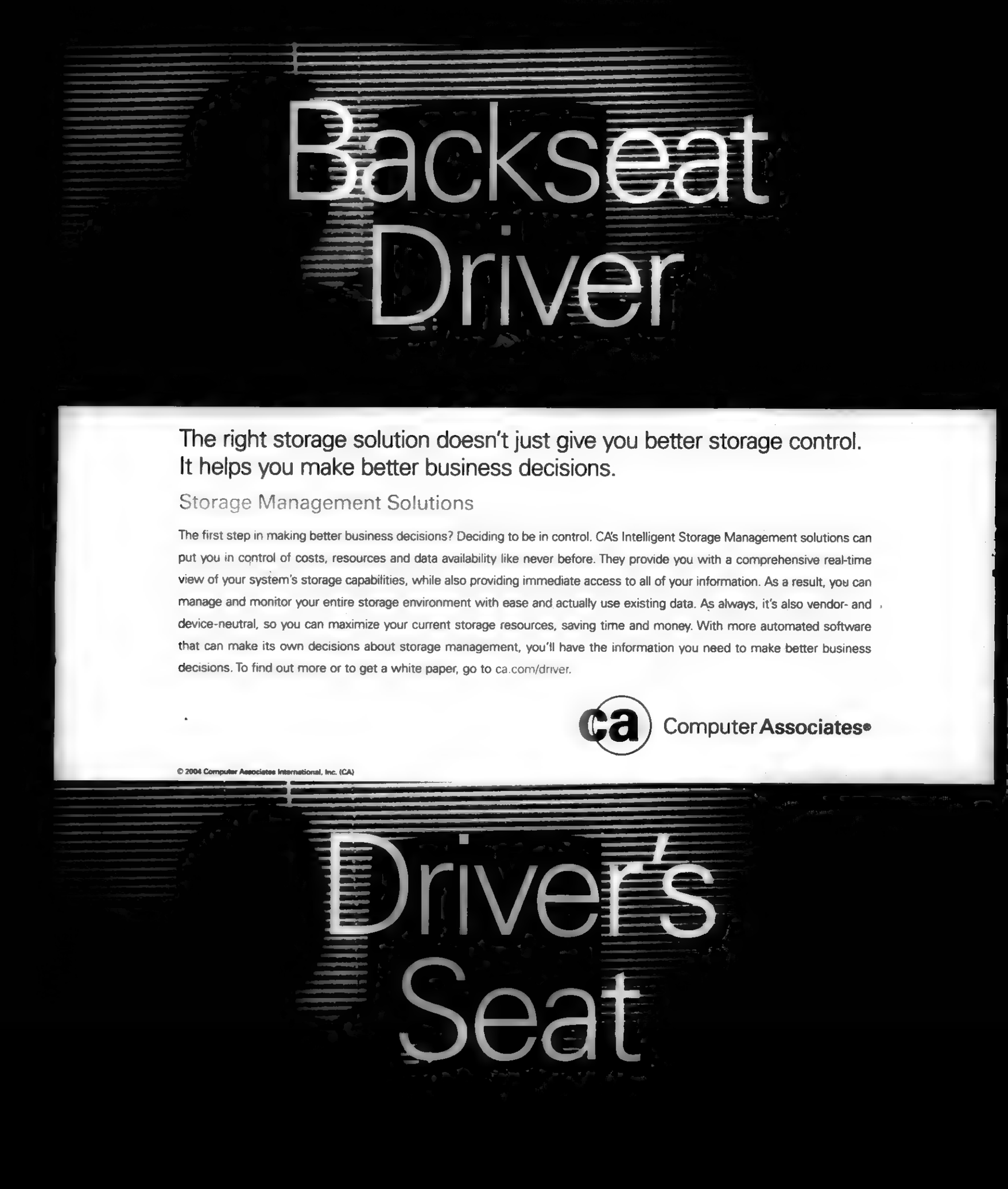
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et tecto vicinus jugis aquæ fons,
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10.25.04



Exchange Makes Linux Call

In the Technology section: Joseph Panfil is part of a team moving the Chicago Mercantile Exchange from proprietary Unix and RISC-based systems to Intel-based servers running Linux in a bid to cut IT costs. **Page 31**



Checkpoint for Check 21

Also in the Technology section: The federal law paving the way for electronic image exchange of checks goes into effect this week, but banks still have a long way to go before the technology is in place to make it work. **Page 34**

NEWS

4 **Spreadsheet users** get a lift with the arrival of new financial analysis tools from SAS, Oracle and Siebel.

4 **Symbol Technologies** rolls out a handheld device that weighs and costs less than its ruggedized models.

5 **Getting IT to align** with business units is a top priority in this harsh economic climate, say CIOs at the Gartner Symposium/ITxpo conference.

5 **J. Sainsbury and Accenture** renegotiate their outsourcing deal so the grocery chain can gain more control over its IT operations.

6 **ILM and virtualization** products get their day in the sun at this week's Storage Networking World conference in Orlando.

6 **Hackers crack** a database that housed personal data on more than 1.4 million Californians.

8 **Tech salaries will rise** 10% to 15% through 2007 for workers with certain skills, Meta says.

10 **Microsoft reins in** plans for its Passport service.

10 **Lack of internal integration** hinders corporate security efforts, a new report says.

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TECHNOLOGY

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42 **Future Watch: Petabyte Prognostications.** Futurist Jeff Wacker is working with new text-mining tools to handle the coming information explosion.

44 **Security Manager's Journal: Sarb-Ox Project Following Script.** Mathias Thurman is making progress on systems testing as the Sarbanes-Oxley Act deadline nears.

COMPUTERWORLD SALARY SURVEY 2004

Nearing the Boiling Point. For the third year in a row, IT workers across the board received only modest pay raises; salaries rose an average of 3% in 2004. Budget cuts and increased workloads are also driving stress to an all-time high. **PAGE 48**

Charts and Data Points. Find salary information for 30 IT job titles, plus much more. **PAGE 54**



OPINIONS

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24 **Pimm Fox** cautions managers to get the word out to employees: The e-mails they send can establish a trail of evidence that could bring down the company — or cost them their careers.

25 **David Moschella** recalls that IT issues were more prominent during the 2000 presidential race than they are in this year's campaign. But he's confident that public perceptions of the industry will rise again in the years ahead.

46 **Daniel J. Weitzner** suggests that although it may seem paradoxical, transparency about how personal information is collected and used is a key step in privacy protection.

72 **Frankly Speaking: Frank Hayes** warns that as Halloween approaches, you ought to beware of the monsters that lurk among corporate IT — especially your Frankenstein systems and Jekyll and Hyde managers.

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Storage Networking World

STORAGE: Head to our Knowledge Center this week for full coverage of Fall Storage Networking World, which runs through Thursday in Orlando. QuickLink k1700

What Your CEO Thinks About Security – and How to Change It

IT MANAGEMENT: Columnist Larry Ponemon offers tips on how to get your company's leadership to better value security, based on a survey of chief executives. QuickLink 50104

Five Log-Analysis Mistakes

SECURITY: Anton Chuvakin of NetForensics outlines common pitfalls and offers suggestions on how to deal with them. QuickLink 49539

Putting SRM to Best Use

STORAGE: Read some tips that can help you make the most of your storage resource management tools. QuickLink 50174

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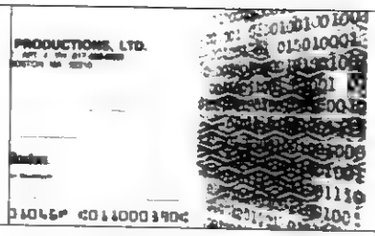
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In the Technology section: Joseph Panfil is part of a team moving the Chicago Mercantile Exchange from proprietary Unix and RISC-based systems to Intel-based servers running Linux in a bid to cut IT costs. **Page 31**



Checkpoint for Check 21

Also in the Technology section: The federal law paving the way for electronic image exchange of checks goes into effect this week, but banks still have a long way to go before the technology is in place to make it work. **Page 34**

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4 **Symbol Technologies** rolls out a handheld device that weighs and costs less than its ruggedized models.

5 **Getting IT to align** with business units is a top priority in this harsh economic climate, say CIOs at the Gartner Symposium/ITxpo conference.

5 **J. Sainsbury and Accenture** renegotiate their outsourcing deal so the grocery chain can gain more control over its IT operations.

6 **ILM and virtualization** products get their day in the sun at this week's Storage Networking World conference in Orlando.

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COMPUTERWORLD SALARY SURVEY 2004

Nearing the Boiling Point. For the third year in a row, IT workers across the board received only modest pay raises; salaries rose an average of 3% in 2004. Budget cuts and increased workloads are also driving stress to an all-time high. PAGE 49

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46 **Daniel J. Weitzner** suggests that although it may seem paradoxical, transparency about how personal information is collected and used is a key step in privacy protection.

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Storage Networking World

STORAGE: Head to our Knowledge Center this week for full coverage of Fall Storage Networking World, which runs through Thursday in Orlando. **QuickLink k1700**

What Your CEO Thinks About Security – and How to Change It

IT MANAGEMENT: Columnist Larry Ponemon offers tips on how to get your company's leadership to better value security, based on a survey of chief executives. **QuickLink 50104**

Five Log-Analysis Mistakes

SECURITY: Anton Chuvakin of NetForensics outlines common pitfalls and offers suggestions on how to deal with them. **QuickLink 49539**

Putting SRM to Best Use

STORAGE: Read some tips that can help you make the most of your storage resource management tools. **QuickLink 50174**

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Knowledge Centers **QuickLink a2570**

The Online Store **QuickLink a2420**

AT DEADLINE

Avis Europe Scraps PeopleSoft System

Avis Europe PLC said it has scrapped development of an ERP system based on PeopleSoft Inc.'s applications because of cost overruns and delays. The Bracknell, England-based car rental company said it ran into "a number of fundamental problems with [the] design and implementation" of the ERP system. PeopleSoft said Avis Europe licensed its software in early 2003, but it declined to comment about the project's cancellation. Avis Europe also said it plans to substantially reduce the scope of a wider IT restructuring initiative, including planned outsourcing moves.

Visual Studio to Get Added Design Tools

Microsoft Corp. tomorrow will announce a framework and a tool for building customized "visual designers" that can be used to develop applications tailored for vertical industries. The framework and tool are based on the modeling technology in Microsoft's upcoming Visual Studio 2005 release and are extensions to the Team System edition of Visual Studio. Microsoft plans to release a Community Technical Preview of the technology this week.

Short Takes

IBM said it has signed a seven-year, $160 million business and IT outsourcing deal with Dun & Bradstreet Corp. The contract involves portions of D&B's data acquisition and delivery, customer service and financial operations. About 220 employees will be shifted from the Short Hills, N.J.-based company to IBM. . . . FRANCISCO PARTNERS, a Menlo Park, Calif.-based investment firm, said it will buy IBM's electronic data interchange and business-to-business network services units and merge them with its Global Exchange Services Inc. unit, which is based in Gaithersburg, Md. The purchase price wasn't disclosed.

Analytics Tools Aim to Improve on Spreadsheets

SAS, Oracle and Siebel tackle financial analysis

BY HEATHER HAVENSTEIN

COMPANIES still relying on spreadsheets and other piecemeal financial planning and budgeting methods are the targets of a trio of new packages designed to provide an enterprise view of financial performance.

SAS Institute Inc., Oracle Corp. and Siebel Systems Inc. have each brought out tools aimed at tightening financial reporting operations.

SAS this week rolled out its SAS Financial Intelligence line, which the Cary, N.C.-based company said can help organizations get more accurate and timely financial results for use in the reports needed for regulatory compliance efforts and corporate management.

MCI Inc. is using the activity-based management product in the SAS line to replace spreadsheets and better link operating expenses to individual products by segment, said Leslie Mote, corporate business analysis director at MCI. The new system provides more cost and salary data on MCI product lines than previous tools, Mote said. "I don't think the executives were able to see that from a high level" in the past, she said.

Now, employees from different units can see how their actions relate to other parts of the company regarding cost and profitability, Mote said. In addition, MCI uses the tool to segment salary data for reports to the Securities and Exchange Commission and to help better set pricing schedules.

The Thomson Corp., a Stamford, Conn.-based provider of customized information systems to various industries, used the earlier version of the SAS software to meet the SEC's reporting requirements for listing on the New York Stock Exchange, said David Ross, Thomson's director of corporate financial systems. "We really didn't have one version of the truth, [and] we needed something to be able to support a standard, repeatable, consolidated process every single month," Ross said. Some of the newer SAS features — such as real-time consolidation — may help Thomson close its books and report earnings more quickly, he added.

> **"We needed something to be able to support a standard, repeatable, consolidated process every single month."**
>
> DAVID ROSS, DIRECTOR OF CORPORATE FINANCIAL SYSTEMS, THOMSON CORP.

Oracle this month began shipping its Enterprise Planning and Budgeting application, which is designed to integrate planning and budgeting processes in a single database and associate financial data with specific users who can be held accountable for changes, said John Schoenherr, Oracle's vice president of corporate performance management development. The new application will replace Oracle Financial Analyzer and Oracle Sales Analyzer.

For its part, San Mateo, Calif.-based Siebel this month brought out Financial Analytics, which the vendor said can deliver real-time visibility into financial data and provide an early warning of deviations from plans.

The three vendors are positioning their products for companies struggling with spreadsheet budgeting, said Wayne Eckerson, an analyst at The Data Warehousing Institute in Seattle. "The budgeting/planning system is integrated with financial consolidation and accounting systems so standards are baked in the operational side of financial reporting," he said. "The numbers are more accurate and up to date." 50255

BEYOND SPREADSHEETS

Spreadsheets are ubiquitous, but they may be a liability in the Sarbanes-Oxley era.

QuickLink 48772
www.computerworld.com

Symbol Scales Down Weight, Cost of New Handheld Model

BY MATT HAMBLEN

Symbol Technologies Inc. last week announced the MC50 handheld computer, a device that's designed to be more durable than conventional handhelds and is priced in between those products and fully ruggedized models.

The MC50 is aimed at salespeople and other mobile workers, as well as roaming employees such as retail sales-floor managers and IT staffers who oversee data centers or server farms, said Symbol product manager Doug Lloyd.

The device weighs about 7 oz., making it much lighter than rugged handhelds like the 26-oz. MG9000-G model offered by Holtsville, N.Y.-based Symbol. But Lloyd said the MC50 includes some durability features that should help extend its life and enable IT managers to plan longer replacement cycles than they can with most handhelds.

For example, the keys on the MC50 can be depressed many more times than the ones on typical handhelds can, Lloyd claimed. He said the device also includes special covers designed to protect its ports from dust and sudden impacts.



Symbol's MC50

The MC50 is equipped with integrated Wi-Fi technology and data-capture options that include a camera as well as one- and two-dimensional bar code scanning capabilities. In addition, it supports voice-over-IP applications, Symbol said. Shipments are due to start in December, with prices ranging from $925 to $1,200.

That price range puts the MC50 between low-cost handhelds selling for about $200 and the most expensive ruggedized devices, which can cost more than $1,500 and are aimed at users such as package-delivery drivers, said Jack Gold, an analyst at Meta Group Inc.

Gold and Gartner Inc. analyst Ken Dulaney both noted that the MC50 doesn't include a wireless WAN connection. Dulaney predicted that the device will be used primarily as a low-cost inventory management and control terminal in WLAN installations.

The MC50 comes in two versions, one with a standard keyboard and one with a navigation bar. Symbol said it runs on the Windows Mobile 2003 Second Edition operating system and is compatible with customer relationship management software from vendors like Microsoft Corp., Oracle Corp., SAP AG and Siebel Systems Inc. 50231

WIRELESS CRM RETURNS

PeopleSoft plans to put CRM software on BlackBerry handheld devices.

QuickLink 50230
www.computerworld.com

Bad Times Boost Efforts to Align IT, Business Goals

CIOs bridge gap by recruiting business managers to oversee efforts

BY HEATHER HAVENSTEIN
ORLANDO

While corporations have aspired for years to more closely align IT investments with core business goals, the current harsh economic climate has prompted many enterprises to formalize such ties, according to a panel of CIOs speaking here last week at the Gartner Symposium/ITxpo. And panelists said those efforts are beginning to reap concrete results.

For example, the Washington-based AARP (the American Association of Retired Persons) has a department within IT made up of business analysts and project managers recruited from outside IT that's dedicated to aligning technology efforts with the needs of the business, said CIO John Sullivan.

"Those are the most popular people in our organization," Sullivan said.

After working with that business-IT alignment group for a few years, the employees are warmly welcomed back by their previous departments, which are eager to mine their knowledge of IT, he added.

Closer ties between business and IT helped the AARP slash the timetable of a planning and approval cycle for upgrades to its call center systems from the normal six to 18 months to less than three days, Sullivan said.

At TRW Automotive Holdings Corp., a Livonia, Mich.-based automotive supplier,



helps strengthen IT and business ties by tying IT efforts directly to significant business processes

CIO Joe Drouin nurtures the ties between IT and the business by mapping IT efforts to correspond directly with significant business processes — such as order fulfillment. Drouin has also recruited an IT business manager from TRW's finance department.

The efforts are yielding tangible results at TRW, Drouin said. In a recent presentation to the chief operating officer on the merits of antivirus technology, an IT manager focused on the risks the company's operations would be exposed to if its systems weren't protected. The COO agreed on the spot to dedicate additional resources to secure systems, he said.

Lines Are Blurring

"The lines are starting to blur a bit — is this guy an IS guy or a business guy?" Drouin said of company perceptions of IT managers who work on projects that bolster business goals. "Other parts of the business are hungry for these people who are solving these problems," he added.

At the Government Accountability Office, an agency that works for Congress to scrutinize how the federal government spends money, CIO Tony Cicco uses business managers — rather than IT staffers — to make presentations about the effectiveness of specific IT programs.

"When a business manager gets up and shows how he has been much more of a success . . . we get a lot of recognition," Cicco said.

The GAO's IT department also regularly gauges the satisfaction of its users with customer satisfaction surveys, Cicco added.

Charles Iacovuo, a professor of IT at Wake Forest University's Babcock Graduate School of Management in Winston-Salem, N.C., said in an interview that most companies need to do more to institutionalize the effort to bridge the gap between business and IT.

Organizations can use scorecards and service-level agreements to monitor how IT is performing against established goals and designate account managers to interact with business units, he said.

And formalizing these ties can become easier as more CIOs begin to report not to departmental executives but to C-level executives, Iacovuo added. "That forces the other business executives to accept them as a partner," he said. **50225**

Sainsbury, Accenture to Redo Outsourcing Pact

Grocery chain seeks to regain control over IT

BY LAURA ROHDE
LONDON

Looking to gain more control of IT operations, J. Sainsbury PLC, the U.K.'s second-largest grocery chain, is in the process of renegotiating a $3.25 billion outsourcing contract with IT services provider Accenture Ltd. as part of an overall three-year, $4.54 billion rescue plan designed to reinvigorate the struggling business.

In an attempt to drive down the price of the Accenture contract, Sainsbury will simplify existing IT systems as well as those in the pipeline, because the implementation effort has "failed to deliver the anticipated increase in productivity," while IT costs continue to eat up more and more of the company's overall budget in proportion to sales, Sainsbury said in a statement.

London-based Sainsbury signed a seven-year deal with Accenture in 2000 to outsource all of its IT operations. The pact led to the transfer of about 800 Sainsbury employees to Accenture. The grocer retained a small in-house staff to oversee the new IT strategy.

Last November, the contract was renegotiated with an eye toward cutting costs and extended through 2010, a Sainsbury spokeswoman said.

In-house Focus

In the statement, the supermarket chain said it wants to renegotiate the contract in an effort to provide its personnel with more input into the selection and implementation of IT systems. Sainsbury is also looking to rebuild its internal IT staff and systems.

One of Sainsbury's biggest IT problem areas is the operation of its four new automated depots, which the company said are failing to perform at the planned levels.

Accenture, which is one of the world's largest providers of IT services, said that although it's responsible for the supermarket chain's IT transformation program, including some of the supply chain systems, the automated depots were never part of its contract with Sainsbury.

Accenture said it replaced the bulk of Sainsbury's core operational systems, providing "improved reliability and stability of systems" while also reducing the grocery chain's annual IT operating costs.



says getting better performance out of its four automated depots is part of the grocery store's transformation effort

Because negotiations between Sainsbury and Accenture are currently taking place, representatives from both companies declined to comment beyond the statements.

Sainsbury said that in its 2004-2005 fiscal year, it will write off $254 million of redundant IT assets and $218 million in automated equipment in the new fulfillment depots. An additional $54.5 million in inventory losses resulting from the disruption caused by the new depots and IT systems will also be written off, the company said.

Sainsbury estimates that its expenditures in its IT systems and supply chain will come in at an additional $363.5 million over the next two years. The company projects IT budget savings of $72.7 million by its 2007-2008 fiscal year. **50212**

Rohde writes for the IDG News Service.

BRIEFS

PeopleSoft Will Pay Former CEO $3.2M

PeopleSoft Inc. disclosed that it will pay former CEO Craig Conway a severance package of at least $3.2 million to cover the salary and bonuses he could have earned over the next two years. PeopleSoft's board ousted Conway on Oct. 1 (QuickLink 49819). But in a regulatory filing dated last Monday, the company said Conway was fired without cause, making him eligible for continued salary payments and accelerated vesting of his stock options.

Wording Revised on Takeover Defense

In another matter, PeopleSoft said it has revised the contract language for the so-called customer assurance program that the software vendor adopted as part of its effort to fend off Oracle Corp.'s hostile takeover bid. The changes were made to clarify some of the provisions of the program, which could trigger payments to users if PeopleSoft is acquired. Oracle has asked a judge in Delaware to invalidate the payment offer.

AMD Adds High-End Desktop Processors

Advanced Micro Devices Inc. announced a pair of high-end processors for desktop PCs to compete against Intel Corp.'s Pentium 4 line. AMD said it's adding the Athlon 64 FX-55 chip for high-performance applications and the Athlon 64 4000+, which is positioned as a mainstream offering.

Intel Eyes Optical Links for Systems

An Intel executive told the IDG News Service that the company is developing an optical interconnect to replace the copper-based links now used in laptop PCs and servers. The technology should be ready for commercial uses within three to five years, he said.

Users Look for ILM, Virtualization at SNW

A slew of new technology offerings are expected to be unveiled at storage show

BY LUCAS MEARIAN

Suppliers of storage systems have made more product announcements in the past six months than in the previous two years, according to one research firm. This week's Storage Networking World conference in Orlando promises to represent a microcosm of that trend as dozens of vendors unveil new technologies.

Chief among those offerings are systems that can automate the migration of data between tiers of storage and simplify storage network management through virtualization, an abstraction layer between storage management applications and the storage hardware.

Although some information life-cycle management (ILM) and virtualization technologies have been around for more than a year, "the difference this time is you're going to have large vendors talking about [it]," said Tony Prigmore, an analyst at Enterprise Strategy Group Inc., a research firm in Milford, Mass.

"ILM is something interesting that we talk about on a daily and weekly basis here," said Roan Winchester, director of backup management at Catholic Healthcare Partners in Cincinnati. Winchester said he will appraise the ILM technologies on display at the conference, sponsored by *Computerworld* and the Storage Networking Industry Association.

The company is in the process of consolidating regional servers that are 180 miles apart into its main data centers for centralized backup. Once that's done, Winchester plans to replicate data asynchronously between those centers for disaster recovery.

He said an ILM tool could help him reduce the total cost of ownership by easing data migration headaches and by moving older data off of high-end storage and onto midtier and ATA disk-based arrays.

SNW Product Announcements

Hewlett-Packard Co., Microsoft Corp., QLogic Corp. ... storage-area network

Broadcom Corp. ... serial RAID-on-chip device

NeoScale Systems Inc. ... CryptoStor SAN VPN appliance

SANBlaze Technology Inc. ... its VirtuaLUN Fibre Channel Target Emulation System

Other Vendor Plans

Several vendors expect to unveil ILM-type tools this week as demand from users such as Winchester increases.

IBM today will unveil the next generation of its Total-Storage Open Software family for storage management. IBM's SAN File System Version 2.2 provides ILM capabilities through policy-based movement and deletion of files among various tiers of storage. And Hitachi Data Systems Corp. plans to show off one of its high-end TagmaStore Universal Platform arrays managing an IBM Enterprise Storage Server.

Tim Graham, team leader for data systems management at Virgin Atlantic Airways Ltd. in Crawley, U.K., said he's looking for tools to help him reduce the complexity of his backup environment while speeding up his network. Graham said he likes the idea of ILM tools, but because his data resides on a heterogeneous storage environment across the globe, he first needs tools to classify that data in order to determine its true value.

Vendors such as HDS, QLogic Corp. and Emulex Corp. are planning to demonstrate new 4Gbit/sec. Fibre Channel networks, which could double the speed of current storage networks.

Analysts and users, however, said 4Gbit/sec. technology, which resides in host bus adapters and switches, isn't needed yet by most sites.
50257

Hackers Hit California With Massive ID Theft

Gain personal data of about 1.4 million state residents

BY PAUL ROBERTS

The state of California has warned residents that personal data may have been stolen from the University of California, Berkeley, after hackers hit a research database there.

The California Department of Social Services (CDSS) stated last week that the agency is working with the FBI to investigate the intrusion.

The incident involved a computer that contained personal information on about 1.4 million recipients and providers participating in the CDSS's In-Home Supportive Services (IHSS) program, which provides home-care services to low-income elderly and disabled Californians. Names, addresses, telephone and Social Security numbers, and the birth dates of IHSS participants may have been stolen, said Carlos Ramos, assistant secretary at the CDSS. The data could be used to fake the identities of clients.

The state agency gave the university the data to conduct research on the IHSS program. The compromise occurred on Aug. 1 and was discovered on Aug. 30 by UC Berkeley IT staffers using intrusion-detection software, Ramos said. Investigators said a hacker exploited a vulnerability in "commercially available database software," but they don't know whether the attack was targeted.

A database of personal information on people who may lack the technical sophistication to defend themselves against identity theft and are unaware that a database stores their data would be an attractive target for thieves, said Jonathan Bingham, president and founder of Intrusic Inc., a Waltham, Mass.-based maker of software for spotting suspicious network activity.

Without adequate forensic information, investigators face a daunting task in reconstructing the intrusion and determining whether the IHSS database was compromised, let alone finding the culprits.

Meanwhile, the CDSS asked UC Berkeley to return the IHSS data and will investigate whether the researcher adhered to an agreement to protect personal information.
50269

Roberts is a reporter for the IDG News service.

Mark Hall is away this week. His column, On the Mark, will return in a future issue.

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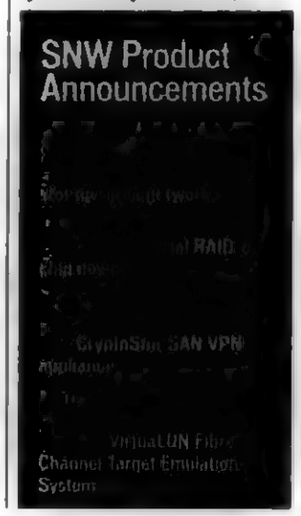
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50260

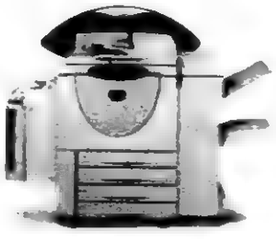
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SMARTER

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IT Pay to Rise 10% to 15% Through 2007, Study Says

Better economy, demand for certain skills will drive increase, Meta says

BY THOMAS HOFFMAN

AN IMPROVING economy and heightened demand for technology workers with certain skills will help drive 10% to 15% salary increases for seasoned technologists through 2007, according to a new study unveiled by Meta Group Inc. this month.

The predictions seem to fly in the face of conventional wisdom following more than three years of a weak IT job market, a rise in organizations' use of lower-cost offshore labor and marginal pay increases for full-time domestic IT workers.

Still, recruiters say there's plenty of evidence to support the predictions for salary gains, including a relatively low unemployment rate for U.S. high-tech workers and a shortage of new workers entering the market. According to the U.S. Bureau of Labor Statistics, the unemployment rate for computer and mathematical occupations at the end of September was 3.3%.

However, a half-dozen IT managers interviewed last week said they don't expect IT staffers to receive increases of more than 3% to 5% for at least the next year. "I just don't see a 15% increase over the next two years; the market doesn't warrant this," said Rick Peltz, CIO at Marcus & Millichap Real Estate Investment Brokerage Co. in Encino, Calif.

Peltz is looking to fill three IT positions and has been screening résumés on Monster.com rather than advertising for the posts, which include an opening for a business analyst.

"If anything, there's an abundance of overqualified workers applying for this position," said Peltz, who anticipates providing his 15-person staff with 3% cost-of-living increases in 2005 "and maybe a little bit more for merit."

Conservative View

"I do expect salaries to grow over the next several years, but I expect the growth rates to be much more modest," said Bill McQuiston, CIO at Truman Medical Centers Inc. in Kansas City, Mo. As the economy heats up and companies begin to invest more heavily in IT, he said, "we are going to see another shortage of [technical] people."

That maps with the perspective of several recruiters. Scot Melland, president of Dice Inc., a Web-based IT job board in New York, said technical job postings on his site are up more than 90% from September 2003 to September 2004. With fewer computer science graduates coming out of colleges, as well as stricter post-9/11 security restrictions on student visa programs for foreign-born students, "it's quite possible we could have a skills shortage in the coming years," he said.

Maria Schafer, author of the Meta Group report, said seasoned IT professionals with coveted database, networking, security, architecture and project management skills are already commanding 10% to 12% annual pay increases. The report is based on a survey of 650 companies that was completed in late May.

"I hear from people all the time who say, 'I don't know how you can be saying this — I've been looking for a job for 19 months,' and I empathize with those people," Schafer said. But as the economy improves and companies invest more in IT, demand will rise, she said.

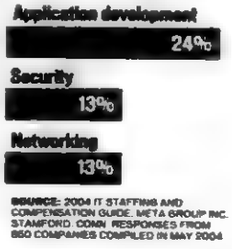
MORE ONLINE
CIOs said last week that they expect to dole out nominal raises over the short term
QuickLink 50250
www.computerworld.com

Analysts and recruiters said the number of domestic IT jobs being sent overseas is relatively small. And once the stock market improves and 401(k) and other retirement plans start growing again, workers in their late 50s who had to postpone retirement over the past few years will begin leaving the market in droves. "As baby boomers retire, the demand for replacements is never-ending," said Mark Anderson, president of ExecuNet Inc., an executive job placement service in Norwalk, Conn.

Even in the currently stable, if lackluster, IT job market, "it's still hard to find good, skilled technical workers," noted Mark Robinson, chief operating officer at WorkforceLogic Inc., a workforce management software provider in Sonoma, Calif. "As the market recovers, the demand will increase for labor." 50249

Top Demand

Most difficult types of IT workers to retain:



SOURCE: 2004 IT STAFFING AND COMPENSATION GUIDE, META GROUP INC., STAMFORD, CONN. RESPONSES FROM 650 COMPANIES COMPILED IN MAY 2004

Corporate Financial Results for Latest Quarter

Results have improved for most companies, indicating that IT spending is starting to show real growth again after a multiyear slump.

COMPANY	2004 REVENUE	2004 PROFIT (LOSS)	2003 REVENUE	2003 PROFIT (LOSS)
Apple Computer Inc.	$2.35M	$106M	$1.72B	$44M
CDW Corp.	$1.5B	$66M	$1.2B	$44M
Computer Associates	$855M	($96M)	$903M	($90M)
EMC Corp.	$2.03B	$218M	$1.5B	$109M
IBM	$23.4B	$1.8B	$21.5B	$1.79B
Intel Corp.	$8.4B	$1.9B	$7.8B	$1.7B
Keane Inc.	$234.8M	$8.1M	$200.4M	$5.5M
Mercury Interactive Corp.	$195.4M	$10M	$128.1M	($6.7M)
Microsoft Corp.	$9.2B	$2.9B	$8.2B	$2.6B
PeopleSoft Corp.	$600M	$23.5M	$634M	($7.3M)
RSA Security Inc.	$76.7M	$8.7M	$64.5M	$3.6M
SAP AG	$2.27B	$502M	$2.14B	$52M
Siebel Systems Inc.	$317M	$19M	$321M	($59M)
Sprint Corp.	$6.9B	($1.8B)	$6.7B	($497M)
VeriSign Inc.	$326M	$40M	$298M	($33M)

SOURCE COMPANY DATA

IT Pay to Rise 10% to 15% Through 2007, Study Says

Better economy, demand for certain skills will drive increase, Meta says

BY THOMAS HOFFMAN

AN IMPROVING economy and heightened demand for technology workers with certain skills will help drive 10% to 15% salary increases for seasoned technologists through 2007, according to a new study unveiled by Meta Group Inc. this month.

The predictions seem to fly in the face of conventional wisdom following more than three years of a weak IT job market, a rise in organizations' use of lower-cost offshore labor and marginal pay increases for full-time domestic IT workers.

Still, recruiters say there's plenty of evidence to support the predictions for salary gains, including a relatively low unemployment rate for U.S. high-tech workers and a shortage of new workers entering the market. According to the U.S. Bureau of Labor Statistics, the unemployment rate for computer and mathematical occupations at the end of September was 3.3%.

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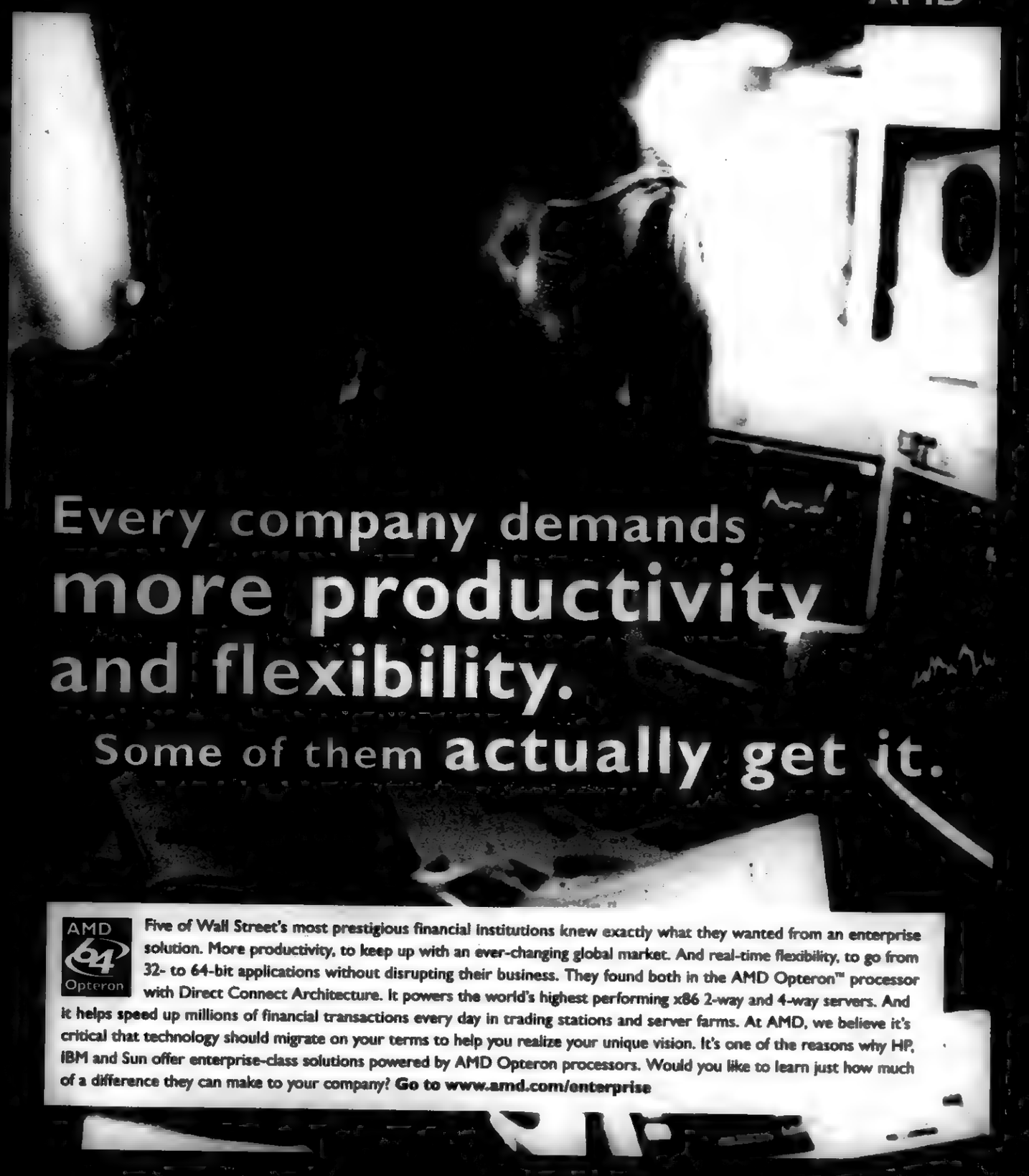
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[redacted]				
Siebel Systems Inc.	$317M	$19M	$322M	($80M)
[redacted]				
Symantec Corp.	$618M	$136M	$429M	$93M
[redacted]				

SOURCE: COMPANY DATA

AMD



Every company demands
more productivity
and flexibility.
Some of them actually get it.

AMD 64 Opteron

Five of Wall Street's most prestigious financial institutions knew exactly what they wanted from an enterprise solution. More productivity, to keep up with an ever-changing global market. And real-time flexibility, to go from 32- to 64-bit applications without disrupting their business. They found both in the AMD Opteron™ processor with Direct Connect Architecture. It powers the world's highest performing x86 2-way and 4-way servers. And it helps speed up millions of financial transactions every day in trading stations and server farms. At AMD, we believe it's critical that technology should migrate on your terms to help you realize your unique vision. It's one of the reasons why HP, IBM and Sun offer enterprise-class solutions powered by AMD Opteron processors. Would you like to learn just how much of a difference they can make to your company? **Go to www.amd.com/enterprise**

BRIEFS

Cisco to Acquire Net Security Tools

Cisco Systems Inc. said it plans to buy Perfigo Inc., a San Francisco-based vendor of network access control software, for $74 million in cash. Perfigo's Linux-based products will be added to Cisco's Network Admission Control line of tools for enforcing corporate security policies on PCs and other network endpoint devices. Cisco expects to complete the acquisition by the end of January.

German Bank Signs IT Contract With HP

Hewlett-Packard Co. said it has signed a five-year, $500 million IT outsourcing contract with WestLB AG, a bank based in Dusseldorf, Germany. HP will manage WestLB's global IT infrastructure and networks and take over some of its application development work. The deal, which is due to take effect on Jan. 1, includes the transfer of 450 IT workers from WestLB to HP.

IBM Ends Holdout, Joins Liberty Project

IBM said it has joined the Liberty Alliance Project, a consortium that's developing proposed standards for end-user identity management tools. IBM had been reluctant to join the group, choosing instead to rely on its own technology. But the company was pushed to use Liberty's specifications by customers such as London-based Orange SA, for which IBM is developing a single sign-on service.

Short Takes

MCI INC. announced that it will take a $3.5 billion charge against its third-quarter financial results to reflect a decrease in the value of its assets. . . . JBOSS INC. in Atlanta has added a business process management workflow tool to its roster of open-source software. JBoss will sell services and support for the jBpm technology.

Microsoft Scales Back Passport Plan

Monster.com's defection prompts repositioning of authentication service

BY JORIS EVERS
SAN FRANCISCO

MICROSOFT CORP. is recasting ambitions for its .Net Passport identification system, saying the service will now be limited to its own online offerings and those of close partners.

Passport generated controversy five years ago when Microsoft pitched it as a user authentication program for online shopping sites, a notion largely rejected by users, investigated by government regulators because of privacy concerns and snubbed by Web site operators who balked at letting Microsoft control access to their sites.

Last week, a spokeswoman said Microsoft no longer sees Passport as a single-sign-on system for the Web at large.

Passport's repositioning comes as careers Web site Monster.com said it's dropping support of the authentication service. New York-based Monster Worldwide Inc. was a banner user of Passport.

"Based on the adoption rates of Passport, which represented a low percentage of Monster users worldwide, a decision was made to make the most effective use of resources within Monster" and end support for Passport, said Monster spokesman Kevin Mullins.

> **"Microsoft's interest in hosted services has decreased since 2001."**
>
> MATT ROSOFF, ANALYST, DIRECTIONS ON MICROSOFT INC.

Microsoft had been silent about the technology over the past few years and had essentially stopped development work. Indeed, it quietly scaled back several Passport components, including a directory of sites that support the service and a payments feature.

Microsoft has "learned a lot" over the past few years and adjusted its ambitions for the service accordingly, said Brooke Richardson, lead product manager for MSN at Microsoft. "Going forward, the mission of the Microsoft Passport service will be to provide authentication services to Microsoft services and products and to Microsoft partners," she said last week.

The Passport decision is another signal that Microsoft is returning to its software roots, said Matt Rosoff, an analyst at Directions on Microsoft Inc. in Kirkland, Wash. "Microsoft's interest in hosted services has decreased since 2001," he said. Microsoft acquired the Passport technology in 1998 when it bought Firefly Technologies and initially used it as an authentication service for Hotmail and other services.

Meanwhile, Passport has faced competition from the Liberty Alliance, formed in late 2001 to create an open authentication platform. The alliance, originally sponsored by Sun Microsystems Inc. and about 30 other companies, has continued to expand, and its specifications are supported in several products.

In light of the fact that support for Passport is shrinking and Microsoft signed an interoperability pact with Sun in April, Microsoft may elect to join the Liberty Alliance or support the group's specifications. Microsoft and Sun have said identity management is one of the first areas in which they hope to work together.

Last week, IBM announced that it was joining the Liberty Alliance. Microsoft has said that it might join the group, and IBM's move could put pressure on it to do so, said Ronald Schmelzer, a senior analyst at ZapThink LLC in Waltham, Mass. **50256**

Robert McMillan contributed to this story. Evers and McMillan write for the IDG News Service.

Corporate Teamwork on Security Seen as Lacking

BY JAIKUMAR VIJAYAN

A lack of cooperation among IT, physical security operations and financial risk managers is hindering efforts to upgrade corporate security, according to a report that was released last week by The Conference Board Inc.

The separate silos in which many businesses continue to put those three functions has produced corporate cultures that encourage the hoarding of vital security information, said the report, which was based on interviews with more than 200 senior executives at major U.S. companies.

Businesses need to find a way to bridge the gap and develop "a common frame of reference," said Tom Cavanagh, a corporate security specialist at The Conference Board, a New York-based research organization. "What you need to have is a way for everybody to be on the same page and speaking the same language."

Cavanagh's advice echoes comments made at last month's ASIS International 2004 conference in Dallas, where corporate managers and analysts cited a growing need to unify the management of IT and physical security [QuickLink 49788].

That viewpoint is "absolutely right," said Dennis Treece, director of corporate security at the Massachusetts Port Authority in Boston. "Until the various factions stop bickering over turf, we're going to find any holistic security improvements terribly difficult [to achieve]," Treece said.

He added that the separate security-related functions within companies "all have different points of view, different cultures, different career paths, different educations and even different vocabularies."

Seeking Common Ground

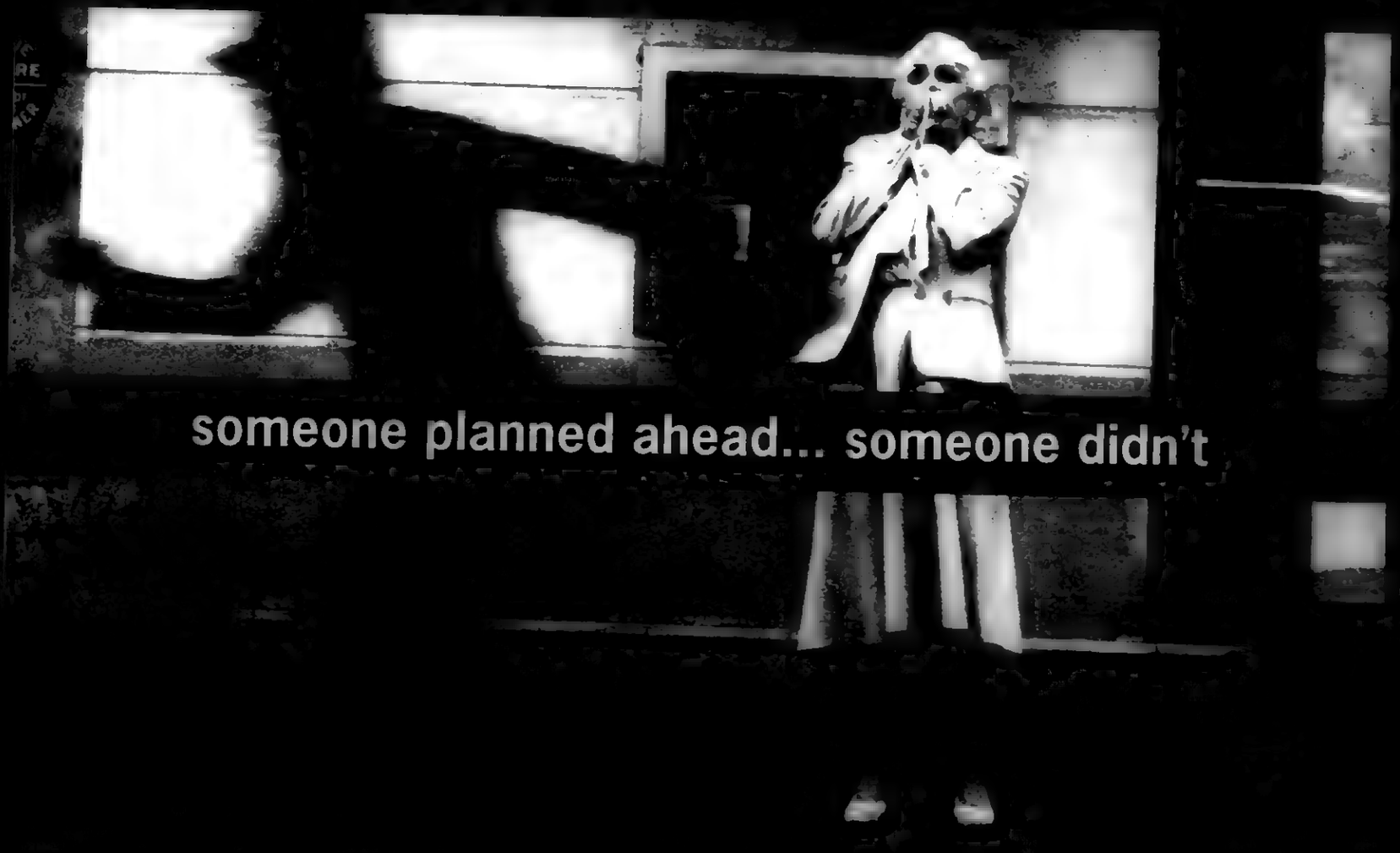
Physical security professionals who typically deal with human intelligence issues and technologies such as intruder alarm systems often have little in common with their IT security counterparts, said Eddie Schwartz, chief technology officer at Fairfax, Va.-based consulting firm Securevision LLC.

Similarly, risk management executives tend to come from financial backgrounds and often have little technology savvy, said Schwartz.

The resulting communication breakdowns often lead to gaps in security, said Lew Wagner, chief information security officer at Clarian Health in Indianapolis. He added that long-established corporate hierarchies and territorial boundaries can make it difficult to integrate the different functions.

"Each of these groups has already carved out their niches and protected areas and . . . have to be shown that this is a way to enhance what they're doing," Wagner said.

Instead of breaking down corporate silos and establishing new chains of command, the emphasis should be on building a comprehensive "situational awareness" capability that lets executives from the different groups compare high-level security information and look for trends, Schwartz said. **50263**



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There are probably things happening right now on your SAN that could lead to appalling performance or a complete system crash.

You don't know when it will happen.
You don't know how it will happen.
But when it does happen, you'll wish you were aware things were building up to give you a nasty surprise, an expensive surprise.

Research shows that SAN downtime can cost organizations $100,000 per minute, or more.* Finisar's NetWisdom and Xgig solutions help you avoid these costs by monitoring your SAN to stop degradation, CRC errors and events that impact your most critical applications, business data and transactions.

View our web seminar, including a customer case study and demo of NetWisdom by visiting www.finisar.com/plan

Avoid nasty surprises. Monitor your SAN and hang on to your budget.

* Source: Fabric Computing: Beyond the N-tier Data Center, RBC Capital Reports Oct 2003

Finisar

Finisar has been speeding up networks and delivering best-of-breed products and testing solutions since 1988. NASDAQ: FNSR.

www.finisar.com/plan

GLOBAL — An International IT News Digest

Australian IT Group Urges Quality Push

SYDNEY

THE AUSTRALIAN Computer Society (ACS) has called for the widespread adoption of software quality assurance methodologies and professional standards to enhance Australia's status as an offshoring destination and reduce the risk that faulty software will be developed.

Speaking at the Software Industry Action Group's conference in Melbourne last week, ACS President Edward Mandla said Australia's federal government should push local vendors to use internationally recognized standards when developing and supplying software. Mandla also urged the government to require that employees of IT vendors become members of professional associations that can ensure they are suitably qualified, subscribe to a code of ethics and are subject to sanctions for breaches of professional standards.

"Australia is a world-class software developer, but we face increasing competition from offshore," Mandla said. "If we are to remain competitive and secure our place in the global market, we must be able to demonstrate our professional standards and credentials."

■ SIOBHAN McBRIDE, COMPUTERWORLD TODAY (AUSTRALIA)

Cisco Offers IT Skills To U.K. Prisoners

LONDON

CISCO SYSTEMS INC. is working with the U.K. government on a pilot program to establish academies that will teach IT skills to inmates, initially at 11 prisons, a spokesman for the country's Home Office said last week. The Home Office, which oversees the U.K.'s justice and immigration system, views the training program as a way to prepare prisoners for jobs after they finish serving their sentences and re-enter the community at large, the spokesman said.

[redacted] of Ireland's companies lack a business continuity program. IDC, DUBLIN

The program currently has 900 students, who take part in twice-a-week classes over six-month sessions, the spokesman said. Cisco is the only company involved in the program at this point, he added. The project is a philanthropic offshoot of Cisco's Networking Academy Program, said Cisco spokeswoman Perveen Akhtar.

■ LAURA ROHDE, IDG NEWS SERVICE

Italians Not Fond Of Online Banking

CAMBRIDGE, MASS.

ITALY'S BANKS are missing out on online opportunities because Italian consumers are far more reluctant to use online banking than other Europeans are, according to a recent report by Forrester Research Inc. Italian consumers have a special fondness for cash and don't see the appeal of banking online, the report said, adding that Italy's banks haven't produced compelling online services.

Forrester analysts Elena Giovannini and Benjamin Ensor suggested that banks might boost participation by providing free trials of online banking, service guarantees, and better prices and interest rates for online users. **50211**

Compiled by Mitch Betts.

Briefly Noted

Research In Motion Ltd. is now offering its BlackBerry wireless service in India, through a partnership with Delhi-based Bharti Tele-Ventures Ltd., the companies announced last week.
■ JOHN RIBEIRO, IDG NEWS SERVICE

Groupe Steria SCA, an IT services company based in Paris, is negotiating to acquire Mummert Consulting AG in Hamburg, Germany, in hopes of expanding into the German IT services market.
■ PETER SAYER, IDG NEWS SERVICE

African Sky, Africa's first specialized computer waste disposal and recycling company, was launched last week in Johannesburg. CEO Allan Werth said that less than 2% of computer waste in South Africa is recycled and that most obsolete equipment ends up in dumps.
■ SAMANTHA PERRY, COMPUTING SOUTH AFRICA

Global IT Challenges Mirror Those in U.S., SAS Executive Says

BY DON TENNANT
LAS VEGAS

Art Cooke *is president of SAS International, the global arm of Cary, N.C.-based business intelligence software vendor SAS Institute Inc. At the Better-Management Live conference here last week, Cooke spoke with* Computerworld *about the globalization issues confronting U.S. companies in general and SAS in particular.*



BI users and vendors talk a lot about coming up with a "single version of the truth." For companies with global operations, what are the obstacles to attaining that single version? Most organizations are dropping back to database and ERP technology, which is giving them some problems. And those organizations aren't flexible enough to be able to pick out the data from all these operations worldwide and bring it together into a [data] warehouse. A lot of organizations don't think it's possible and will try to rationalize the operational systems underneath, rather than putting something like SAS on top of it to bring all that data together very quickly.

Many CIOs have been bitten so badly by these huge ERP implementations that they almost don't want to touch it and almost don't want to acknowledge that there's an issue there because it's far too dangerous politically. One of the things we're seeing in Europe now is people are starting to lose their jobs because of failed ERP implementations — they continue to shovel money down that huge hole.

We've got something out there from SAS that can actually do [ERP consolidation] — it's possible. But one of the issues we have with IT is that because they've been bitten so badly before, people are shy about looking at these issues with an open mind.

What do U.S. companies that need to expand their IT operations to locations overseas tend to overlook? They tend to make the same mistakes they make in the States. When they put new infrastructure in, they probably put parallel infrastructure in rather than looking for a more clever way of doing it. It may be possible to install much more efficient systems. And "go for good local employees" would be the other general advice I would have.

What IT capabilities do you think tend to be stronger outside the U.S. than inside the U.S.? All these markets are pretty similar. IT is generally struggling with the same issues, whether you're in Hong Kong or China or Australia or Russia.

How much software development does SAS do outside of the U.S., and is any of the offshore work outsourced? We don't outsource anything — all the development work is done in-house. The vast majority of the work is done in Cary. We have local-language adaptation centers in Japan and Beijing. We have 100 people in India who are doing a combination of vertical-industry work and specific testing of particular modules of the core technology.

How have political issues, specifically the war in Iraq, affected your global business? We missed a quarter last year — Europe just stopped for a quarter. There was a lot of uncertainty about what was going to happen, so a lot of decision-making just ground to a halt. It's been picking up, but there was a definite [cutback] in Europe. Less so in Asia, but also in Asia it was noticeable.

What does SAS do well from a globalization perspective, and what does it need to do better? Any company that works at a global level needs to be looking for best practices wherever you find them, and that's an ongoing search. Never believe that you own the truth — always look for it wherever you might find it in your organization. That's part of this theory of bringing what we're doing out in the field back centrally so we can send it out again. That's the thing we're continuously trying to improve. **50224**

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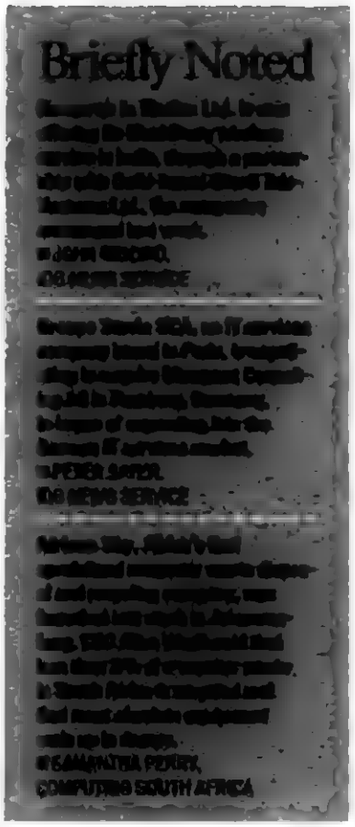
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What do U.S. companies that need to expand their IT operations to locations overseas tend to overlook? They tend to make the same mistakes they make in the States. When they put new infrastructure in, they probably put parallel infrastructure in rather than looking for a more clever way of doing it. It may be possible to install much more efficient systems. And "go for good local employees" would be the other general advice I would have.

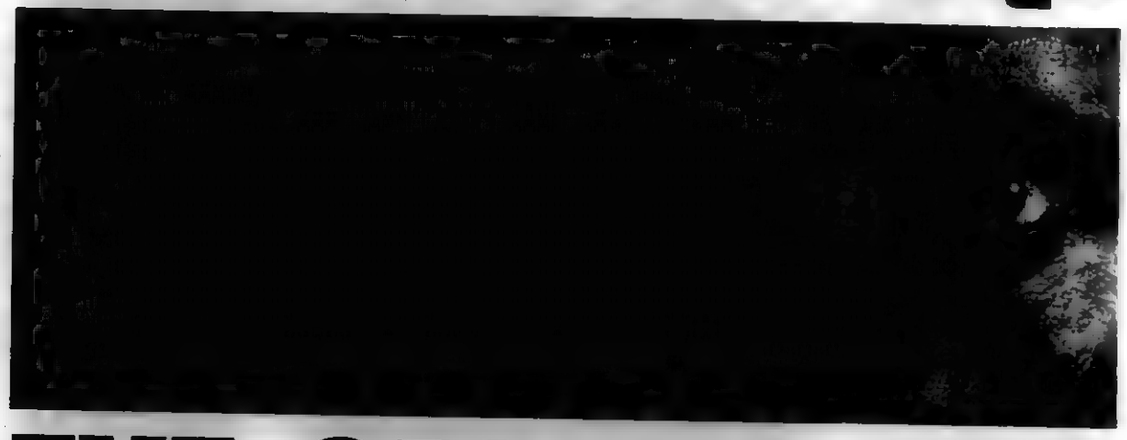
What IT capabilities do you think tend to be stronger outside the U.S. than inside the U.S.? All these markets are pretty similar. IT is generally struggling with the same issues, whether you're in Hong Kong or China or Australia or Russia.

How much software development does SAS do outside of the U.S., and is any of the offshore work outsourced? We don't outsource anything — all the development work is done in-house. The vast majority of the work is done in Cary. We have local-language adaptation centers in Japan and Beijing. We have 100 people in India who are doing a combination of vertical-industry work and specific testing of particular modules of the core technology.

How have political issues, specifically the war in Iraq, affected your global business? We missed a quarter last year — Europe just stopped for a quarter. There was a lot of uncertainty about what was going to happen, so a lot of decision-making just ground to a halt. It's been picking up, but there was a definite [cutback] in Europe. Less so in Asia, but also in Asia it was noticeable.

What does SAS do well from a globalization perspective, and what does it need to do better? Any company that works at a global level needs to be looking for best practices wherever you find them, and that's an ongoing search. Never believe that you own the truth — always look for it wherever you might find it in your organization. That's part of this theory of bringing what we're doing out in the field back centrally so we can send it out again. That's the thing we're continuously trying to improve. ID 50224

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Continued from page 1

iSeries

at Perishable Distributors of Iowa Ltd., listened to assurances from IBM that it's committed to the line, he pointed out that they referred to it as both the iSeries and the AS/400. "If they can't identify the product, how can they focus on it?" Swinehart said.

IBM's marketing of the iSeries is an issue of great importance to users, many of whom have invested a large part of their careers in the 10-year-old technology. Some said they worry that the iSeries line, which now runs AIX and Linux in addition to its flagship i5/OS operating system, is gradually being blended into other product offerings, particularly IBM's pSeries family of Unix servers.

Trevor McCullough, an information systems project leader at Saint-Laurent, Quebec-based footwear maker Genfoot Inc., noted that the iSeries isn't seen as having wide-ranging capabilities by nonusers. For example, not everyone is aware that it can run Linux, Java and IBM's WebSphere software, he said.

"It can do so much, and it's still regarded as an older platform," McCullough said. He warned that if the iSeries is widely perceived as a legacy system, it may become just that.

Restoring iSeries' Luster

Mike Borman, who three months ago was appointed general manager of the iSeries division within IBM's eServer group, acknowledged that more has to be done to expand the midrange line's user base beyond the 200,000-plus customers that have bought the systems. "I think we have lost a little luster on our star here, and we need to improve that," he said. "We have to get our image back to where it says that [the iSeries] is one of the top two or three franchises in the industry."



Borman said he wants to convince independent software vendors to help raise the visibility of the iSeries line by making it an integral part of their product mixes, as they did in the late 1980s and the 1990s, before Windows-based servers and other newer systems began attracting attention. IBM plans to undertake that effort in phases, focusing first on the top 300 vendors and then expanding that number by another 2,700.

Although Borman said he thinks that IBM has a strong iSeries technical support staff and an able group of business partners, he also wants support to improve.

"We have a set of business partners that are really good, and we have a set of business partners that we need to improve their skills," Borman said. IBM also has to ensure that its engineers who work with customers have up-to-date skills, he said, citing feedback from two large users who said that isn't always the case.

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Machinist said he heard "a real sense of commitment" from Borman at the Common conference. "He knows what he needs to do, and he's going to do it," Machinist said. **50261**

IBM Makes Effort to Improve System Availability

TORONTO

IBM has launched an initiative focused on ensuring that the iSeries and its other server lines are highly available, an area of increasing interest among users who can't afford system downtime because of round-the-clock global supply chain demands.

John Reed, the IBM executive who was picked four weeks ago to lead the development of the company's High Availability Design Center, previously worked for the iSeries division as product and business operations manager.

"In many cases, our clients may be trying to do high availability but don't have all the pieces put together to make it a truly resilient set of infrastructures," Reed said at last week's Common user group conference. He added that the center could lead to new products, services and business partnerships.

IBM is only a few weeks into developing the center and hasn't settled on a location yet, although Reed said it may be located at a facility in Poughkeepsie, N.Y. The company plans to begin working with users at the center this quarter.

Part of the plan involves assembling best-practices guidance and tools, according to Reed. IBM will conduct system assessments, and help users define and develop high-availability architectures and run application benchmarks, he said.

IBM's increased interest in high availability raised concerns about pricing and other issues among some iSeries users.

Gerald Lake, a programmer/analyst at Sovereign Specialty Chemicals Inc.'s Buffalo operations, said increasing demands from outside auditors for IT redundancy prompted his company to improve system availability. As part of a server consolidation project, Sovereign converted an iSeries machine located at a different facility than the one that houses its primary server into a backup system, Lake said.

But Lake eyed IBM's plan warily. "The way IBM charges so heavily for everything, I think a lot of people are going to continue to do everything on their own," he said.

Pam Mathiesen, a computer operator at Great Plains Communications Inc. in Blair, Neb., said the telecommunications service provider has been using a third-party product to ensure high availability of its data. She added that she hopes IBM moves in the direction of partnerships with other vendors so it doesn't undercut the position of third-party suppliers.

Sporting goods maker Adidas-Salomon Canada Ltd. in Toronto has been able to count on the functionality built into the iSeries to maintain its operations, said Paul Leone, vice president of supply chain and IT logistics. But, Leone noted, Adidas will have to address high availability, especially as more of its orders arrive via the Web.

– Patrick Thibodeau

HP Upgrades Novadigm's System Configuration Tools

Simplifies user interface, adds more automation

BY MATT HAMBLEN

Hewlett-Packard Co. last week announced an upgrade of the configuration management software it acquired in an April acquisition of Novadigm Inc., saying it's adding a simplified user interface and capabilities for automating hardware setting updates.

The new release of Novadigm's Radia product is being renamed HP OpenView Change and Configuration Management and is available now. The software can be used to automate repetitive systems management tasks, such as configuration changes made to PCs and servers, on a regular schedule, according to HP.

The company said it has also simplified a configuration analysis tool for identifying potential conflicts in proposed PC configurations. In addition, more information is available on the inventory of services and applications running on Windows, Unix and Linux servers, HP said.

KeyCorp, a Cleveland-based bank with $88 billion in assets, has used Novadigm's tools for the past four years and welcomes the enhancements offered by HP, said Scott Donaldson, vice president of software distribution and workspace automation. However, he added, KeyCorp "doesn't have a lot of appetite" for the newest version, having installed the previous release, Radia 3.1, within the past month.

Big Learning Curve

Donaldson described the Radia product as "a complex tool" that has a big learning curve for systems administrators but is well worth the effort. KeyCorp has seen a big improvement in the time it takes to roll out applications to end users thanks to Radia, he said.

After investing about $1 million in the software, the bank estimates that it has reduced the total cost of ownership on its 23,000 PCs by $4 million per year. According to Donaldson, it now takes only two IT staffers to handle change and configuration management chores on all the PCs.

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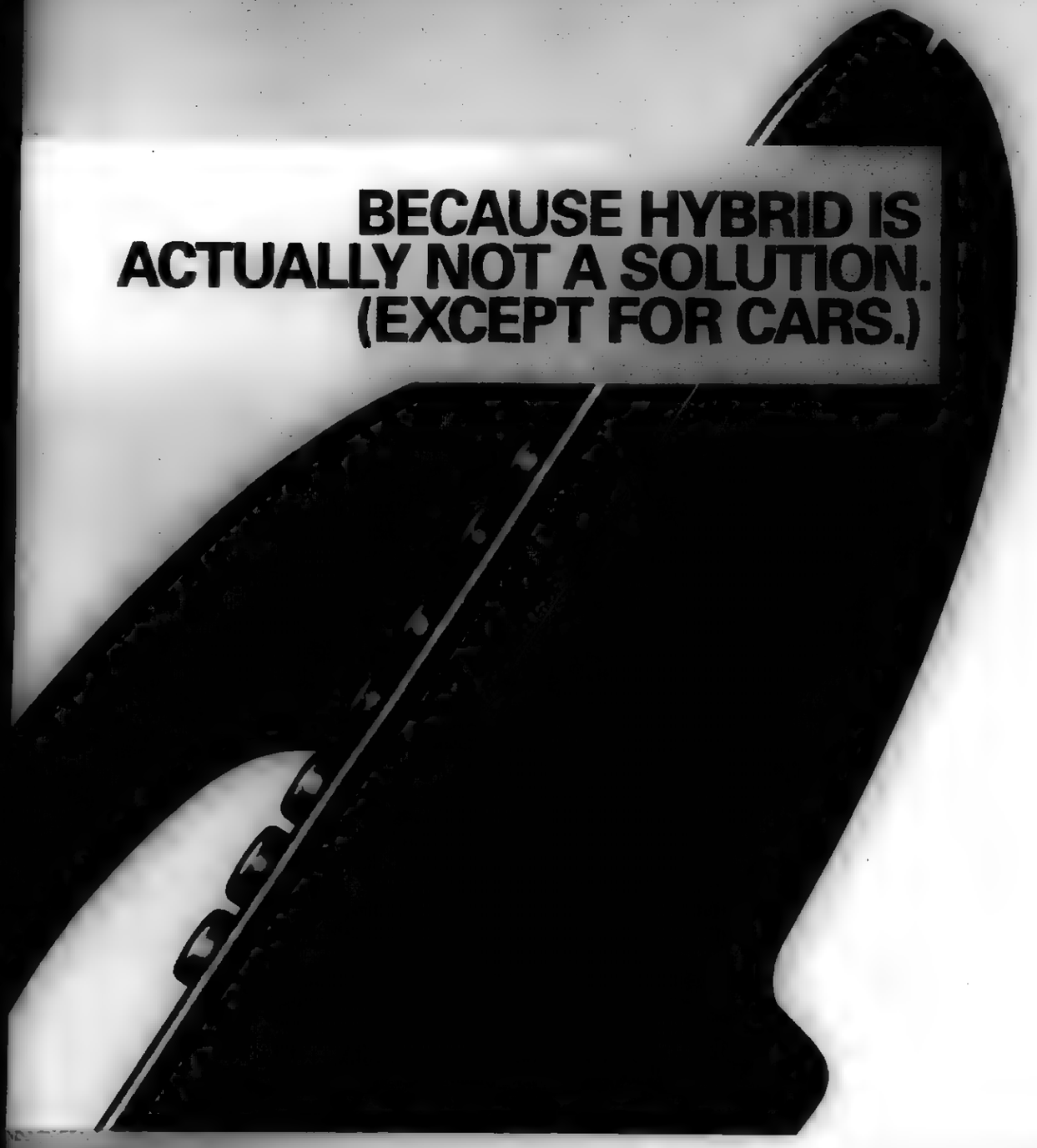
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Red Hat Exec Addresses Challenges to Open-Source

BY JOHN RIBEIRO
BANGALORE, INDIA

Though open-source technologies are infiltrating IT operations throughout the world, its champions must overcome several potential roadblocks in the years to come to ensure that their growth continues. **Michael Tiemann**, *vice president of open-source affairs at Red Hat Inc., offered his take on the future of open-source and Linux in an interview with IDG News Service this month.*

Are more and more developers using open-source technologies worldwide? The leading developer regions I have seen have been the U.S. and Europe. But I think that is going to be changing very rapidly. South America, Brazil, Venezuela [and] Peru have all either announced or are in the process of announcing mainstream Linux work for government. When Brazil puts their developers on open-source, that is going to be a huge increase.

What is the biggest challenge for the open-source community? The biggest challenge right now is that there are not nearly as many open-source developers as there could be. The biggest challenge is getting more people excited [about open-source development]. The open-source community is a challenging environment to work in. Some developers respond positively to the meritocracy of open-source, and some do not.



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> **MICHAEL TIEMANN,** vice president of open-source affairs, Red Hat Inc.

What are the management challenges involved when you scale to, say, 100 million open-source developers spread across a number of countries? There is a study from James Herbsleb at Carnegie Mellon University about both open-source and proprietary projects. [The study found that] 10 to 15 developers are typically responsible for 80% of a project. What that math tells you is that open-source scales by being able to have more and more projects. I don't ever think that there will be 100 million people working on one library in Linux. Because of the supermodularity of open-source, the ideal resource allocation for 100 million developers is to be working on, say, 10 million projects.

Is there a danger that forks from standard Linux will be created as the number of Linux developers increases? I just don't think it will happen, because we just haven't seen it. Sun claims that they need to keep Java proprietary so that it won't fork. And yet as proprietary Java, it did fork. [Meanwhile] IBM came out and released Eclipse, and lo and behold 100 companies joined it and there has been no forking on Eclipse.

The Linux Standard Base 2.0 of the Free Standards Group attempts to get some standardization into various distributions of Linux. Will Red Hat ship products compliant with LSB 2.0? We are really looking toward LSB 3.0 because 2.0 is not compatible with prior decisions we have made. We have been very successful to certify against LSB Version 1.0, and we will continue to stay compatible with that. We think 2.0 overreached in what it was trying to do. We have it from the LSB people that there will be a 3.0 out in less than six months, and we are quite confident that that version will be adequate for our needs.

As localized versions of Linux take root in countries like China, Malaysia and Thailand, with active promotion of the local governments, how does Red Hat plan to counter that? Some Indian companies the other day asked how we were prepared to deal with competition from Indian companies. I said that if the local Indian companies are developing open-source software according to open-source principles, then we benefit in any case, because we have the libraries that the software will need. **50194**

Ribeiro is a reporter for the IDG News Service.

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Fed Law Doesn't Yield E-voting Consistency

Some states buy e-voting machines; others wait for federal guidelines

BY PAUL ROBERTS
BOSTON

TWO YEARS after Congress passed the Help America Vote Act (HAVA) to phase out older voting systems, there is little consistency in the adoption of the law and its provisions. While some states moved quickly to enact HAVA, officials elsewhere are waiting for more guidance to verify which new voting systems meet federal standards.

HAVA addresses myriad problems that tarnished the 2000 presidential election. The act calls for the provisioning of $3.9 billion in federal funds to improve the election process, with $325 million earmarked to replace outdated machines.

While HAVA doesn't mandate particular voting technologies, it does require that new systems be accessible to disabled people by 2006. That requirement prompted many counties to quickly buy new voting equipment, mostly so-called direct recording electronic (DRE) systems with features to accommodate impaired voters.

The federal money for voting systems is especially welcome in poorer states, said Dan Seligson, editor of Electionline.org, a Washington-based nonprofit group that tracks election reform.

In Wyoming, where mechanical-lever voting machines purchased years ago are still in use, HAVA will eventually allow all of the state's 23 counties to upgrade to some form of DRE technology, said Secretary of State Joe Meyer. Currently, only one county uses DRE technology, he said.

In South Carolina, many counties bought early DRE machines in the 1980s using state matching funds and then weren't able to update those systems once state funds dried up, said Donna Royson, deputy director of the South Carolina State Election Commission. HAVA money is helping South Carolina move to a uniform system of voting machines statewide, she said.

While HAVA has made money available to help with purchases and speed the replacement of older machines, the legislation has left it up to each state to develop its own plan to comply with the legislation and requires matching funds from states to qualify for federal dollars.

"HAVA sets federal mandates on voting. However, nowhere in the mandates does it say what machines to use, how many there should be per precinct. Frankly, there isn't even a mandate to replace punch cards and lever machines," Seligson said.

Variable Progress

In states with a tradition of top-down management, HAVA has led to uniformity. In states with a tradition of local control, the law's leniency has resulted in a patchwork system of voting technology and slower progress.

"One reason we're a bit slower is because we're reluctant to hand counties unfunded mandates," said Jonathan Black, director of research for the Texas secretary of state's office. "We like to give counties as much choice as possible."

An informal survey by the IDG News Service of counties with DRE machines found wide variability in the number and type of DRE systems to be used this year, with some counties relying on a small number of machines to handle what officials expect to be a record turnout.

The problem, say voting experts, is a system that has long relied on local money rather than federal dollars to fund elections, leading to disparities among counties.

For example, South Carolina is already in the first phase of implementing its HAVA plan, which calls for the deployment of state-purchased iVotronic machines from Election Systems and Software Inc. The plan calls for one iVotronic DRE machine for every 200 voters.

But elsewhere, state governments and localities have put off purchasing DRE equipment as they wait for the federal government to provide more guidance. The result is that states like Maryland and Nevada are using DRE technology statewide, while others, such as Ohio, Pennsylvania and Wyoming, are using it only in certain areas.

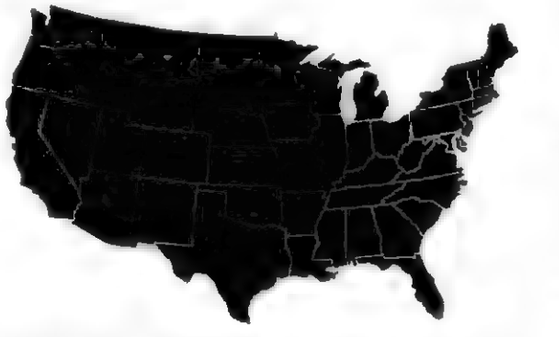
"States are all over the map," said Wyoming's Meyer. "HAVA was supposed to have standards to protect us in terms of these voting systems, but now they say they're going to have them in 2005 at the earliest."

Wyoming won't choose new equipment until after the Nov. 2 election, Meyer said.

HAVA sets strong guidelines on issues such as accessibility but is silent on many of the most pressing problems the U.S. election system is facing, leaving it to states and localities to decide which technologies to use and how many machines are needed, Electionline.org's Seligson said.

While HAVA can help people with disabilities and prevent voters from being turned away at the polls, Seligson said, it's unlikely to change disparities regarding which voting systems are used. 50229

Roberts is a reporter for the IDG News Service.



ELECTRONIC VOTING MACHINES have been installed in 27 states (in green), but lawsuits filed in New Jersey and Florida may halt or tighten electronic voting with such machines.

Skeptics Create System to Monitor E-voting

BOSTON

A group of technology experts concerned about the fate of electronic voting machines on Nov. 2 used some tools of the trade – the Web and open-source technologies – to create a system to monitor e-voting on election day.

The new technology, dubbed the Election Incident Reporting System (EIRS), was developed by technologists from the Verified Voting Foundation and Computer Professionals for Social Responsibility (CPSR). The system will be used by the Election Protection Coalition, which consists of a variety of organizations, to identify and fix problems with DRE machines on Nov. 2.

Work on EIRS started about four months ago, according to Will Doherty, Verified Voting's executive director. Since then, a team of 30 to 35 people – mostly volunteers – has worked to ready the system by Election Day.

The team includes five core developers, five testers, three user-interface specialists and a four-member architecture team responsible for security and hardware, said Erik Nilsson, chairman of the CPSR working group on voting technology.

The team gained an advantage from using open-source tool kits, such as PHP Surveyor, to create online surveying instruments and manage the results, he said.

Other open-source software used in the EIRS project includes AdvoKit, which manages tasks, campaigns and volunteers, and MapServer, which produces clickable maps that can show the locations of past problems.

Doherty said the developers are working on a final feature that will offer more detail about election incidents at a specific site. Currently, when a user clicks on a map to view incidents in a specific location, only the number of incidents is displayed. The upgrade will provide far more details of particular incidents, Doherty said.

If all works as planned on Election Day, incidents reported via EIRS will prompt the timely dispatch of experts to problem locations. The team includes some 1,300 TechWatch volunteers recruited by Verified Voting to monitor the DREs.

"We're placing big bets on this," said Nilsson.

– *Elizabeth Heichler*

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While HAVA doesn't mandate particular voting technologies, it does require that new systems be accessible to disabled people by 2006. That requirement prompted many counties to quickly buy new voting equipment, mostly so-called direct recording electronic (DRE) systems with features to accommodate impaired voters.

The federal money for voting systems is especially welcome in poorer states, said Dan Seligson, editor of Electionline.org, a Washington-based nonprofit group that tracks election reform.

In Wyoming, where mechanical-lever voting machines purchased years ago are still in use, HAVA will eventually allow all of the state's 23 counties to upgrade to some form of DRE technology, said Secretary of State Joe Meyer. Currently, only one county uses DRE technology, he said.

In South Carolina, many counties bought early DRE machines in the 1980s using state matching funds and then weren't able to update those systems once state funds dried up, said Donna Royson, deputy director of the South Carolina State Election Commission. HAVA money is helping South Carolina move to a uniform system of voting machines statewide, she said.

While HAVA has made money available to help with purchases and speed the replacement of older machines, the legislation has left it up to each state to develop its own plan to comply with the legislation and requires matching funds from states to qualify for federal dollars.

"HAVA sets federal mandates on voting. However, nowhere in the mandates does it say what machines to use, how many there should be per precinct. Frankly, there isn't even a mandate to replace punch cards and lever machines," Seligson said.

Variable Progress

In states with a tradition of top-down management, HAVA has led to uniformity. In states with a tradition of local control, the law's leniency has resulted in a patchwork system of voting technology and slower progress.

"One reason we're a bit slower is because we're reluctant to hand counties unfunded mandates," said Jonathan Black, director of research for the Texas secretary of state's office. "We like to give counties as much choice as possible."

An informal survey by the IDG News Service of counties with DRE machines found wide variability in the number and type of DRE systems to be used this year, with some counties relying on a small number of machines to handle what officials expect to be a record turnout.

The problem, say voting experts, is a system that has long relied on local money rather than federal dollars to fund elections, leading to disparities among counties.

For example, South Carolina is already in the first phase of implementing its HAVA plan, which calls for the deployment of state-purchased iVotronic machines from Election Systems and Software Inc. The plan calls for one iVotronic DRE machine for every 200 voters.

But elsewhere, state governments and localities have put off purchasing DRE equipment as they wait for the federal government to provide more guidance. The result is that states like Maryland and Nevada are using DRE technology statewide, while others, such as Ohio, Pennsylvania and Wyoming, are using it only in certain areas.

"States are all over the map," said Wyoming's Meyer. "HAVA was supposed to have standards to protect us in terms of these voting systems, but now they say they're going to have them in 2005 at the earliest."

Wyoming won't choose new equipment until after the Nov. 2 election, Meyer said.

HAVA sets strong guidelines on issues such as accessibility but is silent on many of the most pressing problems the U.S. election system is facing, leaving it to states and localities to decide which technologies to use and how many machines are needed, Electionline.org's Seligson said.

While HAVA can help people with disabilities and prevent voters from being turned away at the polls, Seligson said, it's unlikely to change disparities regarding which voting systems are used. 50229



ELECTRONIC VOTING MACHINES have been installed in 27 states (in green), but lawsuits filed in New Jersey and Florida may halt or tighten electronic voting with such machines.

Roberts is a reporter for the IDG News Service.

Skeptics Create System to Monitor E-voting

A group of technology experts concerned about the fate of electronic voting machines on Nov. 2 and some tools of the trade – the Web and open-source technologies – to create a system to monitor e-voting on election day.

The new technology, dubbed the Election Incident Reporting System (EIRS), was developed by technologists from the Verified Voting Foundation and Computer Professionals for Social Responsibility (CPSR). The system will be used by the Election Protection Coalition, which consists of a variety of organizations, to identify and fix problems with DRE machines on Nov. 2.

Work on EIRS started about four months ago, according to Will Doherty, Verified Voting's executive director. Since then, a team of 30 to 35 people – mostly volunteers – has worked to ready the system by Election Day.

The team includes five core developers, beta testers, three user-interface specialists and a four-member architecture team responsible for security and hardware, said Erik Nilsson, chairman of the CPSR working group on voting technology.

The team gained an advantage from using open-source tool kits, such as PHP Surveyor, to create online surveying instruments and manage the results, he said.

Other open-source software used in the EIRS project includes Asterisk, which manages tasks, messages and notifications, and MapServer, which produces clickable maps that can show the locations of past problems.

Doherty said the developers are working on a final feature that will offer more detail about election incidents at a specific site. Currently, when a user clicks on a map to view incidents in a specific location, only the number of incidents is displayed. The upgrade will provide far more details of individual incidents, Doherty said.

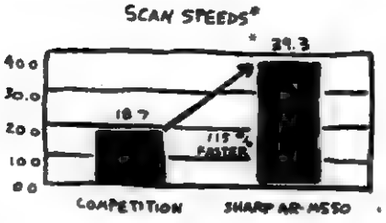
Exit polls are planned on Election Day, and data reported via EIRS will provide the timely dispatch of experts to problem locations. The team has also gotten 1,000 TechWatch volunteers provided by Verified Voting to monitor the DREs.

"We're placing big bets on this," said Nilsson.

–Elizabeth Millard

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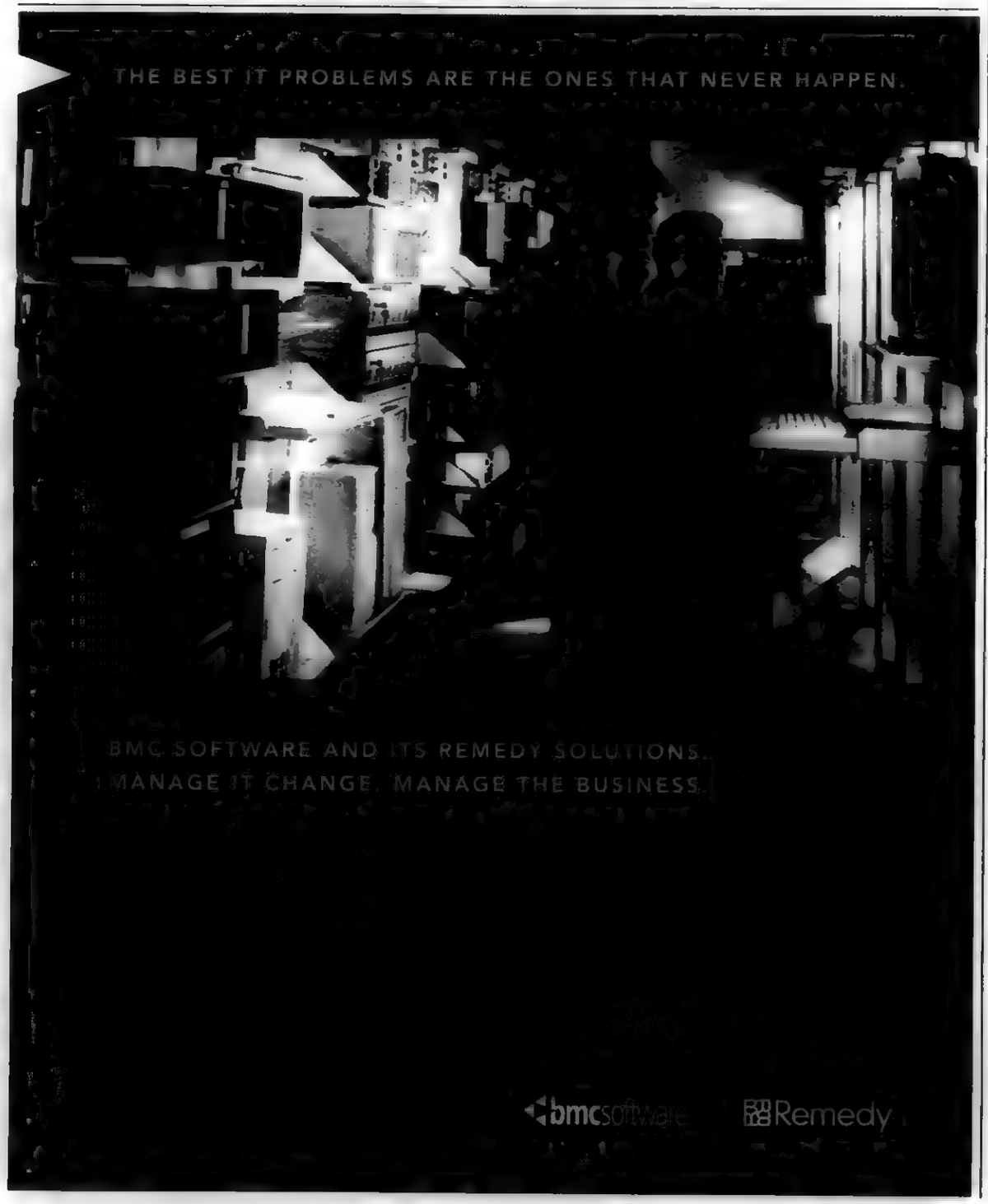
* Results of Buyers Laboratory Inc. Document Feeding Speed tests (originals per minute) in 2:2 mode for Sharp AR-M550 vs. the following manufacturers' competitive models: Canon iR 5000 and 5020, HP 9055 MFP, Konica 7155, Kyocera Mita KM-5530, Ricoh Aficio 1055 and 551, and Toshiba e-STUDIO 550. ©2003 Sharp Corporation

Microsoft to Link Phones, Messaging

BY JUAN CARLOS PEREZ

Microsoft Corp. last week said it's developing a front-end collaboration application that will let end users link their office telephones to the upgraded instant messaging server software the company plans to release by the end of the year.

The client application, codenamed Istanbul, is due by mid-2005. It's being designed to provide a single user interface for instant messaging, telephony and PC-based voice- and videoconferencing capabilities supported by Microsoft's Live Communications Server (LCS) 2005 software.



With the built-in telephony links, "end users will be able to think of their enterprise PBX phones as part of the overall real-time collaboration infrastructure," said Ed Simnett, Microsoft's lead product manager for Istanbul. Users will also be able to configure the software to call outside a company's internal switchboard, Simnett said. "Any phone becomes an addressable endpoint to LCS," he said.

Istanbul will be the preferred front-end application for LCS 2005, replacing the Windows Messenger software that works with LCS 2003. Another planned feature is deeper integration with other Microsoft products, Simnett said. For example, an Exchange user could configure an out-of-the-office message to show up not only when someone sends him an e-mail but also when someone tries to reach him via LCS 2005.

Idea in Search of a Market

Istanbul is an attempt by Microsoft "to merge the idea of real-time computer communication and real-time phone communication," said Nate Root, an analyst at Forrester Research Inc. Combining those functions would tie "instant-messaging-type clients to the PBX infrastructure that most big firms already have," he added.

But, Root noted, there isn't a lot of demand among corporate users for the functionality Istanbul will provide.

"Istanbul is a solution for a problem most users and companies don't know they have," he said. "The first and biggest hurdle [Microsoft] has got to get over is cultural: convincing people that this is a new and better tool to make their lives easier."

To make the Istanbul concept successful, Microsoft must work aggressively with third-party software vendors to extend the technology's functionality, said Paul Ritter, an analyst at Wainhouse Research LLC. **50213**

Perez is a reporter for the IDG News Service.


POWER OF THE
ER 2005

Google Tests New Desktop Search App

BY TODD R. WEISS

Google Inc. this month began offering a beta version of a desktop search application that catalogs files, e-mail messages and other information stored on PCs and then enables end users to run searches against the data.

The beta release gives Mountain View, Calif.-based Google a head start over rivals such as Microsoft Corp. and Yahoo Inc. in the race to provide more advanced search tools that can help users find information on their PCs.

But Gartner Inc. analyst Allen Weiner predicted that Microsoft's development efforts will "really heat up" by the end of the year. "This will without question accelerate Microsoft's timetable," Weiner said.

The Google Desktop Search beta code is available free of charge as a 446KB download from the company's Web site. The application is designed to search Word, Excel and PowerPoint files as well as e-mail in Outlook and Outlook Express. It can also search text and Web site browsing records in Internet Explorer and instant messaging exchanges stored in AOL Instant Messenger, Google said.

The desktop software will be integrated with Google's WebSearch engine for displaying search results. But Google said the search tool won't share information about the content stored on computers with its servers or other PCs, unless users give their permission.

"It's pretty impressive that a download that quick and small can be so powerful," said Dana Gardner, an analyst at The Yankee Group in Boston. "We really haven't seen anything like this for free before."

Privacy Concerns

Gardner noted, though, that the search tool raises potential issues for companies if end users install and use it without notifying and getting approval from their IT departments.

"There are some privacy and IT management issues here," he said. "For home or personal use, using it makes a great deal of sense. But for the enterprise, these caveats need to be reviewed and discussed."

Cindy Cohn, legal director of the Electronic Frontier Foundation, said the San Francisco-based nonprofit privacy group has few privacy concerns about the software so far.

"It really doesn't report much of anything back to Google," said Cohn, whose organization was given a demonstration of the search tool by the vendor. **50214**

Juan Carlos Perez of the IDG News Service contributed to this story.

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DON TENNANT

Unchosen Exposure

THERE WAS A TIME when giving up one's privacy tended to be a matter of choice. In the early '80s, I worked for the National Security Agency, and for the sake of the job, I elected to sacrifice my privacy to a degree that most people would find appalling. I allowed myself to be polygraphed on a regular basis, which entailed being strapped into a chair with sensors wrapped around my torso and attached to my fingertips. You know that dream where you're standing in a roomful of people in your underwear? Multiply the feeling of exposure a few thousandfold, and you'll have some idea what it's like to have your thoughts bared.



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Don Tennant



PIMM FOX

E-mail Has The Power To Destroy

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communications? It should, of course, because records of illegal actions, whether made in e-mail, documents or voice mail, have the power to cause enough havoc to bring down a company or, at the very least, ruin a career.

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You could say that the illegal use of e-mail is much more widespread than those high-profile cases indicate, though. For example, how often have you had to delete e-mail from someone in Nigeria trying to elicit your help (and get some of your cash) in some scheme to get money out of the country?

You can't prevent people from using e-mail to encourage illegal acts, engage in backbiting or express prejudicial thoughts. But you can make it clear that your company's policy states that nothing in e-mail is private and that everything is subject to oversight. Such policies should serve as a warning to potential white-collar criminals.

You have to think of e-mail as a broadcasting medium that could reveal all parts of your organization.

So if you have something to hide, don't put it in an e-mail. Better yet, don't have anything to hide. **50190**

DAVID MOSCHELLA

IT's Day in Political Sun Will Return

WHATEVER YOUR political views, the last presidential election cycle must seem like it was from a long-lost era. Remember how Al Gore would rhapsodize about the glories of the coming "information superhighway" and then josh about whether he had invented the Internet? Then there was all that half-facetious talk about a "Gore and Doerr" ticket, as in John Doerr, the venture capital superstar from Silicon Valley. The Gore vs. Bush race was often portrayed as one between the spaceman of the digital future and the cowboy from the oil-driven past.



Of course, by November 2000, the smart money already knew that the dot-com bubble had been pricked some six months earlier. But the media and most of the electorate had not yet caught on, and thus companies such as WorldCom, Enron and many of the dot-com highfliers were still seen as the harbingers of a bright new American future, and the endorsements and donations of leading high-tech CEOs were considered important coups, even newsworthy events.

Back then, we were all supposed to worry about how to close the growing digital divide. Many thought that government action was needed to ensure that Internet access was a fixture in every classroom and available in every home and that rural residents weren't left behind by greedy broadband providers. We obsessed about the coming high-tech skills shortage and what the labor force of the 21st century should look like. The role of telephone, cable and wireless telecommunications providers was viewed as a top policy area.

Let's just say that things are very different today. This year's race pits two lawyers against two oil men, not one of whom has ever shown any real interest in the IT industry, its promise, its challenges or its future. The only time the IT industry has been part of the current campaign is when the topic of offshore outsourcing has come up. The quality of that discussion hasn't been inspiring, and it has mercifully faded during the campaign's final stages.

While it's normal for many issues to get knocked off the front page during times of war, the IT industry's lost eminence is particularly striking. Consider how many other topics now clearly resonate more deeply with the broad electorate — health care, gas prices, global warming, gay marriage, tax policy, even stem-cell research. These days, not even the governor of California goes out of his way to be associated with IT industry concerns.

Just as the IT business has always been characterized by periods of boom and bust, so have the public's perceptions of our business. Thus, it seems safe to say that while the nation's collective sense of the importance of IT went more than a bit insane during the bubble years, during this campaign it has perhaps swung a bit too low.

Will it ever fly high again? The answer is probably yes. Someday, when nanotechnology, biotechnology and RFID become more than just promises, investors, the media and the nation might once again swoon over the power of technology. If they do, the warm words of politicians and pundits will surely follow. 2008 is probably a bit too soon, but by 2012, it could all be very different once again. **50130**

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www.computerworld.com/columns

READERS' LETTERS

Municipal VoIP Was an Easy Decision

THE CITY OF HESPERIA, CALIF., just underwent a VoIP implementation ["VoIP Gaining Ground, Despite Cost Concerns," QuickLink 48828]. We installed Cisco's AVVID at city hall and all remote sites, including our fire and police departments. We were approved funding for this project because our lines were coming in on a Centrex phone system and our voice-mail system had reached the end of its life cycle. The new circuits were provided at lower cost than our data circuits, and we no longer have to pay the standard charge for each individual phone line and usage charges.

We have a little under 300 end users, and based on our initial cost analysis, our old monthly voice and data costs of $23,000 will be reduced to $16,000, a cost savings that has already been witnessed within the first month of service. The analysis also detailed a yearly cost, which includes monthly charges as well as equipment maintenance and repair costs. Our yearly costs for the old voice and data services were $353,000, whereas the new converged network will average $248,000. However, the benefits of this network create an avenue for far greater advantages than can be projected, such as response times for service calls, administration overhead, video teleconferencing capabilities and other emerging technologies.

We understand that VoIP is not mature, but it is the future of communications. And as our city continues to grow, we can expand our communications capabilities to meet our needs. For us, this was an easy decision to make.

Rick Ochoa
IS manager, City of Hesperia, rochoa@cityofhesperia.us

Don't Buy the Hype

WITH THE FRONT-PAGE headline that read "ERP System Doesn't Make Grade in Indiana" [QuickLink 49349], I guess *Computerworld* can join the likes of the *National Enquirer* and maybe even CBS News. The article said that less than 10% of all students eligible for financial aid at Indiana state universities will be delayed two to three weeks in getting funding after interface problems with lenders. How many SAP installations would have considered such delays a success? This story was better suited to page 14 than Page One.

Grady J. Abernathy
EDI developer, Burleson, Texas

What's News?

I KNOW HEADLINES can be difficult ["Ballmer Bullish on Future, Bearish on Linux," QuickLink 49199], but really – Ballmer bullish? Who'd have thought? And bearish on Linux? Now there's a change!

Eric Sandel
CEO, S.A. Engineering, Truckee, Calif.

Don't Forget Data On Leased Gear

ALL OF THE DISCUSSIONS I've seen about data left on old equipment fail to mention computers that are returned at the conclusion of a lease ["Old Computers: An IT Department Liability That's Costing More," QuickLink 49063]. And for the really paranoid, how about that PC you sent back for repair? When our CAD users' PCs (and servers) are replaced, the solution we prefer is quite simple – we fold the hard drives in half with a break press. Think about it: This data is on a system whose outdated hard drive is practically worthless on the used-equipment market.

Jim Porter
Programmer, The Raymond Corp., Greene, N.Y.

More letters, page 26

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

For more letters on these and other topics, go to
www.computerworld.com/letters

DON TENNANT

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WHATEVER YOUR political views, the last presidential election cycle must seem like it was from a long-lost era. Remember how Al Gore would rhapsodize about the glories of the coming "information superhighway" and then josh about whether he had invented the Internet? Then there was all that half-facetious talk about a "Gore and Doerr" ticket, as in John Doerr, the venture capital superstar from Silicon Valley. The Gore vs. Bush race was often portrayed as one between the spaceman of the digital future and the cowboy from the oil-driven past.



DAVID MOSCHELLA is global research director at CSC Research and Advisory Services, a Computer Sciences Corp. company. Contact him at [redacted]

Of course, by November 2000, the smart money already knew that the dot-com bubble had been pricked some six months earlier. But the media and most of the electorate had not yet caught on, and thus companies such as WorldCom, Enron and many of the dot-com highfliers were still seen as the harbingers of a bright new American future, and the endorsements and donations of leading high-tech CEOs were considered important coups, even newsworthy events.

Back then, we were all supposed to worry about how to close the growing digital divide. Many thought that government action was needed to ensure that Internet access was a fixture in every classroom and available in every home and that rural residents weren't left behind by greedy broadband providers. We obsessed about the coming high-tech skills shortage and what the labor force of the 21st century should look like. The role of telephone, cable and wireless telecommunications providers was viewed as a top policy area.

Let's just say that things are very different today. This year's race pits two lawyers against two oil men, not one of whom has ever shown any real interest in the IT industry, its promise, its challenges or its future. The only time the IT industry has been part of the current campaign is when the topic of offshore outsourcing has come up. The quality of that discussion hasn't been inspiring, and it has mercifully faded during the campaign's final stages.

While it's normal for many issues to get knocked off the front page during times of war, the IT industry's lost eminence is particularly striking. Consider how many other topics now clearly resonate more deeply with the broad electorate — health care, gas prices, global warming, gay marriage, tax policy, even stem-cell research. These days, not even the governor of California goes out of his way to be associated with IT industry concerns.

Just as the IT business has always been characterized by periods of boom and bust, so have the public's perceptions of our business. Thus, it seems safe to say that while the nation's collective sense of the importance of IT went more than a bit insane during the bubble years, during this campaign it has perhaps swung a bit too low.

Will it ever fly high again? The answer is probably yes. Someday, when nanotechnology, biotechnology and RFID become more than just promises, investors, the media and the nation might once again swoon over the power of technology. If they do, the warm words of politicians and pundits will surely follow. 2008 is probably a bit too soon, but by 2012, it could all be very different once again. **50130**

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More columnists and links to archives of previous columns are on our Web site: **www.computerworld.com/columns**

READERS' LETTERS

Municipal VoIP Was an Easy Decision

THE CITY OF HESPERIA, CALIF., just underwent a VoIP implementation ["VoIP Gaining Ground, Despite Cost Concerns," QuickLink 48828]. We installed Cisco's AVVID at city hall and all remote sites, including our fire and police departments. We were approved funding for this project because our lines were coming in on a Centrex phone system and our voice-mail system had reached the end of its life cycle. The new circuits were provided at lower cost than our data circuits, and we no longer have to pay the standard charge for each individual phone line and usage charges.

We have a little under 300 end users, and based on our initial cost analysis, our old monthly voice and data costs of $23,000 will be reduced to $16,000, a cost savings that has already been witnessed within the first month of service. The analysis also detailed a yearly cost, which includes monthly charges as well as equipment maintenance and repair costs. Our yearly costs for the old voice and data services were $353,000, whereas the new converged network will average $248,000. However, the benefits of this network create an avenue for far greater advantages than can be projected, such as response times for service calls, administration overhead, video teleconferencing capabilities and other emerging technologies.

We understand that VoIP is not mature, but it is the future of communications. And as our city continues to grow, we can expand our communications capabilities to meet our needs. For us, this was an easy decision to make.

Rick Ochoa
IS manager, City of Hesperia, rochoa@cityofhesperia.us

Don't Buy the Hype

WITH THE FRONT-PAGE headline that read "ERP System Doesn't Make Grade in Indiana" [QuickLink 49349], I guess *Computerworld* can join the likes of the *National Enquirer* and maybe even CBS News. The article said that less than 10% of all students eligible for financial aid at Indiana state universities will be delayed two to three weeks in getting funding after interface problems with lenders. How many SAP installations would have considered such delays a success? This story was better suited to page 14 than Page One.

Grady J. Abernathy
EDI developer, Burleson, Texas

What's News?

I KNOW HEADLINES can be difficult ["Ballmer Bullish on Future, Bearish on Linux," QuickLink 49199], but really – Ballmer bullish? Who'd have thought? And bearish on Linux? Now there's a change!

Eric Sandal
CEO, S.A. Engineering, Truckee, Calif.

Don't Forget Data On Leased Gear

ALL OF THE DISCUSSIONS I've seen about data left on old equipment fail to mention computers that are returned at the conclusion of a lease ["Old Computers: An IT Department Liability That's Costing More," QuickLink 49063]. And for the really paranoid, how about that PC you sent back for repair? When our CAD users' PCs (and servers) are replaced, the solution we prefer is quite simple – we fold the hard drives in half with a break press. Think about it: This data is on a system whose outdated hard drive is practically worthless on the used-equipment market.

Jim Porter
Programmer, The Raymond Corp., Greene, N.Y.

More letters, page 26

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail letters@computerworld.com. Include an address and phone number for immediate verification.

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READERS' LETTERS

DON TENNANT

Handicapped Thinki

THREE WEEKS AGO in this space, I mentioned that I had a signed copy of Bill Gates' book *Business @ the Speed of Thought*, and I said I'd auction it off to raise money for The ALS Association. The winning bid was an even $100, and it came from Steve Jenkins of the M.D. Anderson Cancer Center



n Houston. I know ...ove's generosity is greatly appreciated by ... association, which is dedicated to finding a ...re for ALS, also known ... Lou Gehrig's disease, ...nd by my dad, who is ...ne of its victims.

In that same column, I ...ffered to the proclivity of "Linux loonies" to re...ward anyone who makes ...tical comment about ... with a barrage of hate mail. ... was speaking from experi... I wrote a ... in which I ... copy is signed by Gates, I'll bid a whole dollar." And, he continued, "Seriously, why don't you auction off a boxed Linux [distribution] like Mandrake or SUSE (the ... expensive you can ... at the same time ... do, I'll start the b... at $100."

That theme ... echoed by ... sponden... ering how many th... deal with Billy's ... on, clueless tech... screens of death ... broken ... I'm ... front-end innovation is something all leaders in software technology settings should ponder.

Information technologists need to rethink their approach to software engineering and open their minds to how openness can promote improvement in the qualitative and functional capabilities of internal systems and software products, thereby leading to real bottom-line advantages.

We can debate the place and the future of open-source initiatives on a technology-by-technology basis. However, I believe unequivocal success has been achieved by the open-source community in its pioneering of techniques that have produced amazing quality and functional success with small, multilingual teams dispersed throughout the world and operating with extraordinarily lean budgets.

Everything accomplished by the open-source community tends to contradict mainstream thought about how to build systems. Yet the violation of orthodoxies hasn't caused the sky to fall on the open-source effort or those who embrace open-source to meet real business challenges.

There's a story there that needs to be told and, more importantly, understood.

Mike Corns
Vice president, products and services, Lexpar Corp., Staunton, Va., mike_corns@lexpar.com

Linux Skeptics And Defenders Have Their Say

DON TENNANT'S COMMENTARY regarding the Linux community's "Handicapped Thinking" [QuickLink 49904] is a valid observation of a segment of that world. I respectfully take exception, however, to the notion that such zealotry is unique. I have read similar flame mail from Windows enthusiasts. I suspect it speaks more to the bombastic style of "conversing" that's unfortunately commonplace in the general culture.

Having cut my teeth on proprietary software development and having managed large software product development efforts before expanding my range to include Linux, I can tell you two things about the Linux community.

First, the engineering discipline of the folks who do foundation work like the Linux kernel and Apache is remarkable and worth study by all software project leaders. As technology projects get larger, more complex and more geographically dispersed, the skills, technology and processes used by the most successful of Linux/open-source providers are highly instructive.

Second, the careful blending of strong configuration management at the back end of the process with an inviting culture for unencumbered operating system is going to have its pros and cons. The more we are ready to take a steady, mature look at our computing tools, the better likelihood that all of them will improve. We can then let the market – and not our proselytizing – decide which systems will prevail.

Kent Manley
Fairfax, Va.

I AM VERY FAMILIAR with both Linux and Windows, and many of the criticisms and complaints people have about Microsoft have their analogues in Linux. At this stage of the game, either

LINUX HAS ITS PLACE. Windows has its place. Unix has its place. But hate e-mail has no rightful place. Keep telling it like it is, and I'll keep reading.

Robert Deck
Electrical engineer, Naperville, Ill., bobdeck@ieee.org

THE OVERALL FEELING of the article impresses me as a charge that Linux evangelists are wackos hurting the adoption of their favorite operating system. But then I see that Tennant calls Linux "the operating system of choice for a growing number of Fortune 500 companies that are using it to run critical, enterprisewide applications," which is a pretty nice compliment. And from his description of his earlier articles, I draw the conclusion that Tennant has a tendency to try to get a rise out of Linux enthusiasts. So I'm not surprised that he gets quite a bit of e-mail from aggravated Linux enthusiasts. Because I have the impression that he enjoys hateful e-mail from Linux enthusiasts, I'll give him some: Mr. Tennant, you're a "&$"%$&v "%&%"& %& %&%!

Steve Litt
Owner, Troubleshooters.com, Orlando, slitt@troubleshooters.com

ONE OF THE FIRST THINGS I tell my Windows students is, "Microsoft is a company; Windows is a product. Neither is a religion." Many of those students are then surprised to hear me repeat the mantra in Unix topic courses: "Unix is just an operating system, not a religion." We must learn to use the right tool for the right job at the right time. Thanks for helping to drive home the point to my current crop of future IT workers!

Dan McAllister
President, IT4SOHO LLC, Clearwater, Fla., dan@it4soho.com

WHY ARE THERE Linux zealots? With free/open-source software (F/OSS), it's possible, and I dare say easy, to become part of almost any active project. All it takes is a lot of time and a little dedication. Find a project, subscribe to the developer's mailing list, become part of the conversation, and on occasion, your suggestions may become part of the product. That sense of belonging allows those who are predisposed to zealotry to take negative F/OSS comments personally.

Contributing to this, many people became part of the community after losing important data to a Microsoft Word bug or having to deal with a spyware-riddled system. Most folks blame Microsoft for these issues, and Microsoft makes it easy to do so. So you are hearing from an active group of people, disillusioned by Microsoft, who take negative commentary personally.

I consider myself to have a more balanced view. I don't have as much time on my hands as the zealots, and it takes a little more cajoling to get me to come out and say something. I've been involved in F/OSS for 10 years and Linux for six. Never before have I seen such momentum. Several Linux vendors are coming forward with desktop-ready distributions that don't require in-depth Linux knowledge to install or use. Within the next couple of years, we will see more PCs ship with Linux preinstalled, more hardware vendors supporting Linux at the driver level, and more momentum on ease of use and (my gripe) interproject stability.

Having faced the wrath of those in F/OSS myself, I thank you for continuing to say things that are level-headed and balanced. If somebody were willing to pay me to spend my time writing columns, I would join you!

Gary Allen Vollink
Director, IT, CorVu North America Inc., Minneapolis, gav@corvu.com

I HAVE BEEN PROGRAMMING computers since 1970 and have been a mathematician for the past 27 years. In that time, I've seen operating systems come and go, and in the end, each has had its own strengths and weaknesses.

I started with an HP 2000B Time-Shared Basic computer and have also used TOPS-10 (on DECsystem 10s), DOS/360 (on IBM 360s), RSTS and RSX-11M (on PDP-11s), VMS (on VAXes), SCOPE and NOS (on CDC machines), COS (on Crays), OS/370 (on IBM 370s), SunOS, Solaris, BSD-Unix, Ultrix, Irix, VxWorks, CPM, MS-DOS, all Windows variants, Mac OS, Linux and OS X. Yet in all these years, I have never seen the kind of zealous intellectual bigotry that surrounds Linux.

Yes, Windows has many problems, and yes, Microsoft has engaged in what are at the least predatory business tactics. But this notion that anyone who doesn't march in lock step behind the penguin is somehow the satanic spawn of Bill Gates is utterly absurd.

I myself vastly prefer Linux to Windows, but that's only because I have some skill in Unix variants. I'd much rather use VMS than anything else, but that train left the station a long time ago, and they pulled up the tracks.

It borders on embarrassing to enter into discussions with vendors regarding Linux when their Linux experts almost exude a desire to convert someone to the "true religion." I wonder if it's a coincidence that Linux experts are always called "gurus"?

In any event, in another five or 10 years, I am sure I will be using yet another operating system, but the nice thing is that my C++, C and even my Fortran code will still compile, run and keep giving me the right answers. Yikes, I think I just stepped on the Java community's toes!

Daniel S. Rosen
Vice president of engineering, Burbank, Calif.

THANK YOU for the article. I am a staunch open-source software advocate, but I have to admit that when it comes to discussions about Linux being ready for the corporate desktop, Linux users may do more harm than good.

Michael Clark
IT systems analyst, Philadelphia, Miss.

I JUST READ Don Tennant's column on militant Linux supporters, and I couldn't agree more. As a Linux/Microsoft network administrator, I'm continually amazed at the amount of hate that pours forth whenever Microsoft is mentioned in a Slashdot forum. One instance stands out in my mind. Bill Gates had just donated $20 million to Carnegie Mellon University for a state-of-the-art computer building, to be named after him. Forum members were incensed. How dare he build a computer building when he's done nothing but wreck the industry! Does he think the world is so blind that we won't see this for the Microsoft promotion that it really is? The few moderates who tried to point out that Gates was donating about $20 million more than the whole forum put together were immediately and viciously toasted in a flame war.

Daniel M. Lahoff
Pittsburgh



64

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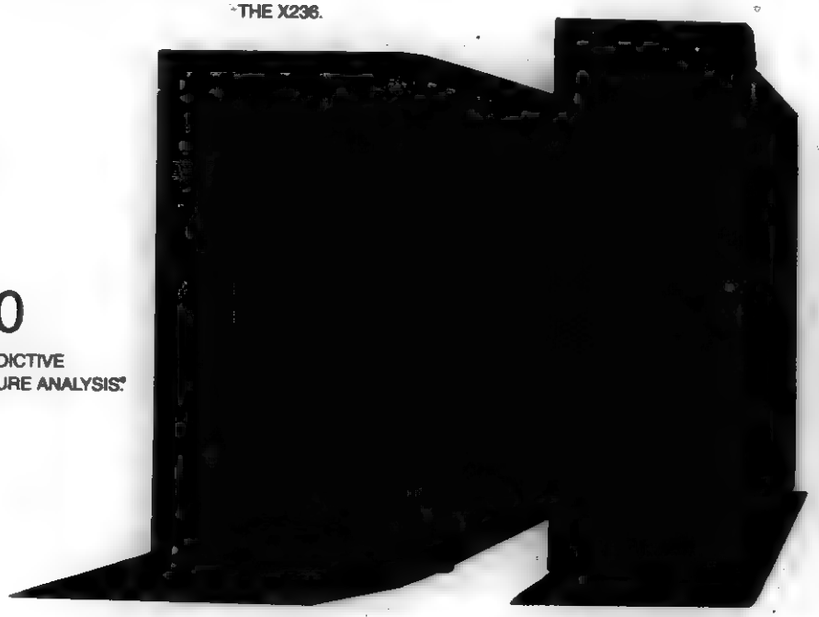
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Petabyte Prognostications
EDS futurist Jeff Wacker is working with new tools to handle the coming information explosion and to help mobile workers, "the orphans of the information revolution." **Page 42**

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CPUs Rev New Engines
Multicore CPU designs boost performance by putting two or more processing engines on a single chip. The processors should run cooler, faster and more efficiently. **Page 40**

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Sarb-Ox Project Following Script
Mathias Thurman and his colleagues have gotten over the hump in their effort to comply with the provisions of the Sarbanes-Oxley Act. **Page 44**

Exchange Makes Linux Call

BY PATRICK THIBODEAU

The Chicago Mercantile Exchange credits its migration to commodity Intel-based servers and Linux with cutting costs and shaving 100 milliseconds off the time required to complete a trade.



ANDY GOODWIN

Everything in the trading world is a matter of split seconds," says the Merc's Joseph Panfil

FIELD REPORT

IN A QUIET CORNER office of Chicago Mercantile Exchange Inc., high above the steady roar of shouting traders on the exchange floor, Joseph Panfil, director of distributed computing, is focused on the smallest increments of time.

There is a direct relationship between system performance and trading volume at the CME, also known as the Merc. By reducing the amount of time it takes to process a trade, trading volume can increase. The more trades there are, the more trading fees the exchange collects.

Time is the bottom-line metric of Panfil's world. "Everything in the trading world is a matter of split seconds," he says.

Panfil is part of a team implementing system changes that have so far reduced round-trip trading times from about 1,800 milliseconds in 1998 to 350 milliseconds today. Five trades can now be conducted in the time it used to take to complete one.

To cut times further and reduce IT costs, the CME is pursuing a major IT overhaul that involves a gradual adoption of the Linux operating system on Intel-based servers while moving off Sun Microsystems Inc.'s Solaris and Sparc hardware. The conversion began about a year ago and is now 30% complete.

Complex Architecture

The CME's architecture consists of three major technologies: Unix and Linux systems handle the input paths for orders and output paths for quotes. Hewlett-Packard Co. NonStop servers send out order confirmations and quotes. And IBM mainframes are responsible for "clearing," or processing, of all trades.

Traders still work shoulder to shoulder on the CME's floor, but

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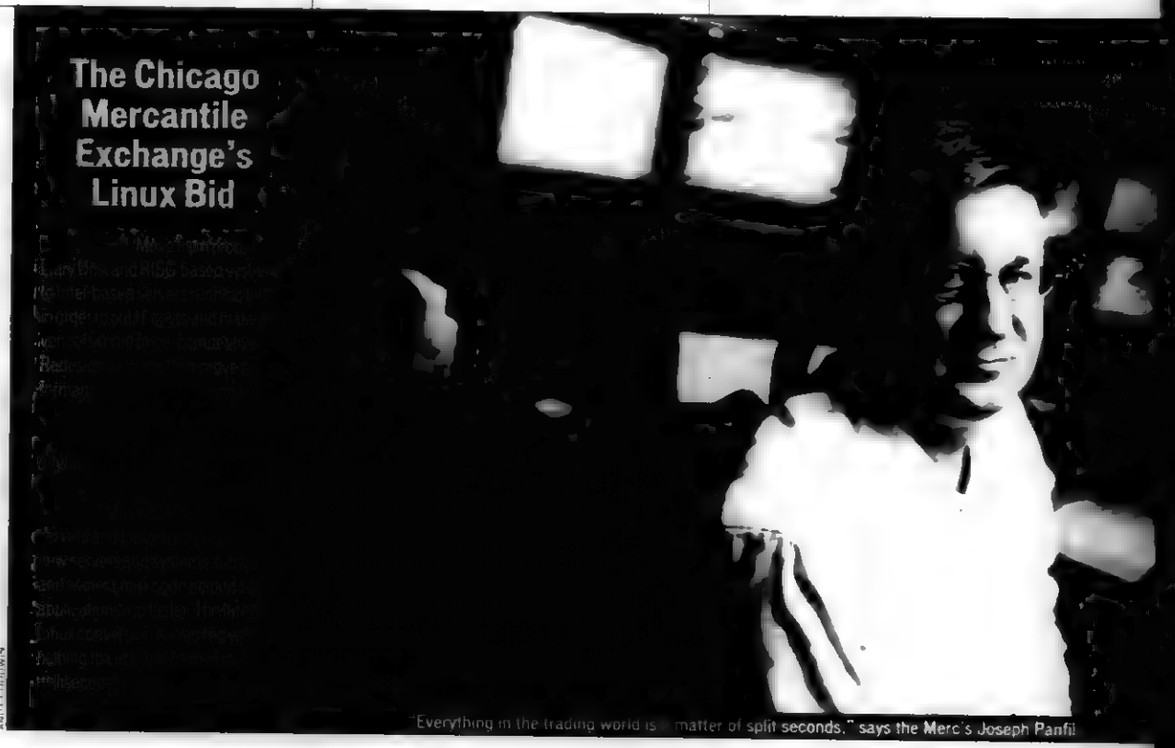
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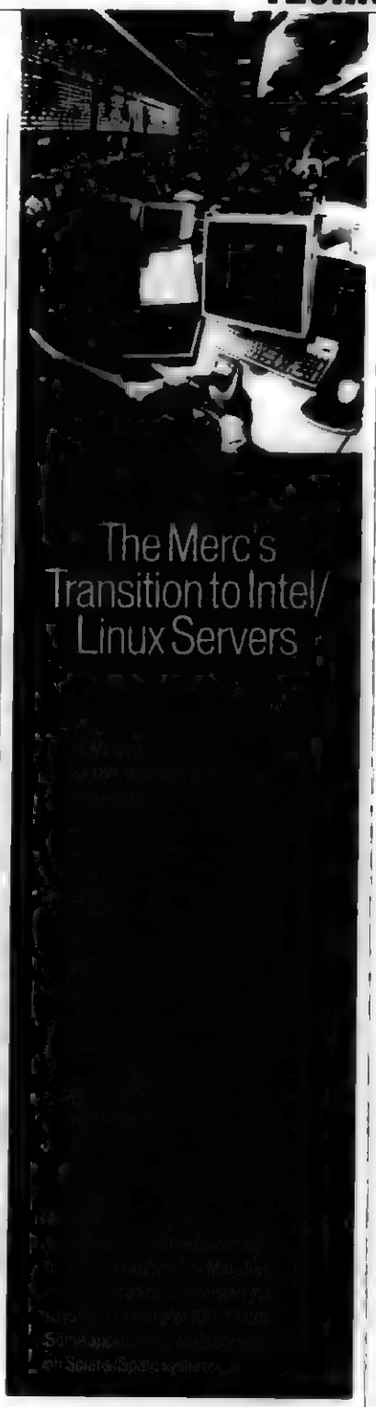
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since June, the majority of trades have been handled by the Merc's electronic trading system, Globex. The Merc began electronic trading in the early 1980s, using a third-party system to support after-hours trading. In 1998, it introduced its own system.

Customers want reliability and speed in electronic trading environments, says James Krause, the Merc's CIO. Balancing those two priorities means that the exchange, while interested in performance-improving technologies, isn't likely to be the first adopter of a new system. "Whatever we do, we have to make it work right and make sure it's fast," Krause says.

Trading times have been improved by making applications more responsive, upgrading server CPUs and undertaking architectural changes to reduce the number of hops in the path of a trade. For instance, the process previously used to include a disk write, but that has been moved out of the direct path of a trade.

The decision to use Linux and move to fast Intel Corp. chips also led to a reduction in trading time. The Merc credits its Linux deployment with cutting the time it takes to process a trade by about 100 milliseconds to the current 350 milliseconds. The goal is to reduce that to 100 milliseconds. Exchange officials say they believe that using faster Intel chips will bring them halfway toward that goal and that application optimization on the NonStop servers will take care of the rest.

But the Merc's interest in Linux was also sparked by a desire to save money. Leveraging competition among vendors of Intel-based commodity hardware is an important element of this strategy. "One of the things that we were trying to do with Linux is to be totally agnostic and not get tied into a vendor," says Panfil.

Even before the Merc deployed any Linux systems, it had already reduced some costs. "We started using that cost goal against Sun to get them to lower their price and be more competitive," Panfil says. In one case, Sun reduced the price for an $18,000 two-way UltraSparc server to less than $10,000. That reduction came "just by having that competitive threat," says Panfil. However, a comparable two-way Intel-based server cost just $3,000, he notes.

Preparing for Linux

The Merc had to address several issues before it could deploy Linux. Third-party software had to be approved to run on the operating system and tested for speed and stability. And the Merc's technical staff also needed training.

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Support Headaches

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Tiemann says that Red Hat's goal is to sell products upfront and that the important thing is that when the Merc had problems, they were solved. "Ultimately, Red Hat was able to dig into its technical knowledge and expertise . . . and help that customer get to the place that they wanted," he says.

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Whether electronic trading replaces noisy traders, or "open outcry," as it's called, remains to be seen, but the infrastructure changes will ensure that the Merc is ready. "If we weren't reliable and weren't as fast as our competitors, we wouldn't see the explosive growth that we have seen in the transition from an open-outcry environment to an electronic trading environment," says Krause. "Our future is electronic trading." 49789

since June, the majority of trades have been handled by the Merc's electronic trading system, Globex. The Merc began electronic trading in the early 1990s, using a third-party system to support after-hours trading. In 1998, it introduced its own system.

Customers want reliability and speed in electronic trading environments, says James Krause, the Merc's CIO. Balancing those two priorities means that the exchange, while interested in performance-improving technologies, isn't likely to be the first adopter of a new system. "Whatever we do, we have to make it work right and make sure it's fast," Krause says.

Trading times have been improved by making applications more responsive, upgrading server CPUs and undertaking architectural changes to reduce the number of hops in the path of a trade. For instance, the process previously used to include a disk write, but that has been moved out of the direct path of a trade.

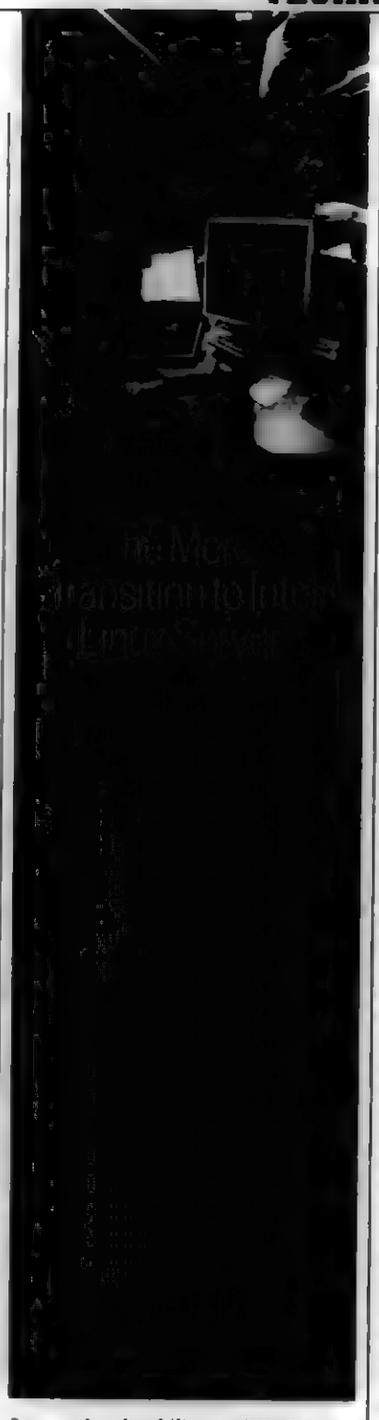
The decision to use Linux and move to fast Intel Corp. chips also led to a reduction in trading time. The Merc credits its Linux deployment with cutting the time it takes to process a trade by about 100 milliseconds to the current 350 milliseconds. The goal is to reduce that to 100 milliseconds. Exchange officials say they believe that using faster Intel chips will bring them halfway toward that goal and that application optimization on the NonStop servers will take care of the rest.

But the Merc's interest in Linux was also sparked by a desire to save money. Leveraging competition among vendors of Intel-based commodity hardware is an important element of this strategy. "One of the things that we were trying to do with Linux is to be totally agnostic and not get tied into a vendor," says Panfil.

Even before the Merc deployed any Linux systems, it had already reduced some costs. "We started using that cost goal against Sun to get them to lower their price and be more competitive," Panfil says. In one case, Sun reduced the price for an $18,000 two-way UltraSparc server to less than $10,000. That reduction came "just by having that competitive threat," says Panfil. However, a comparable two-way Intel-based server cost just $3,000, he notes.

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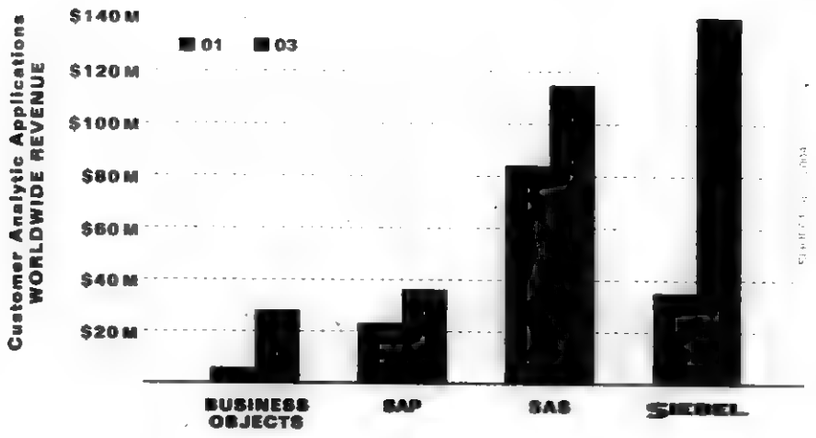
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CHECK

As a federal law paving the way for electronic check imaging goes into effect this week, banks are still putting technology in place to make it work. BY LUCAS MEARIAN

THIS WEEK, U.S. banks will reach the first mandated milestone on the way to what's arguably the biggest change in the way they process checks since the introduction of magnetic ink character recognition almost a half-century ago.

On Oct. 28, the Check Clearing for the 21st Century Act, or Check 21, will require that banks accept paper documents with check images and data related to transactions in lieu of original paper checks, which, once digitized, can then be destroyed.

The image replacement documents (IRD) will also allow banks to transmit check images electronically, eliminating the need to ship paper checks around the country for clearance and settlement.

The legislation doesn't force financial institutions to exchange IRDs electronically. However, most large banks are already well on their way to upgrading their front-end systems for electronic check-image capture and back-end processing systems in order to take advantage of the efficiencies that electronic IRD processing will create.

Check 21 was proposed to reduce paper handling, collection time, clearing expenses and fraud while improving fund availability and the collection of nonsufficient-fund items. But some institutions have raised concerns about the changes, primarily those related to the high cost of new systems and the increased potential for fraud. For example, IRDs lack security features that are available

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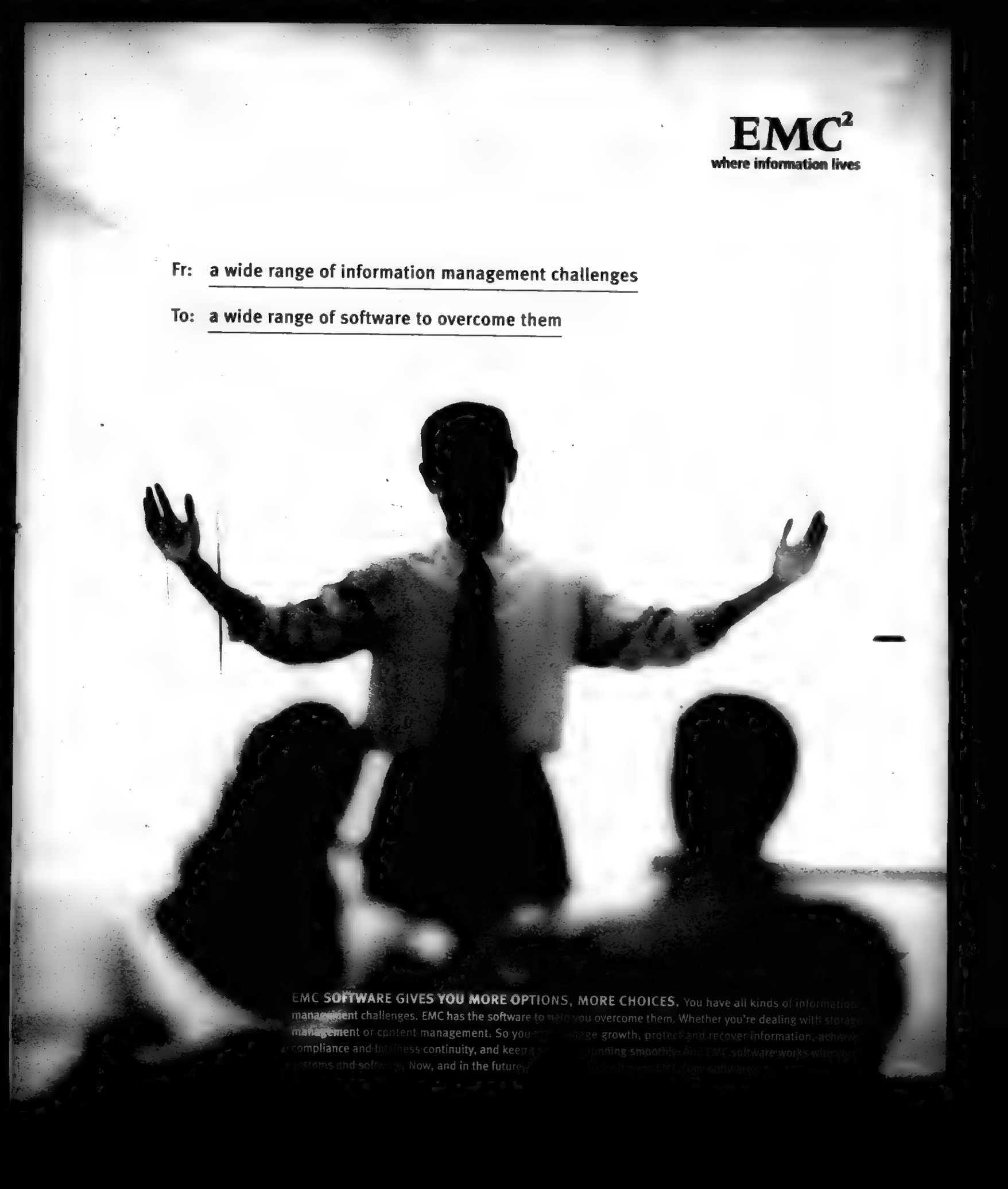


STEPHEN SHEFFIELD

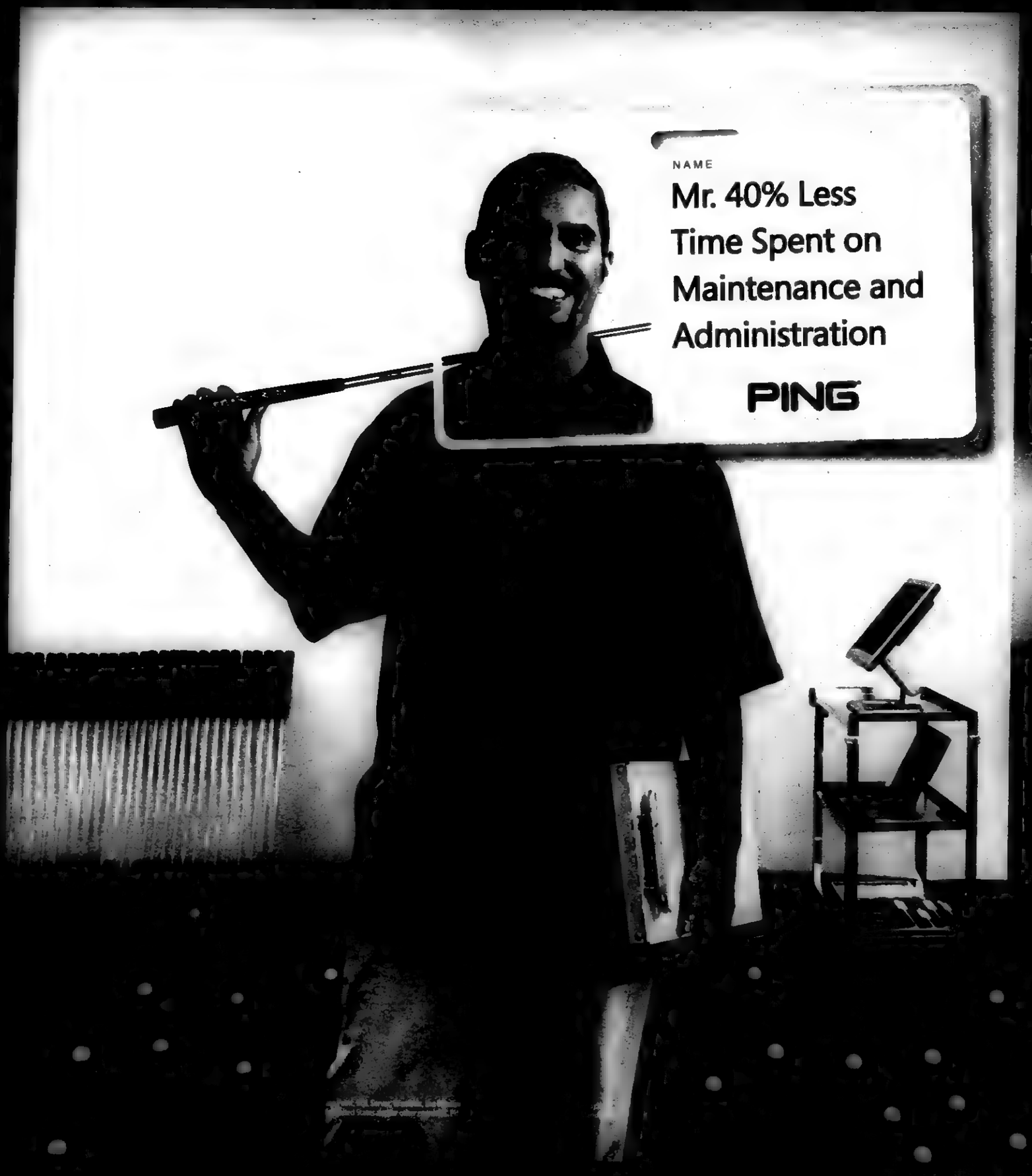
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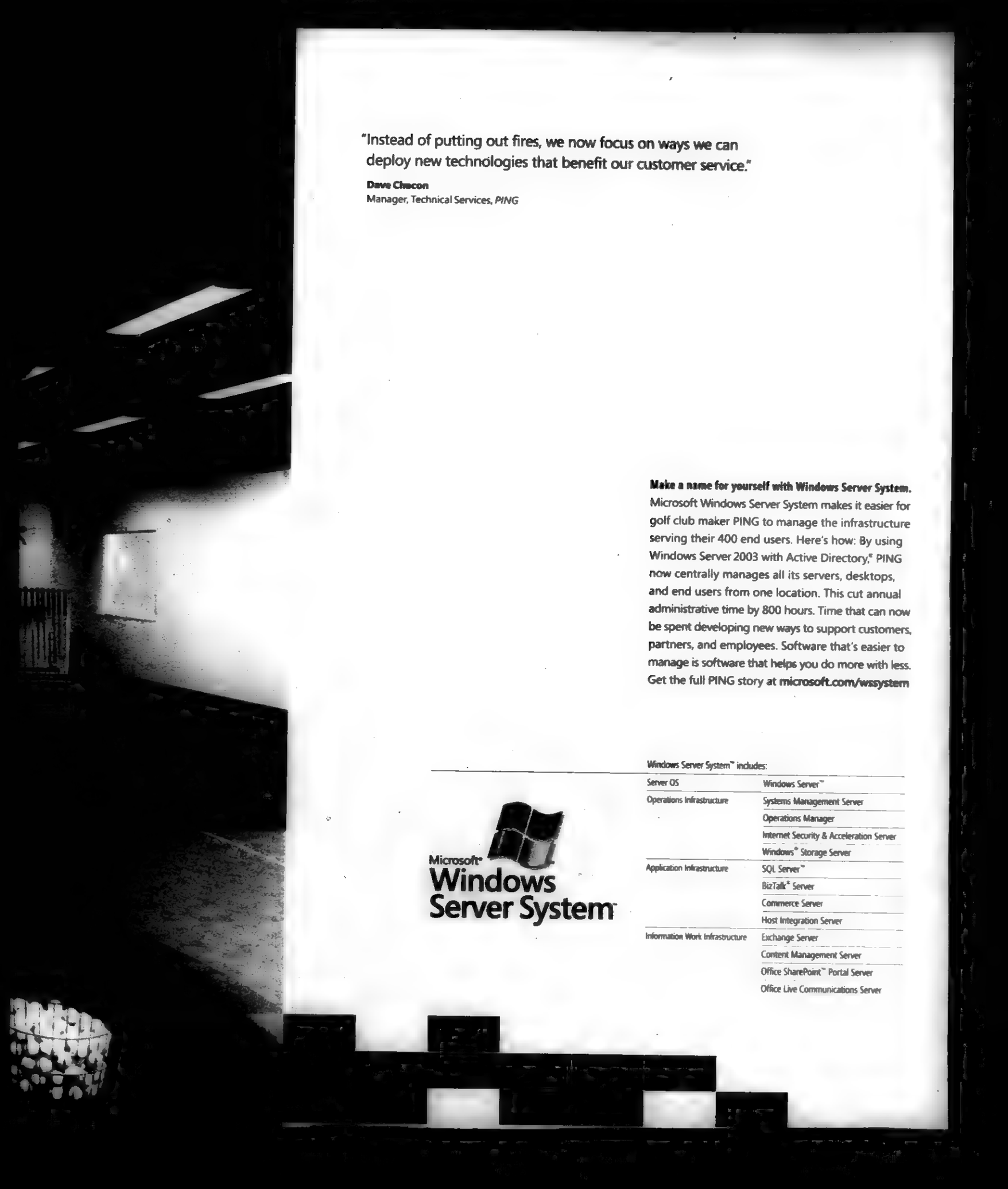
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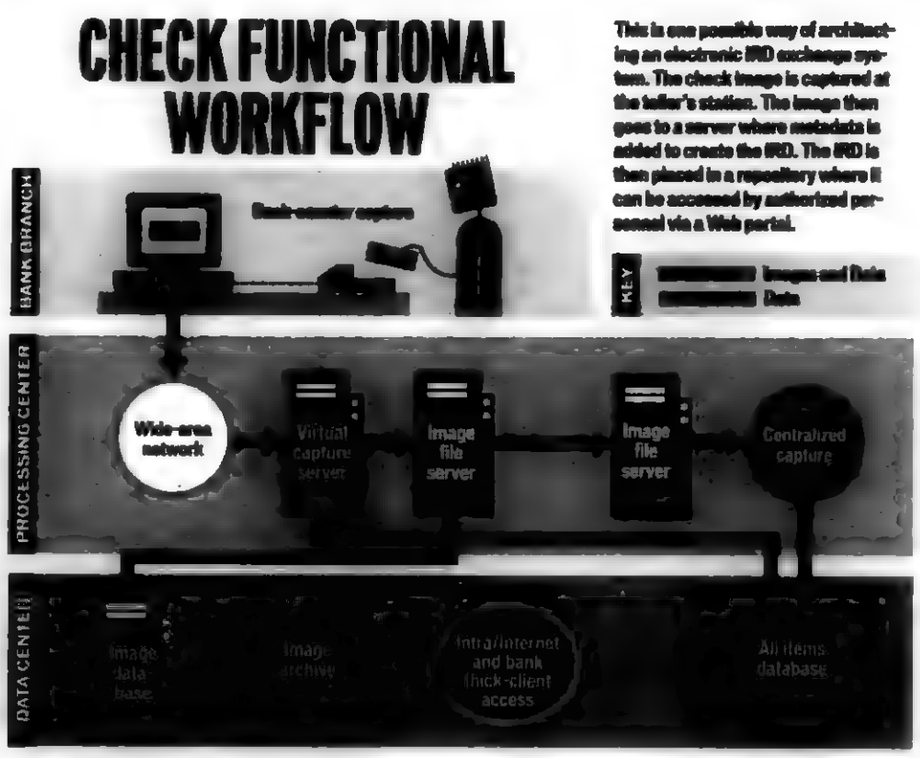
"Instead of putting out fires, we now focus on ways we can deploy new technologies that benefit our customer service."

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Information Work Infrastructure	Exchange Server
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But there's no need for companies to panic because of the impending deadline, say many in the industry involved in orchestrating the transition.

"There are a lot of people who are all gloom and doom about what's going to happen on Oct. 28, but this is an evolutionary process that has got to fit together many pieces," says John Feldman, an image transactions executive in the technology and operations group of Bank of America Corp. in Charlotte, N.C. "I believe it'll be years before the industry reaches image exchange volume."

Bank of America has made investments in check-scanning devices and imaging technology and is evaluating whether to roll out that technology in its branches, automated teller machines and regional check-processing centers, says Feldman.

Nuts and Bolts

Most of the nation's top 50 banks have made significant investments in imaging technology, experts say, but they have yet to purchase systems to send check images to other banks or integrate back-end systems that will process check images. Individual banks will likely spend anywhere from $5 million to upgrade imaging software to $100 million to rip out entire back-end processing systems.

Most back-end bank systems are still mainframe-centric. They are made up of a collection of computers and software that developed over time and in many cases never evolved to handle image exchange, experts say.

There's also a lot of legacy code that needs to be upgraded to make use of the new check images that will be available, says Ed Herman, director of the payments portfolio at Electronic Data Systems Corp.

"There's a collection of back-end systems that would have to be upgraded, integrated, replaced," Herman says. "Over the past 60 or 70 years, [banks have] fine-tuned their paper processing systems. All that is now going to have to change, or at least be integrated differently."

Ted Kute, senior vice president of item processing and treasury management operations at Huntington Bancshares Inc. in Columbus, Ohio, agrees. "There's still a fairly heavy investment in programs that allow banks to retrieve things out of an archive or to find an image of [a check] and develop an IRD file that would be sent out to customers or other banks," he says.

Huntington has already deployed scanners in its three regional processing centers and has its own archive, according to Kute. The bank still needs to purchase software for exchanging images with other banks and equipment for image quality verification and tracking, as well as software for managing image transaction archiving.

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Common Standards

Bank of America's Feldman says that banks are at different stages of preparedness for processing check images. He says there are four main technology and business standards areas where banks and check clearinghouses are still lagging. These include enabling image exchange on back-end systems, creating ubiquitous business standards for images, forging multilateral agreements with clearinghouses on exchange standards and devising image quality and usability standards.

"We know we've got to have these standards in place for wholesale or institutional image exchange to take place," says Feldman. "However, we honestly think as image exchange ramps up, we'll be able to leverage technology better than we ever could in the physical environment to do signature recognition [on paper checks]."

Along with J.P. Morgan Chase & Co. and IBM, Bank of America helped found Viewpointe Archive Services LLC, which maintains a database of check images. Bank of America is currently working with Viewpointe on check image quality standards for its ImageShare service, an archive for check imaging and retrieval. New York-based Viewpointe stores 22 billion check images per year.

According to the Banking Administration Institute in Chicago, in June, 42% of all member banks surveyed indicated that they would invest in shared archive applications; 40% said they were going to make additional investments in check imaging technology, such as scanners.

"Probably of all banks in the marketplace, 30% to 40% have already invested in imaging systems," says Peter Soraparu, a spokesman for the institute. Most of the technology for generating the image quality that will meet industry standards is already in place at check-processing organizations and large banks, says Frank Jaffe, project manager for the Financial Services Technology Consortium (FSTC). There will need to be updates for software to measure against standards adopted by the American National Standards Institute, he adds.

The FSTC has recently been working on standards for security features on checks and standards for check-image quality. In the area of quality standards, the consortium is looking at issues such as how many black specks, or how much "noise," an image may contain and still be considered an acceptable document, and whether a dog-eared check is acceptable as an image. These efforts are designed to minimize the risk of disputes.

"Phase 1 is to establish the basic measurements to be standardized, and Phase 2 is to test those against a large sample of images to make sure they're useful," Jaffe says.

Jim Lowe, a systems engineer at Plano, Texas-based EDS, which sells paper and electronic check ex-

change services, says banks must be prepared to create an electronic image file using a standard format so that it can be exchanged with another bank or clearinghouse. Currently, however, there are many formats.

"It's likely to come down to a handful of standards," Lowe says.

The top 22 banks in the country are all co-owners of the New York-based Small Value Payments Co., which is focusing on check-imaging technology and setting up a national network and switching center to manage the exchange of check images.

The Electronic Check Clearing House Organization, a Dallas-based, not-for-profit company that's owned by 24 banks, has created a set of rules that cover issues such as electronic check presentment, returned checks and guarantees between banks when exchanging images. Small Value Payments has licensed the rules for use by its customers. But not all banks have signed onto joint image-exchange ventures.

In-house Expenses

While Check 21 will bring immediate benefits, financial institutions also face some expenses preparing for it. The cost of deploying check-imaging software to process checks for clearance and settlement can range from $4 million to $6 million for a large bank, according to Viewpointe.

Feldman declines to discuss costs but says Bank of America continues to buy more direct-attached storage and tape archiving systems to handle check-image storage but is also migrating away from labor-intensive microfiche.

"Data storage is something we'll continue to add up until we are able to satisfy our retention requirement, which is seven years," Feldman says.



While Bank of America already has check-imaging systems that allow customers to view checks online, it doesn't yet have check clearing and settlement systems to process the more than 8 billion checks it handles each year. Feldman says the bank will be able to send IRD images from commercial clients by the fourth quarter, and it will be able to receive images by the end of the first quarter of 2005. "We've somewhat staged our Check 21 rollout," he says.

Like other banks, Bank of America must decide where to capture check images. This can be done at the teller counter, at the ATM or in processing centers. The bank is still investigating all three options.

"Then you always have the integration risk from the old to the new systems," Feldman says, meaning that banks will have to consider migrating data from legacy systems to new computers.

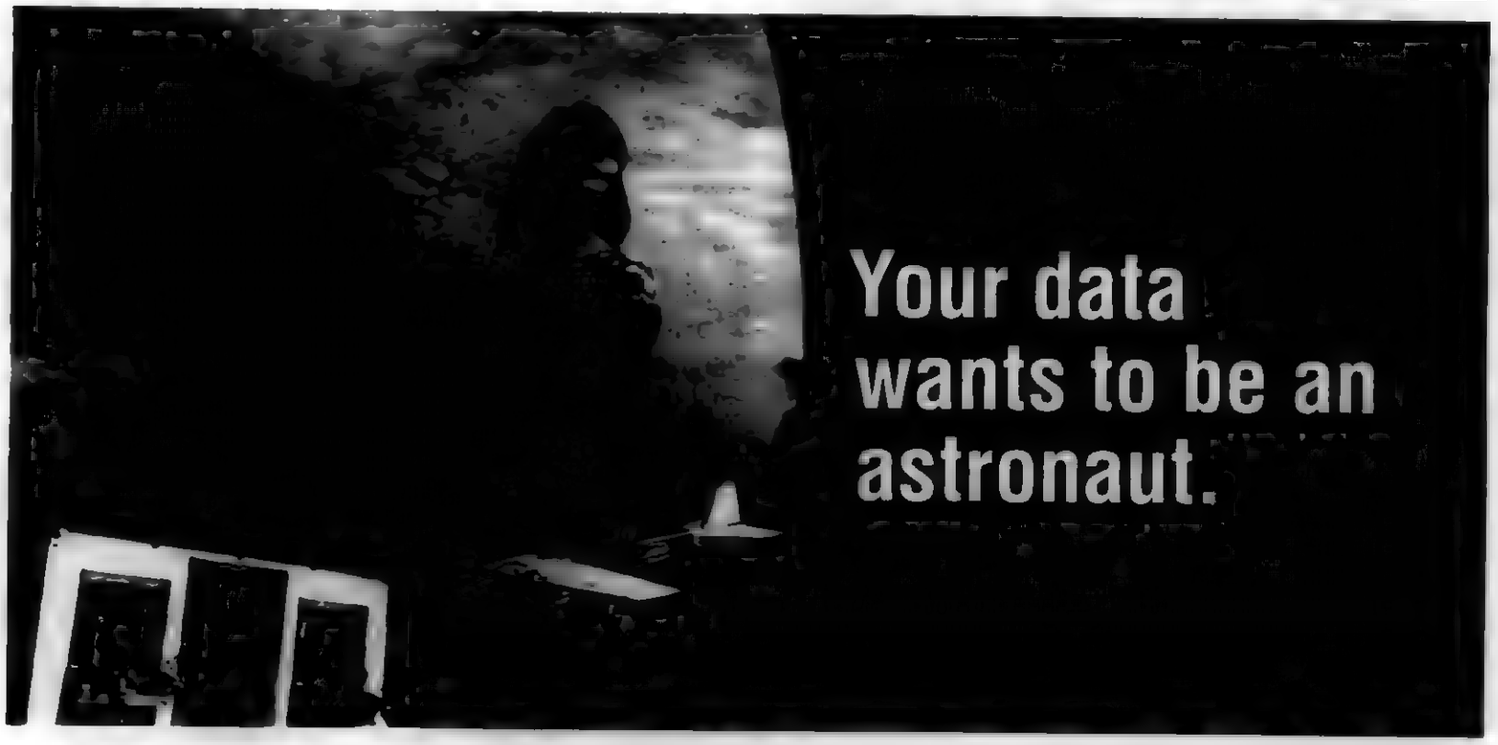
Soraparu says that while there may be some short-term expenses associated with Check 21, the efficiencies will increase over time.

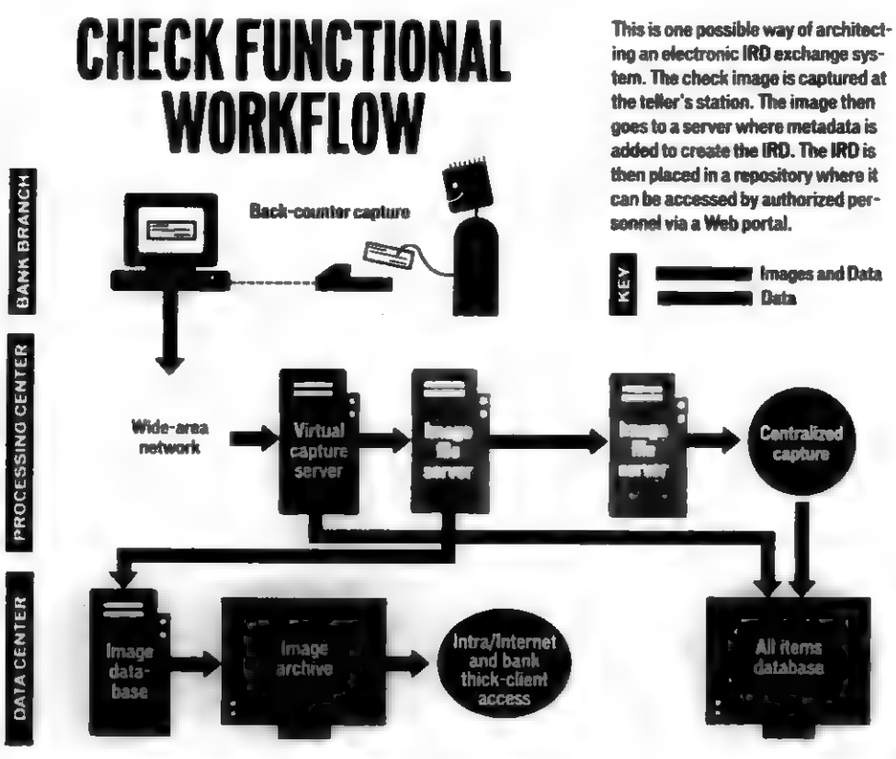
"Larger banks thought the immediate impacts would be minimal," says Soraparu. "While there would be infrastructure expense in the short term, the efficiency benefits would kick in over time."

Kute says Huntington Bancshares has been doing check imaging for its customers for the past eight years, but it isn't yet prepared to do image exchange with other banks. "We're doing the coding and making the changes in our systems that are required to be able to handle this new document being presented on Oct. 28," he says. "We're also making decisions on how we'll present that image to our customers in the form of online banking and in their statements."

Until the entire banking industry embraces electronic IRD exchange, back offices will have to continue to process both paper checks and images, which incurs additional cost.

"You read some articles saying Check 21 is the biggest nonevent since Y2k, and you read others saying we're going to save $2 billion a year. Both are accurate statements: One is accurate on Oct. 28, and the other is accurate for three to five years down the road," Feldman says. "This is going to be something that ramps up over time. The key is that this isn't a conversion; it's a migration. The key is getting industry adoption to be widespread." **40836**





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According to the Banking Administration Institute in Chicago, in June, 42% of all member banks surveyed indicated that they would invest in shared archive applications; 40% said they were going to make additional investments in check imaging technology, such as scanners.

"Probably of all banks in the marketplace, 30% to 40% have already invested in imaging systems," says Peter Soraparu, a spokesman for the institute. Most of the technology for generating the image quality that will meet industry standards is already in place at check-processing organizations and large banks, says Frank Jaffe, project manager for the Financial Services Technology Consortium (FSTC). There will need to be updates for software to measure against standards adopted by the American National Standards Institute, he adds.

The FSTC has recently been working on standards for security features on checks and standards for check-image quality. In the area of quality standards, the consortium is looking at issues such as how many black specks, or how much "noise," an image may contain and still be considered an acceptable document, and whether a dog-eared check is acceptable as an image. These efforts are designed to minimize the risk of disputes.

"Phase 1 is to establish the basic measurements to be standardized, and Phase 2 is to test those against a large sample of images to make sure they're useful," Jaffe says.

Jim Lowe, a systems engineer at Plano, Texas-based EDS, which sells paper and electronic check ex-

change services, says banks must be prepared to create an electronic image file using a standard format so that it can be exchanged with another bank or clearinghouse. Currently, however, there are many formats.

"It's likely to come down to a handful of standards," Lowe says.

The top 22 banks in the country are all co-owners of the New York-based Small Value Payments Co., which is focusing on check-imaging technology and setting up a national network and switching center to manage the exchange of check images.

The Electronic Check Clearing House Organization, a Dallas-based, not-for-profit company that's owned by 24 banks, has created a set of rules that cover issues such as electronic check presentment, returned checks and guarantees between banks when exchanging images. Small Value Payments has licensed the rules for use by its customers. But not all banks have signed onto joint image-exchange ventures.

In-house Expenses

While Check 21 will bring immediate benefits, financial institutions also face some expenses preparing for it. The cost of deploying check-imaging software to process checks for clearance and settlement can range from $4 million to $6 million for a large bank, according to Viewpointe.

Feldman declines to discuss costs but says Bank of America continues to buy more direct-attached storage and tape archiving systems to handle check-image storage but is also migrating away from labor-intensive microfiche.

"Data storage is something we'll continue to add up until we are able to satisfy our retention requirement, which is seven years," Feldman says.

The Great (POTENTIAL) Transformation

There's still a long way to go before most financial institutions are ready to process checks by exchanging images.

BEFORE CHECK 21

Processing a paper check involved transportation and capture at several locations.

Each step in the process added time and increased fraud risk.

The entire process typically took two to three days.

THE PROMISE OF CHECK 21

When the automated, electronic system becomes a reality, a receiving bank can scan a check once and use that image to complete the clearance process.

Banks can create secure database repositories in which the check images are stored.

Those images can then be accessed through secure, Web-based channels.

While Bank of America already has check-imaging systems that allow customers to view checks online, it doesn't yet have check clearing and settlement systems to process the more than 8 billion checks it handles each year. Feldman says the bank will be able to send IRD images from commercial clients by the fourth quarter, and it will be able to receive images by the end of the first quarter of 2005. "We've somewhat staged our Check 21 rollout," he says.

Like other banks, Bank of America must decide where to capture check images. This can be done at the teller counter, at the ATM or in processing centers. The bank is still investigating all three options.

"Then you always have the integration risk from the old to the new systems," Feldman says, meaning that banks will have to consider migrating data from legacy systems to new computers.

Soraparu says that while there may be some short-term expenses associated with Check 21, the efficiencies will increase over time.

"Larger banks thought the immediate impacts would be minimal," says Soraparu. "While there would be infrastructure expense in the short term, the efficiency benefits would kick in over time."

Kute says Huntington Bancshares has been doing check imaging for its customers for the past eight years, but it isn't yet prepared to do image exchange with other banks. "We're doing the coding and making the changes in our systems that are required to be able to handle this new document being presented on Oct. 28," he says. "We're also making decisions on how we'll present that image to our customers in the form of online banking and in their statements."

Until the entire banking industry embraces electronic IRD exchange, back offices will have to continue to process both paper checks and images, which incurs additional cost.

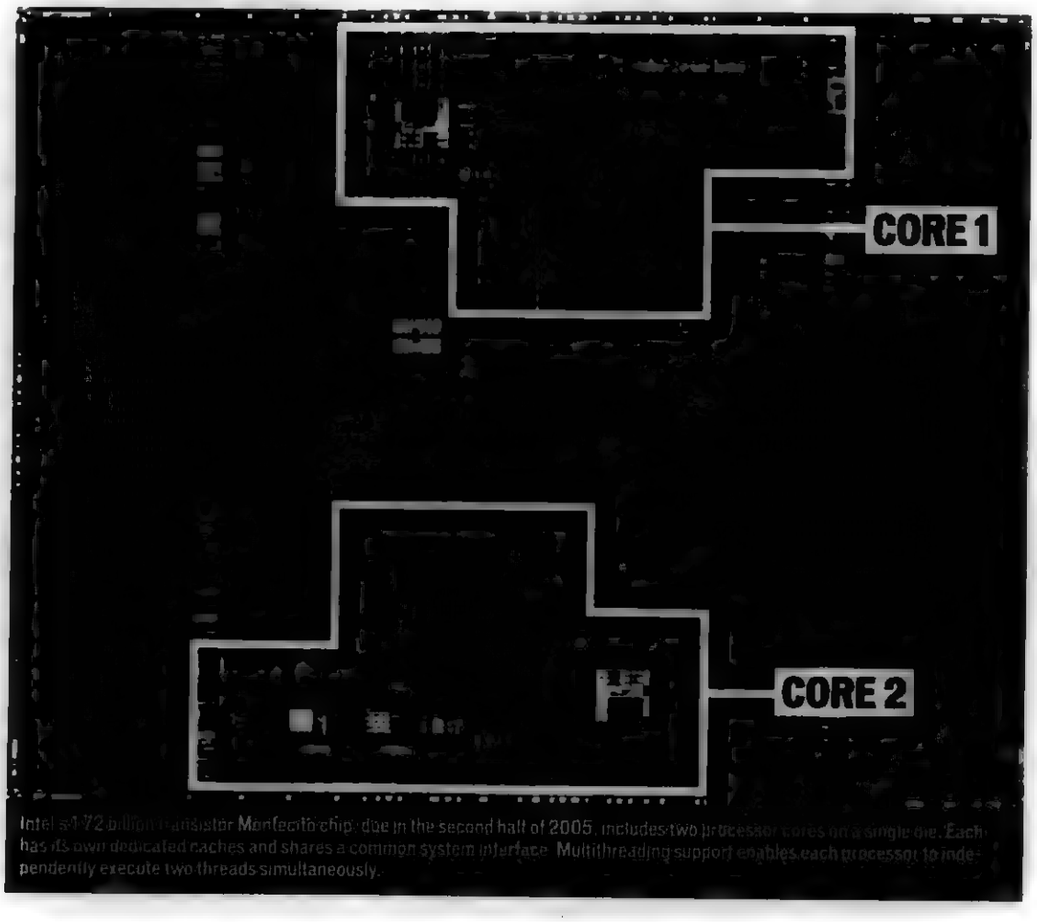
"You read some articles saying Check 21 is the biggest nonevent since Y2k, and you read others saying we're going to save $2 billion a year. Both are accurate statements: One is accurate on Oct. 28, and the other is accurate for three to five years down the road," Feldman says. "This is going to be something that ramps up over time. The key is that this isn't a conversion; it's a migration. The key is getting industry adoption to be widespread." 49836



CPUs Rev New Engines

OUTLOOK: Emerging dual-core CPU designs boost performance by putting two or more processing engines on a single chip. The processors should run cooler, faster and more efficiently. But per-processor licensing fees may boost costs. **By Gary H. Anthes**

EMERGING TECHNOLOGIES



Intel's 1.72-billion-transistor Montecito chip, due in the second half of 2005, includes two processor cores on a single die. Each has its own dedicated caches and shares a common system interface. Multithreading support enables each processor to independently execute two threads simultaneously.

IN 1969, INTEL CORP. introduced its first microprocessor chip, the 4004. The 4-bit processor chugged along at a mere 104 KHz. In the 35 years since then, processor clock speeds — and performance — have doubled about every 18 months.

Today, however, it's becoming more difficult and expensive to boost the speed of processors while keeping them cool. Chip designers use many techniques to wring more throughput from a processor chip without increasing its clock rate. Those techniques include multithreading, instruction-branch prediction and clever uses of cache. But the most promising approach is to put more than one processing engine on a chip.

In 2001, IBM introduced the first mainstream "dual-core" chip, the Power4, for its IBM eServer pSeries and iSeries servers. Early this year, Sun Microsystems Inc. shipped its UltraSparc IV with two cores for its Sun Fire V series servers, and Hewlett-Packard Co. unveiled its own dual-core PA-RISC 8800 processor. Advanced Micro Devices Inc. responded last summer by demonstrating an x86-based, 64-bit, dual-core Opteron processor. Intel Corp. subsequently announced plans to ship its Itanium 2-based, dual-core Montecito CPU in 2005.

The chip makers say that within two years, most processor chips — from desktop systems on up — will have two or more processing units. The reasons for this are compelling. A dual-core chip might provide twice the performance of a single-core chip at a much lower cost than two single-core chips can. Communication between two processors is faster when they're on one chip, and cache sharing can make processing more efficient. Dual-core processors also use less space, consume less power and generate less heat than separate processors do.

Reality Check

Vendors claim that multicore chips are well suited for transaction processing and for database and scientific applications.

"It's probably fair to say that the realistic range is 40% to 80% faster," says Kevin Krewell, editor in chief of the "Microprocessor Report" newsletter and an analyst at In-Stat/MDR in San Jose. They're less effective on single-application machines and for applications whose instructions can't be broken into parallel streams, he adds.

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Vendors are working on designs that go beyond two cores, but they face a few challenges. First, at current semiconductor circuit sizes of 130 and 90 nanometers, putting more than two cores on a chip is difficult. But chips with four or more cores will become common as the industry moves to 65 nm technology.

Sun is already working on a multicore chip. The 90 nm Niagara chip, due in 2006, will support Solaris and hold eight cores. Niagara is intended to be "Web-facing, the first tier in the server room," where it might, for example, handle 32 user searches at once, says Marc Tremblay, a chief architect for processors at Sun.

Another problem with multicore chips is software, says Krewell. To use that many processors efficiently in one die, the operating system must perform a fair amount of work. "Windows XP scales reasonably well in four-way and eight-way systems, but it's not going to apply so well to 16- or 32-way systems," he says.

And even with dual-core processors, software licensing issues could trip up early adopters, says Krewell. Many vendors license software by the processor. Until now, each generation of CPU chips has increased processor clock speeds, often doubling performance without affecting software costs. If the next generation doubles performance by adding a second processor core, software licensing costs could double as well. (To see how Oracle and Microsoft have responded, see QuickLinks 50053 and 50178.)

As dual-core processor chips become the norm over the next two years, software vendors' attempts to charge per core could backfire, says Krewell. "Does it make open-source software, like MySQL, more attractive, and does it cause a shift in corporate buying to open-source packages that are much more flexibly priced?" he asks. That's a question users are likely to answer over the next 24 months.
49867

SOFTWARE WOES

Per-CPU license agreements could create unexpected costs for dual-core systems.

QuickLink 49885
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AT A GLANCE

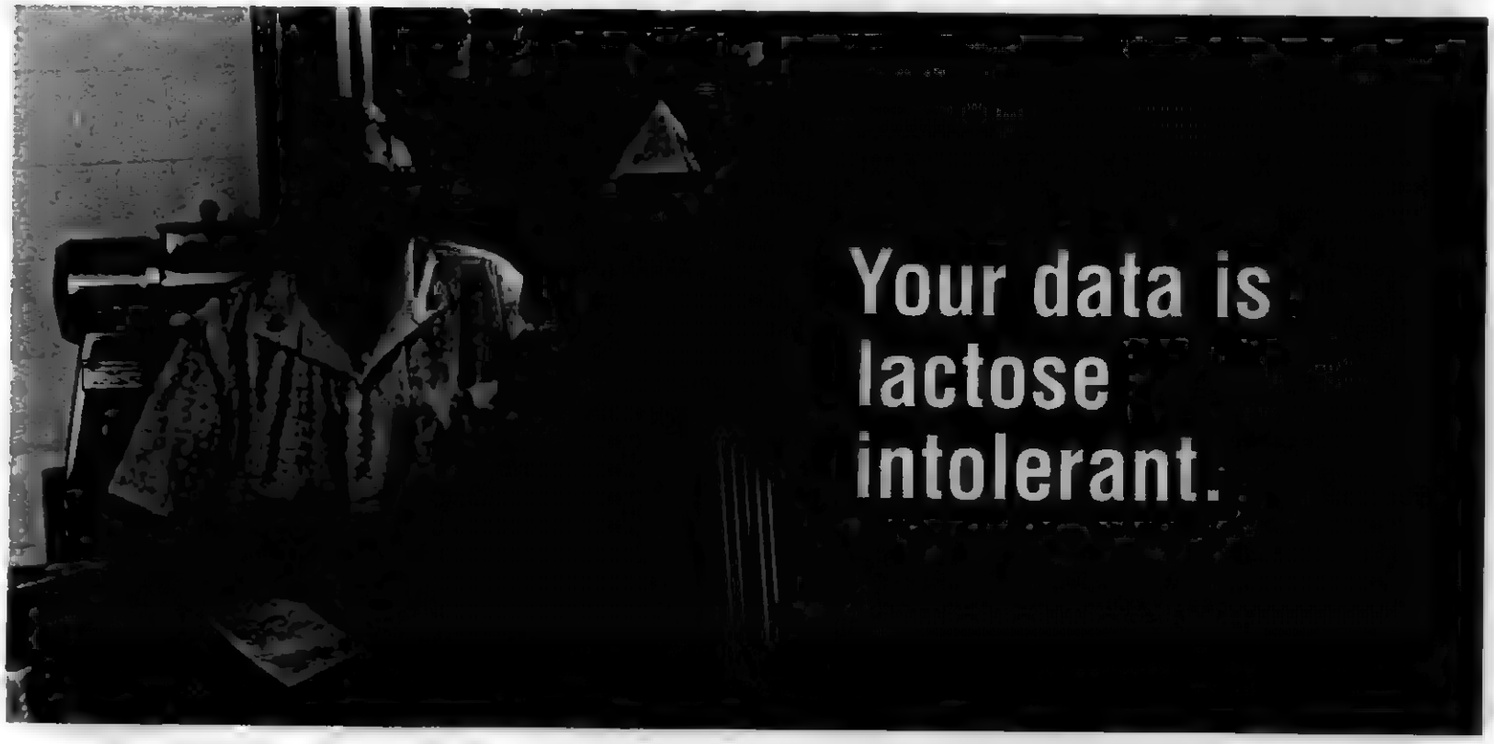
Multicore Processor Chips

Silicon chips with more than one processing unit, each often able to run multiple threads of instructions and each often having its own on-chip cache.

The chips offer the performance of multiple processors but cost less, take up less space and consume less power than multiple single-core designs.

Target applications include transaction processing, and database and scientific applications.

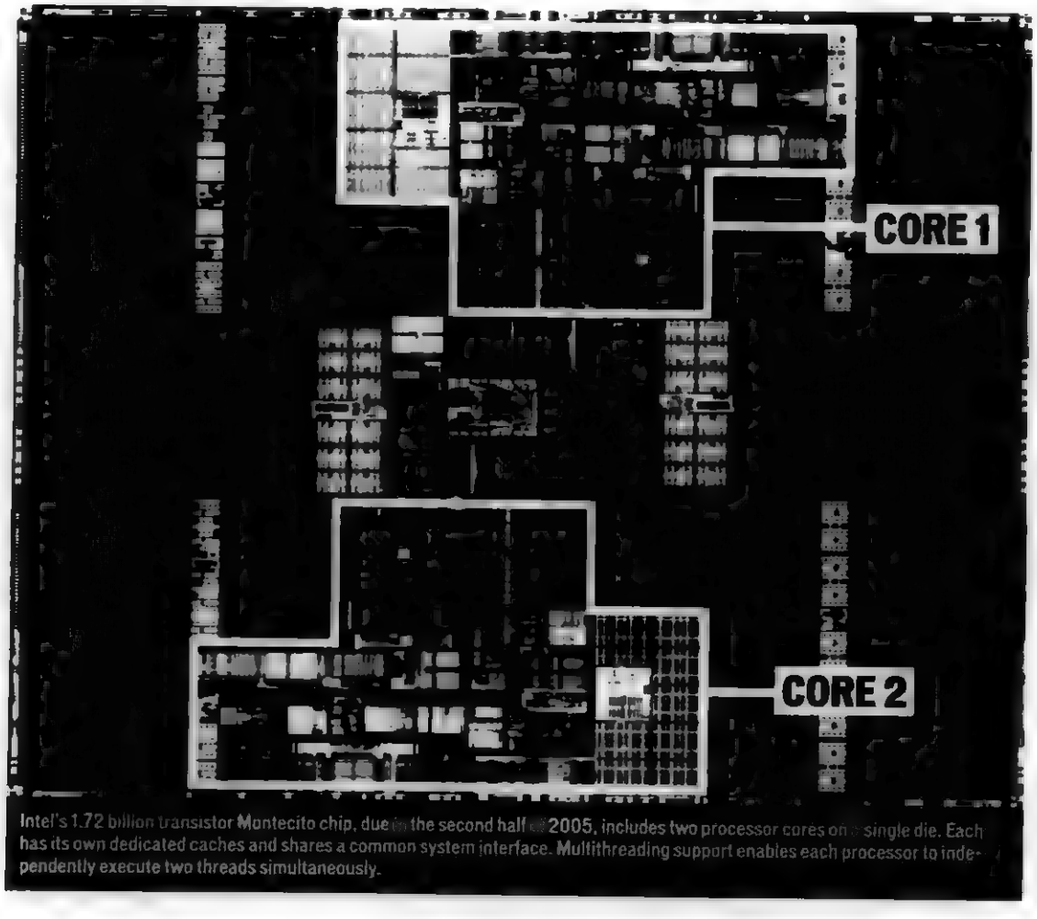
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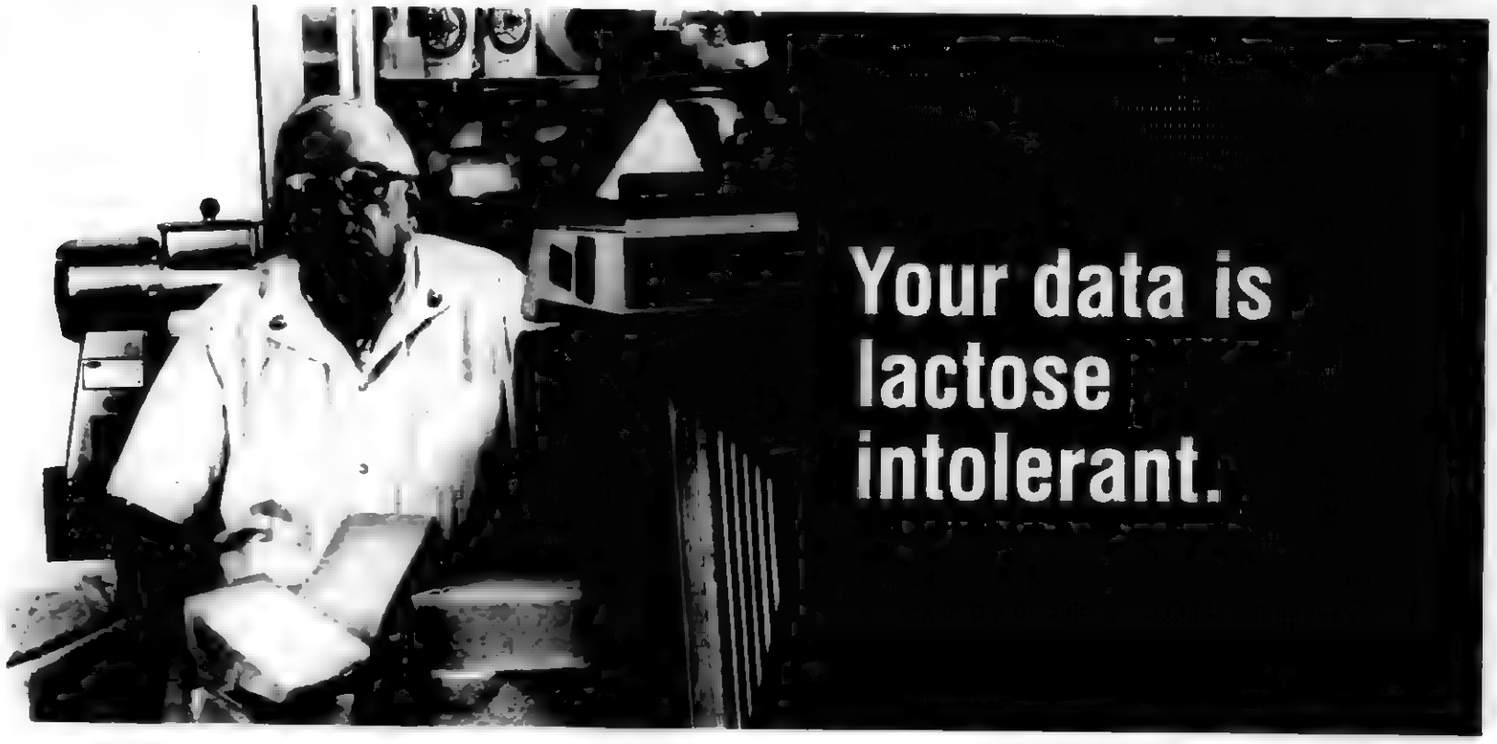
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Petabyte PROGNOSTICATIONS

EDS's futurist is preparing for the coming data flood with context-sensitive text-mining tools.

BY GARY H. ANTHES

FUTURE WATCH

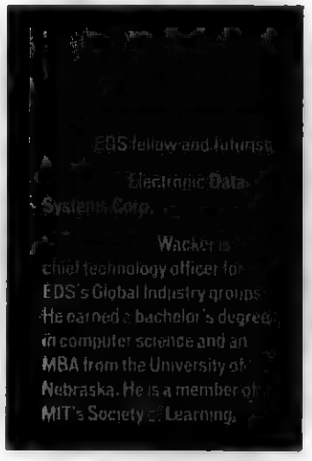
***Jeff Wacker**'s job as Electronic Data Systems Corp.'s futurist is to develop companywide initiatives that will shape the future of EDS. He recently told* Computerworld*'s Gary H. Anthes why mobile workers, unstructured information and communications infrastructures are worthy of special attention in the coming years.*

Is there an information explosion coming? Yes, and it's based on two major factors. First, there's all this sensor and RFID information that's starting to flow into corporations, and it will only accelerate; Wal-Mart is looking at 5TB to 7TB a day. The other factor is that unstructured information makes up 80% to 90% of the average corporation's information content. It's not in a form computers can readily use, such as e-mail. We are using context-sensitive text mining as a tool for structuring that content. When you do that, all that information becomes a corporate asset.

How might that new asset be used? Most of the new information that allows you to predict the future is nontraditional corporate information — what we call indicator information. You have transactions, which are past; you have events, which are current; and you have indicators, which are not traditionally used in business. You can put that information in a data mine and after the fact try to figure out what you should have done. Or you can feed it into a cause-and-effect model . . . and use pattern-recognition technology. [That gives you] the ability to understand patterns of business activity that are going to repeat and say, "What do I want the outcome to be?"

Can you give a couple of examples? Weather predictions for a warmer-than-usual winter in New England change the model's probability of selling *x* fruitcakes to y. That, coupled with a colder-than-normal forecast for the mid-Atlantic states, drives a directive to channel the fruitcake to those states.

Or an erroneous newspaper article reports that a certain food product has now been linked to heart attacks. In every city where that article has appeared, you can expect the demand to fall off precipitously, and therefore you need to "reverse-logistic" the existing supplies of the product to areas where the article has not run.



What are some opportunities for IT in the mobile world? Mobile workers are the orphans of the information revolution, because IT has basically ensconced itself in a stationary environment. Mobile workers work asynchronously with their IT. The office worker works the problem with the computer, but the mobile workers for the most part get their information, go out and do their work, come back and report their information. The IT is not overlaid directly on top of their work.

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Can you give an example? In the petroleum industry, 70% of workers are in the field. The average age of a field worker is 55, and 50% of them will retire in the next five years. That's a hell of a lot of expertise not easily replaced. So if I'm out at the wellhead and I ask, "How do I take this thing apart?" all of a sudden I have just-in-time training that tells me exactly how to do it. It says, "Here's Step 1 — now do it. Now here's Step 2 — do it," and so on. It's the opportunity to put IT into the business process rather than work around the business process.

Where will we see sensors deployed? That airplane that's flying has sensors that tell me that a certain part is going to go out, so I can fly the part to the destination before the plane gets there. That's the kind of model that's going to be deployed throughout all of business. All the items coming into my supply chain, all the items going through manufacturing, all items going out to the customer and all the people in my organization are going to be sending me information.

All that extra data must have huge implications for storage systems. When we start sending petabytes of information from one company to another, it's cheaper to have a petabyte storage cube put on an airplane and fly it to the other coast. That will be a constraint in the future, because petabytes of information don't work well on our communications infrastructure.

What's the solution to that problem? The amount of information that can be stored on a hard drive doubles every year . . . and fiber-optic capacity is doubling every nine months. While it will take some time, this will overcome the problem.

Also, you can break the file into many pieces, transmit the pieces and put it all together on the other end. The problem here is the infamous last mile. Most companies do not have [networks] to allow them to send the data through multiple pipes from a single source and to a single destination. This is an infrastructure design problem that never contemplated needing many T3s to the same point of origination/delivery. **46724**



EDS futurist Jeff Wacker sees toys as an analogy for rapid change, since "kids turn toys at an astonishing rate." This one is made from old IT components, demonstrating "that we create the future on the bones of the past – but different from the past."

Master of the Mainframe

IBM's Jim Rhyne talks about the future of big iron in the age of Web services

Jim Rhyne, *an IBM distinguished engineer, is the company's lead architect for non-Java application development tools and CICS, IBM's enduring mainframe transaction-processing middleware, which recently celebrated its 35th birthday. As part of his job, Rhyne works with customers to modernize their old mainframe environments. He spoke with* Computerworld's *Robert L. Mitchell about CICS, Web services and the future of the mainframe.*

IBM's CICS transaction-processing middleware is now 35 years old. What is its future? At the beginning, CICS was a very crude set of libraries built for what was then the IBM 360 operating system. Over the years, it has matured from a programming library into something that's strikingly similar to what we have in WebSphere today. It provides application containers that not only support transaction behavior but resource management. It supports scale-out.

It's going to remain as a high-end, high-speed, high-throughput atomic transaction-processing system. You'll find WebSphere taking over the low end of the transaction-processing marketplace and much of the middle as well. [CICS] is going to be a full player in this on-demand integrated computing environment that IBM is promoting. You'll find aggregations of software designed to handle Web browsers, designed to handle external interactions mediated by Web services. Behind that will be transaction-processing databases, and we expect CICS to be one of the premier solutions that we offer.

What emerging technologies are affecting CICS and mainframes? XML and Web services, service-oriented architectures — this is the big thing that's hitting the mainframe. If you look at the composition of SOA, there is a universal connectivity part, then there is componentization — taking monolithic applications and breaking them down into reusable chunks of business logic. That was easy to apply to user interface and client-side programming. Now we're getting around to using it in a serious way on the server side.



How do you bridge mainframes with Web services? The integration software [for CICS] is going to be J2EE and Java. CICS applications change, and when they do, there's an outward ripple into the WebSphere environment.

From a development point of view, if I make a change to a CICS application, it's not easy to find and change the corresponding set of WebSphere applications that use it. What you have is a mixed workload application. From a management point of view, I want to manage this as a single entity. The most important thing [programmers] can do is to understand the other technologies you have to interface with. It's a lot easier for these communities to operate as teams if they understand each other's technologies.

Where will the mainframe be in five years? It's difficult to predict. Part of the reason is that on hardware, we seem to be approaching a discontinuity. For years, we've had a Moore's Law, given that machines consume less power and they run faster [as time goes on]. Well, we're getting close to the end now.

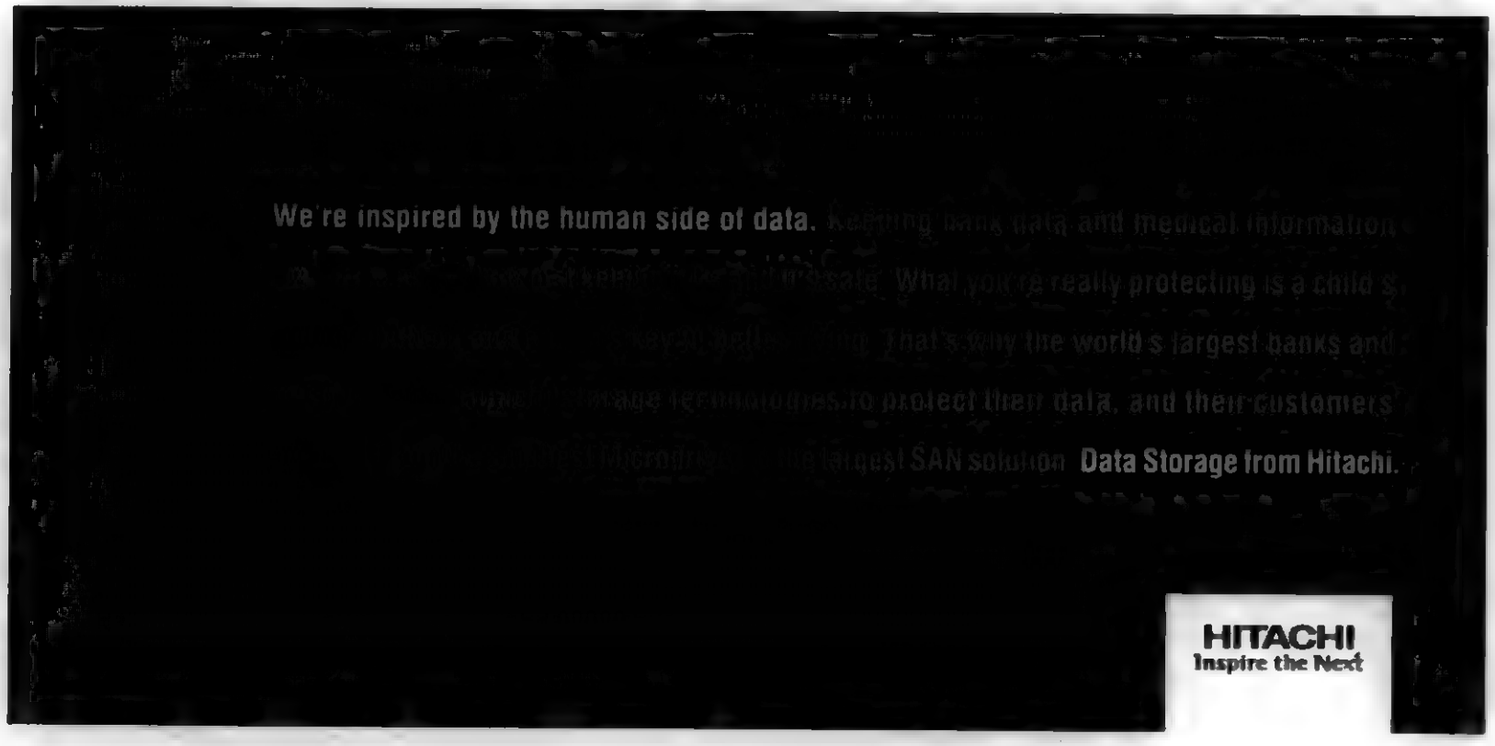
At that point in time, if you look at how you are going to meet the demands for computing, the only option left is to go into large-scale multiprocessing — thousands of parallel processors, or even tens of thousands — instead of the few dozen we have today.

My guess is mainframe applications will have to undergo a substantial amount of change because they were built essentially as single-threaded software. The mainframe will be hit by this, a lot of the Unix applications will be hit by this, and the Mac OS and Windows are also going to be hit by this. It will be a big game-changer, and my [crystal] ball is pretty cloudy about what's going to happen. **50047**

MORE RHYNE ONLINE

For more of Jim Rhyne's views on the changing computing landscape, visit our Web site.

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Petabyte PROGNOSTICATIONS

EDS's futurist is preparing for the coming data flood with context-sensitive text-mining tools.

BY GARY H. ANTHES

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FUTURE WATCH

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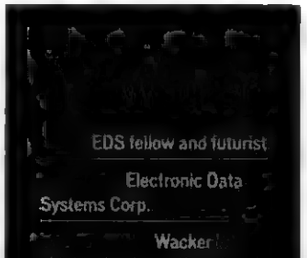
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What are some opportunities for IT in the mobile world? Mobile workers are the orphans of the information revolution, because IT has basically ensconced itself in a stationary environment. Mobile workers work asynchronously with their IT. The office worker works the problem with the computer, but the mobile workers for the most part get their information, go out and do their work, come back and report their information. The IT is not overlaid directly on top of their work.

We have built a testbed called process mentor. It's the ability for you to deliver just-in-time information to the mobile worker. Information flows, unprompted in some cases, as you need it.

Can you give an example? In the petroleum industry, 70% of workers are in the field. The average age of a field worker is 55, and 50% of them will retire in the next five years. That's a hell of a lot of expertise not easily replaced. So if I'm out at the wellhead and I ask, "How do I take this thing apart?" all of a sudden I have just-in-time training that tells me exactly how to do it. It says, "Here's Step 1 — now do it. Now here's Step 2 — do it," and so on. It's the opportunity to put IT into the business process rather than work around the business process.

Where will we see sensors deployed? That airplane that's flying has sensors that tell me that a certain part is going to go out, so I can fly the part to the destination before the plane gets there. That's the kind of model that's going to be deployed throughout all of business. All the items coming into my supply chain, all the items going through manufacturing, all items going out to the customer and all the people in my organization are going to be sending me information.



EDS fellow and futurist

Electronic Data Systems Corp.

Wacker is chief technology officer for EDS's Global Industry groups. He earned a bachelor's degree in computer science and an MBA from the University of Nebraska. He is a member of MIT's Society of Learning.

All that extra data must have huge implications for storage systems. When we start sending petabytes of information from one company to another, it's cheaper to have a petabyte storage cube put on an airplane and fly it to the other coast. That will be a constraint in the future, because petabytes of information don't work well on our communications infrastructure.

What's the solution to that problem? The amount of information that can be stored on a hard drive doubles every year . . . and fiber-optic capacity is doubling every nine months. While it will take some time, this will overcome the problem.

Also, you can break the file into many pieces, transmit the pieces and put it all together on the other end. The problem here is the infamous last mile. Most companies do not have [networks] to allow them to send the data through multiple pipes from a single source and to a single destination. This is an infrastructure design problem that never contemplated needing many T3s to the same point of origination/delivery. **49724**



EDS futurist Jeff Wacker sees toys as an analogy for rapid change, since "kids turn toys at an astonishing rate." This one is made from old IT components, demonstrating "that we create the future on the bones of the past – but different from the past."

Master of the Mainframe

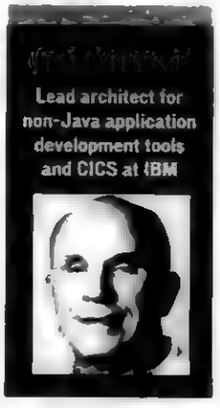
IBM's Jim Rhyne talks about the future of big iron in the age of Web services

Jim Rhyne, *an IBM distinguished engineer, is the company's lead architect for non-Java application development tools and CICS. IBM's enduring mainframe transaction-processing middleware, which recently celebrated its 35th birthday. As part of his job, Rhyne works with customers to modernize their old mainframe environments. He spoke with* Computerworld's *Robert L. Mitchell about CICS, Web services and the future of the mainframe.*

IBM's CICS transaction-processing middleware is now 35 years old. What is its future? At the beginning, CICS was a very crude set of libraries built for what was then the IBM 360 operating system. Over the years, it has matured from a programming library into something that's strikingly similar to what we have in WebSphere today. It provides application containers that not only support transaction behavior but resource management. It supports scale-out.

It's going to remain as a high-end, high-speed, high-throughput atomic transaction-processing system. You'll find WebSphere taking over the low end of the transaction-processing marketplace and much of the middle as well. [CICS] is going to be a full player in this on-demand integrated computing environment that IBM is promoting. You'll find aggregations of software designed to handle Web browsers, designed to handle external interactions mediated by Web services. Behind that will be transaction-processing databases, and we expect CICS to be one of the premier solutions that we offer.

What emerging technologies are affecting CICS and mainframes? XML and Web services, service-oriented architectures — this is the big thing that's hitting the mainframe. If you look at the composition of SOA, there is a universal connectivity part, then there is componentization — taking monolithic applications and breaking them down into reusable chunks of business logic. That was easy to apply to user interface and client-side programming. Now we're getting around to using it in a serious way on the server side.


Lead architect for non-Java application development tools and CICS at IBM

How do you bridge mainframes with Web services? The integration software [for CICS] is going to be J2EE and Java. CICS applications change, and when they do, there's an outward ripple into the WebSphere environment.

From a development point of view, if I make a change to a CICS application, it's not easy to find and change the corresponding set of WebSphere applications that use it. What you have is a mixed workload application. From a management point of view, I want to manage this as a single entity. The most important thing [programmers] can do is to understand the other technologies you have to interface with. It's a lot easier for these communities to operate as teams if they understand each other's technologies.

Where will the mainframe be in five years? It's difficult to predict. Part of the reason is that on hardware, we seem to be approaching a discontinuity. For years, we've had a Moore's Law, given that machines consume less power and they run faster [as time goes on]. Well, we're getting close to the end now.

At that point in time, if you look at how you are going to meet the demands for computing, the only option left is to go into large-scale multiprocessing — thousands of parallel processors, or even tens of thousands — instead of the few dozen we have today.

My guess is mainframe applications will have to undergo a substantial amount of change because they were built essentially as single-threaded software. The mainframe will be hit by this, a lot of the Unix applications will be hit by this, and the Mac OS and Windows are also going to be hit by this. It will be a big game-changer, and my [crystal] ball is pretty cloudy about what's going to happen. **50047**

MORE RHYNE ONLINE

For more of Jim Rhyne's views on the changing computing landscape, visit our Web site.

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Sarb-Ox Project Following Script

As the deadline for compliance with the financial accountability act approaches, systems testing is coming along.
By Mathias Thurman

SECURITY MANAGER'S JOURNAL

I CONTINUE to get a significant amount of e-mail asking about the Sarbanes-Oxley Act, so I thought I would provide an update on our progress toward compliance. Since the last time I commented on this subject [QuickLink 48412], we have come quite a ways.

A few months ago, I attended a meeting with representatives from networking, data center operations, database and application engineering, Unix and Windows NT administration and other groups to discuss control objectives for each area.

We mainly used Cobit (Control Objectives for Information and Related Technology) to help identify our controls. It provides a framework, guidelines and some implementation tools to steer companies in the right direction.

Finding Our Focus

We also needed to think about which systems would have to be looked at. Our company has over 500 production Unix servers and several hundred NT servers running various applications. There was no way we could test over 700 servers. Since Sarbanes-Oxley focuses on financials, we came up with a list of systems that affect our financial reporting. Those 700-plus servers dwindled to just under 100. We then categorized them by application to better manage the workload.

Once we formalized the objectives, the testing was fairly straightforward. For example, one control objective within the Oracle database area might say, "Users do not directly access the Oracle database using the application ID or a generic account." Certain parameters within the Oracle database configuration file, as well as the Unix user accounts, would have to be reviewed to determine who had access to the server and the database. Given that we have dozens of Oracle servers in our environment and 32 tests to perform, it made sense to run a script on each server that would obtain the information from configuration files.

For Oracle, most of the test results were within either the init.ora or the listener.ora file. The script took some time to develop, but in the end, we had an easily repeatable method for testing our Oracle environment.

For the Unix servers, a control objective might be, "User passwords must be changed every 90 days." The test for this objective would be to review the /etc/default/password file for every Unix server and see if the "MAXWEEKS" parameter was set to 90 days. With over 25 control objectives for the Unix environment and dozens of servers to test, we developed another script. Tests included grabbing configuration files, checking file permissions, listing patches and installed applications, and running commands to obtain system information.

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We'll have to repeat this process every year, so it's imperative that we come up with a standardized method to test our control objectives. Scripts are one method of ensuring that we're consistent.

Tracking Our Work

To keep track of our work, we developed standardized spreadsheets for each IT control area. For each control objective, we identified the implication of a particular objective not being satisfied, the testing procedure and recommendations if it failed. We also included a column to register test results.

After the testing was completed, each person responsible for an area of testing created what we called "gap sheets," which identified failed control objectives. The managers then met to go over the gap sheets and plan for fixing the gap or determining what are termed "compensating controls."

In the test for password expiration, for example, compensating controls might be that users are forced to use SecurID two-factor authentication to access Unix servers and that the system is locked down to prevent users from directly logging in via their user accounts. Compensating controls have to be used carefully, though, since auditors could suggest that we're making excuses for not doing the work needed to make the system modifications.

Although I've mentioned only the Oracle and Unix areas, several others were identified in relation to IT security. For example, incident response, security policies, log monitoring, intrusion detection and encryption have their own control objectives. Unfortunately, because I represent the security department, I was restricted from performing the security tests, since it could be argued that I'm biased.

We have completed our testing and are working hard to retrofit our systems, procedures and policies to comply with the identified control objectives. We're finding that we can't just arbitrarily make changes to satisfy a Sarbanes-Oxley test objective, especially in a production environment that generates thousands of dollars per minute in revenue.

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Changing our environment to meet the control objectives will be very time-consuming, frustrating and critical for our company. In December, the official audit will take place, and we're fairly confident that if we're tested according to the current control objectives, we'll do fine. ▶

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

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SECURITY LOG

Security Bookshelf

■ ***Wi-Foo: The Secrets of Wireless Hacking*, by Andrew Vladimirov, Konstantin V. Gavrilenko and Andrei A. Mikhailovsky; Addison-Wesley Professional, 2004.**



If you're looking for a comprehensive technical reference on wireless security, then you'll want this 550-page book, which provides a wealth of knowledge on almost every aspect of wireless security. Despite a fairly dry and somewhat confusing chapter on applied cryptography, the book is packed with tools, techniques and other forms of exploits that can be leveraged against a variety of wireless networks. Not only do the authors provide methods for exploiting the wireless environment, but they also describe defensive techniques for preventing or detecting the exploits.

–*Mathias Thurman*

Short Takes

COMPUTER ASSOCIATES INTERNATIONAL INC. last week announced eTrust Security Command Center r8 for monitoring and managing all aspects of enterprise security, from threat discovery through resolution, in real time. New features include out-of-the-box correlation tools, Web-based update services, advanced incident management functions and customizable "work spaces" designed for tasks such as comparing an organization's security posture against the standards set by the SANS Institute. Pricing was unavailable. . . . SILEX TECHNOLOGY INC. has unveiled the Combo-Mini, a USB biometrics reader for use with laptops and PCs. The $179 device stores metadata about fingerprints and works with a user identity module card and password identification. The Combo-Mini also supports cryptology.

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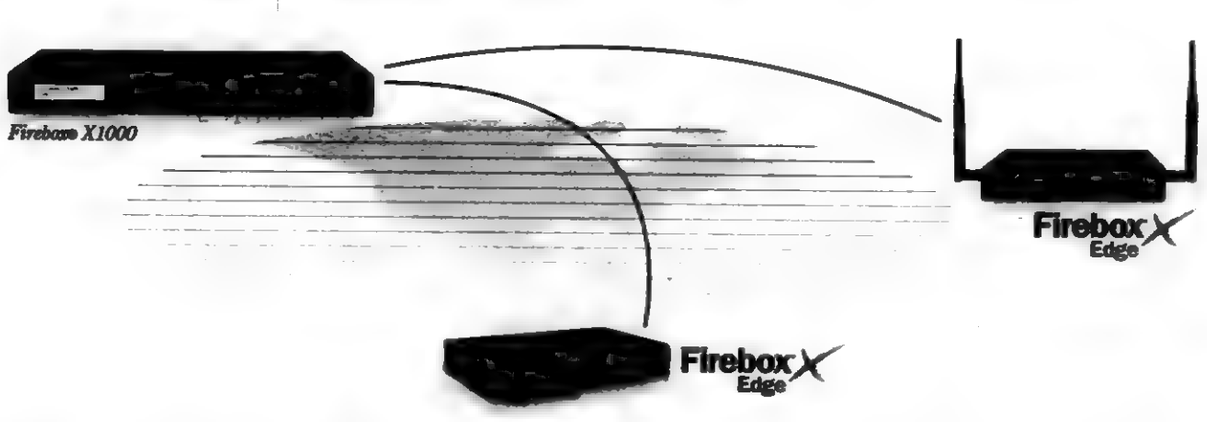
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Short Takes

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BRIEFS

Copernic Upgrades Desktop Search

■ Copernic Technologies Inc. has released Version 1.1 of Copernic Desktop Search, which features faster scanning of Microsoft Outlook e-mails, improved computer resource usage monitoring, customizable scheduled indexing and the ability to use multiple windows for queries, said the Canada-based company. The free download is available at the company's Web site, *www.copernic.com*, and works with Windows 98/ME/NT/2000/XP and Internet Explorer 5.0 or later.

Aten Announces Eight-Port Switch

■ Aten Technology Inc. in Irvine, Calif., last week announced the KH88, an eight-port switch for remote keyboard, video and mouse connections between eight computers. The switch provides the ability to cascade from any port and controls for 512 computers from a single console. The KH88 is priced at $449.95.

Adaptec Releases Data Replicator

■ Adaptec Inc. in Milpitas, Calif., has announced the availability of Snap Enterprise Data Replicator. The software offers automated data movement from multiple remote sites to a central location, Adaptec said. Snap EDR pricing starts at $2,899 per server.

SeeBeyond Ports Components to Sun

■ SeeBeyond Technology Corp. last week said it will port components of its Integration Composite Application Network Suite to Sun Microsystems Inc.'s Java Enterprise System, starting with its eGate Integrator 5 to Sun's Java System Application Server 8. The companies also plan joint offerings around Sun's Java System Portal Server and SeeBeyond's ICAN 5 integration server.

DANIEL J. WEITZNER

Openness as a Privacy Protection Strategy

THE CHALLENGE that new computer, network and sensor technologies pose for privacy is now beyond dispute. At the forefront of social, legal and business struggles over defining privacy in an age of increasing exposure of personal information is the transparent enterprise.

As I discussed in two earlier columns [QuickLinks 48574 and 49552], our enterprises are increasingly transparent. We see growing linkages among previously stovepiped databases. Web services and semantic Web technology will connect information stores of partners that span enterprise boundaries, and our networks are connected though mobile infrastructures that reveal not just who's online but their physical locations.



Daniel J. Weitzner is technology and society domain lead at the World Wide Web Consortium and principal research scientist at the MIT Computer Science and Artificial Intelligence Laboratory. The opinions expressed are his alone. He can be reached at [illegible].

All of this means that we're collecting orders of magnitude more information and have the power to do much more with it than ever before. So, the privacy challenge in the age of transparency is, How do we respect the privacy expectations of our customers and employees while taking advantage of critical new data-integration capabilities available to us?

Perhaps the only way to protect privacy is through greater exposure of personal information. After thousands of years of code-making, cryptographers learned that security by obscurity is no security at all. While there are important differences between security and privacy, could it be that privacy by obscurity is about to go the way of security by obscurity? CIOs, privacy officers and others who worry about the public policy implications ought to pay attention to transparency design strategies as cornerstones of privacy.

Three technical phenomena should encourage system designers to rethink their approach to privacy protection: first, the gradual demise of stovepiped applications in favor of enterprisewide data integration; second, the rapidly declining cost of Web-scale query; and third, the rapid spread of sensor networks in public and private settings. The dramatic privacy impact of cheap, Web-scale data integration is visible today through the operation of systems such as credit card fraud-detection networks, vehicle guidance and telemetry systems, transponder-based toll-collection systems that also seem to monitor traffic flow, and the proximity cards tied to individual identity that are increasingly common in office buildings.

Science fiction author David Brin is best known for suggesting that we embrace transparency. His proposal has been treated with considerable skepticism in the privacy community. Fundamental changes in the technology we adopt, as well as limitations in privacy protection regulations, compel us to take a more careful look at what transparency has to offer. We must *not* conclude that privacy has been somehow superseded by 21st century IT. Indeed, the increased data collection and inferencing power in today's information environments makes support for fundamental privacy values all the more important.

This is the third in a three-part series of columns on the transparent enterprise.

Is the transparent enterprise destined to be the engine of the elimination of privacy? Has the analytic power and data-gathering reach of today's information networks rendered privacy a disappearing artifact of simpler, less-networked times? I don't believe so, but in order to retain the dignity, control and occasional solitude that are at the heart of privacy, we have to start designing systems differently.

First, we should embrace transparency as a design philosophy that can help people ensure that information about them isn't used in a way that's contrary to legally permissible purposes or in violation of agreements under which it was collected. Our design goal should be to provide active transparency to users. In many cases, people are comfortable about information collection, provided they know that it's happening, understand the purpose of it and can check that it's not being used inappropriately.

Second, protecting privacy in an increasingly transparent society will be possible only with privacy laws that reflect the great expansion of data collection and inferencing capabilities. It's always better to delete personal information that's no longer needed (or shouldn't have been collected in the first place). However, we have to face the fact that there are mounting reasons to collect more and more information about people.

Finally, living with transparency will be a challenge. We aren't likely to get either legal or technical measures right the first time. Hence, we must devote resources to a wise and sustained dialogue among regulators, the citizenry and technical designers.

This is the transparency paradox: Amid the explosion of the collection of personal information, privacy protection requires that we embrace the transparency of information systems in order to ensure that information is used properly. Giving people a window into the information collected about them, and control over its use, can help put the transparent enterprise on the right side of privacy protection. **50163**

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POLLY BECHER

NEARING THE Boiling Point

IT WORKERS SIMMER OVER THIRD YEAR OF LACKLUSTER RAISES, BUT THEY'RE NOT READY TO BLOW – YET. BY STACY COLLETT

AFTER WORKING at a large Midwestern manufacturing company for 22 years, a senior IT design analyst understood that times were tough for her firm, so she didn't complain about the 2% raise she got in 2003. But this year her empathy turned to irritation when her performance improved but her salary didn't.

"When you consider that I get an above-average review and get just a 3% raise [this year] — it doesn't make up for the crappy year before that," she says. "They are assuming that I'm going to keep working hard anyway. But there's no carrot. The carrot's gone."

She's not alone. For the third year in a row, IT workers across the board received only modest raises — their pay increased by an average of just 3% in 2004, according to *Computerworld*'s 18th Annual Salary Survey, which studied the compensation and bonuses of 9,854 IT workers.

Although the average IT pay raise is slightly higher than last year's figure of 2.8%, it's still lower than the national average of 4% that the Bureau of Labor Statistics reports for all U.S. workers. While the majority of respondents (65%) said their 2004 base salary increased from one year ago, 35% experienced either no change in salary or had their pay cut. Meanwhile bonuses are back — but up only 1% on average. Most IT workers (70%) said they expect no change in their 2004 bonus compensation from one year ago.

What's more, on-the-job stress is at an all-time high, according to the survey. Some 88% of respondents reported feeling stress because of budget cuts and increased workloads, up from 82% last year. One quarter of IT workers surveyed said they're dissatisfied with their pay when considering all their job responsibilities, while another 24% reported that they're neither satisfied nor dissatisfied with their pay.

Have IT employees reached the boiling point when it comes to pay? Not yet, survey takers said, but they're getting close.

ONLINE EXCLUSIVE
SMART SALARY TOOL 2004

An IT security strategist, who spoke on the condition of anonymity, has survived outsourcing, reorganization and a tough economy in his 15 years at a financial services company. For him, a meager raise beats the alternatives. "I feel lucky to have survived that rapid loss of business and that slow recovery of it. I'm happy to still be working," he says.

"I think that people are happy to have a job

COMPUTERWORLD
SALARY SURVEY
2004



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SMART SALARY TOOL 2004

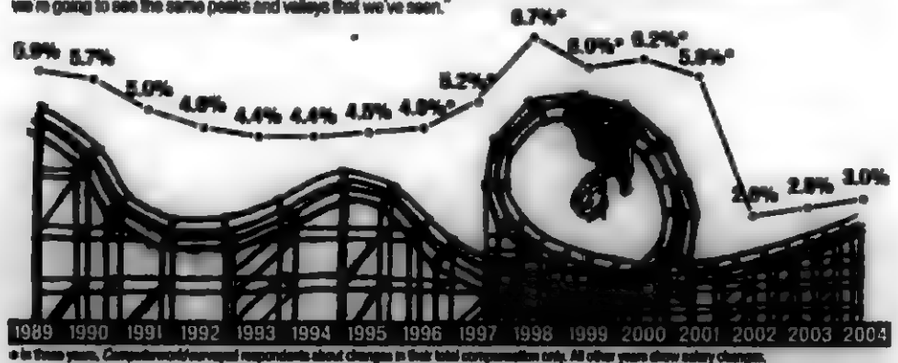
Use our Smart Salary tool to compare your pay against results from our 2004 salary survey of nearly 10,000 IT workers.

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IT SALARIES OVER THE YEARS: A ROLLER-COASTER RIDE

When *Computerworld* began tracking IT compensation in 1989, average pay raises were a comfortable 5.9%. The slip began in the early 1990s. And while the dot-com boom of the late 1990s pushed IT compensation higher than ever, the bust caused salaries to plummet. Now, the flat line of the mid-1990s has returned. So, what does the future hold? Gartner analyst Linda Pittenger says she doesn't expect any big changes. "I don't think there's a norm anymore," says Pittenger. "But I don't think we're going to see the same peaks and valleys that we've seen."



* In these years, *Computerworld* surveyed respondents about changes in their total compensation only. All other years show salary changes.

AVERAGE TOTAL COMPENSATION IN SELECTED IT JOB TITLES, 2004

AVERAGE FOR ALL TITLES: $83,908

CIO/vice president of IT
Chief technology officer
Director of systems development
Internet technology strategist
Director of IT operations
Product manager
Information security manager
Systems architect
Application development manager
Project manager
Project leader
IT manager
Database administrator
Systems programmer
Software engineer
Senior systems analyst
Software developer
Computer operations manager
Information security specialist
Network engineer
Network manager
Help desk/tech support manager
Technology/business analyst
Programmer/analyst
Systems administrator
Systems analyst
Web developer
Network administrator
Help desk/tech support specialist
Technician

HIGHEST INCREASES

6%
5%
5%
4%
4%
4%

WIN FOR WOMEN

Women outpaced men for average increases in salary. (Figures are based on changes in individual compensation.)

+3.2% +2.4%

And women had smaller decreases on average in bonuses:

-1.5% -2.1%



because the economic situation still supports such behavioral thinking," says Linda Pittenger, an analyst at Gartner Inc. "I also believe that over time, IT professionals . . . are going to get to that boiling point, but they're not there yet."

Some unhappy IT professionals are considering moving to new jobs, Pittenger adds. But they're learning that the grass isn't always greener somewhere else.

"We all know someone personally who left [the company], but the project they got hired to do got canceled and they are jobless," says the senior IT analyst who asked not to be identified. So for now, she — and many IT professionals like her — will stay put.

Where to Put the Blame

More than 27% of survey respondents reported increased use of offshore outsourcing at their companies in the past year. David Foote, president of Foote Partners LLC in New Canaan, Conn., says offshore outsourcing had a major influence on pay this year. Specifically, pay for both noncertified application programming skills and enterprise application development skills has declined 19% to 21% over the past two years, according to Foote Partners research. "As more applications development work is transferred offshore or at least directed away from IT full timers, premium pay becomes unnecessary," Foote says.

Poor corporate performance has also prompted executives to cut pay across the board. Kohl's Department Stores Inc. in Menomonee Falls, Wis., lowered pay raises for all employees, not just those in IT, says Paul Lewandowski, an e-commerce testing coordinator. "We didn't have as good a year as the company expected," says Lewandowski, whose pay raise dropped from 5% in 2003 to 4% in 2004. But the "double whammy" came when the IT staff lost a week of vacation, he says. Now, employees must keep track of overtime until they earn the extra week — and they can use the earned time off only when project schedules allow. "It's a kick in the teeth," he says.

Regional Inequalities

IT workers living in the South Atlantic region fared better than most others in pay raises this year, while those in the Northeast and on the West Coast experienced flat salaries. IT workers in the North Central region saw increases slightly below average.

McLean, Va.-based Stan Kiyota says his salary jumped 6% this year and was topped off with a 27% bonus. "I wish I could say it was all me," says the senior information security manager at Booz Allen Hamilton Inc., "but part of this is the location. This market is so hot here, it's virtually zero percent high-tech unemployment right now."

CIO Jason Blevins hasn't had a raise in two years at Manchester Tool and Die Inc. in North Manchester, Ind. Though he understands that times are tough for the company, he says the lack of raises hurts morale. "If we go another round here without increases, then I know there's going to be some screaming," he says.

IT manager David Levine saw his salary jump 4.5%

Continued on page 52

SECURITY PROS EARN TOP DOLLAR

IT workers in the security field received some of the highest pay raises last year.

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Designed to work the way business
Samsung's 193P display

Continued from page 50

at Sony Electronics Inc. in Park Ridge, N.J. "I'm making enough money that even 4.5% is a decent raise," he says. In fact, 51% of survey respondents said they're satisfied with their pay despite low or no raises, and 80% are still satisfied with their career choice.



The good news for IT workers is that bonuses are on the upswing after dropping an average of 1.8% last year. The bad news: They rose an average of just 1%.

"The last really good bonus was in 2000. They've been about half that [amount] since," says the IT security strategist. "It's not the best, but it's better than a kick" out the door, he adds.

Terry Broadbent, a database administrator at L-3 Communications Corp. in Salt Lake City, hasn't seen a cash bonus in 10 years because L-3 is offering other types of incentives.

"I've been involved in teams over the years, and we've received . . . a jacket or a portable TV," says Broadbent, a 26-year veteran of the defense contractor. "That sits on the shelf and gathers dust. I much prefer that came as a cash bonus."

Pittenger says companies are moving away from the "peanut butter method" of spreading bonuses evenly and instead use precious funds to reward a small slice of superior performers.

"Companies are finally saying, 'Who are the 10 people who made things happen last year? Let's take care of them,' " Pittenger says. "It doesn't motivate the top performers if they get 4% bonuses and the low performers get 3%. If the top get 10% bonuses and the low performers get 1%, [companies] send a message that 'we pay for superior performance.' "



POLLY BECKER

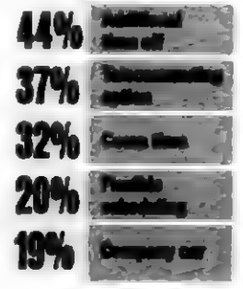
GREENER PASTURES

42% said they wouldn't switch to a job with lower compensation. Of those who would, these factors topped the list of motivators:

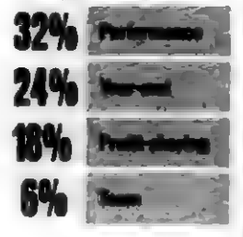


PERKED UP

Top five perks that respondents wished their companies offered:



Top types of bonuses respondents received:



After three years of lackluster average pay raises and meager bonuses, can IT professionals expect a return to the boom days of compensation anytime soon?

"I don't think there's a norm anymore," says Pittenger. "But I don't think we're going to see the same peaks and valleys that we've seen."

Pittenger does expect a small resurgence of IT jobs and pay beginning in 2008, when a record number of IT professionals will retire and fewer new MIS and computer science graduates will enter the market. "We're going to go into that demand role again where companies can't find people." **ID 49872**

Collett is a freelance writer in Chicago. Contact her at stcollett@aol.com.

CHARTS: For compensation information for 30 IT job titles, turn to PAGE 54.

TOTAL COMPENSATION BY REGION

- New England: Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island
- Middle Atlantic: New York, New Jersey, Pennsylvania
- South Atlantic: Delaware, District of Columbia, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Puerto Rico, U.S. Virgin Islands
- North Central: Wisconsin, Michigan, Illinois, Indiana, Ohio, North Dakota, South Dakota, Minnesota, Nebraska, Iowa, Kansas, Missouri
- South Central: Kentucky, Tennessee, Mississippi, Alabama, Oklahoma, Arkansas, Louisiana, Texas
- Mountain: Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona, New Mexico
- Pacific: Alaska, Washington, Oregon, California, Hawaii, Guam

	NEW ENGLAND	MIDDLE ATLANTIC	SOUTH ATLANTIC	NORTH CENTRAL	SOUTH CENTRAL	MOUNTAIN	PACIFIC
[illegible]	$172,019	$188,801	$157,398	$154,738	$161,943	$122,880*	$183,528
[illegible]	$99,307	$121,691	$103,882	$91,331	$95,543	$98,518	$117,038
[illegible]	$75,626	$95,019*	$74,974	$90,677	$96,227*	$89,780	$74,929*
[illegible]	$117,150*	$108,440	$103,490	$99,823	$94,127	$87,810	$103,296
[illegible]	$98,824	$109,913	$96,261	$90,900	$93,250	$87,195*	$91,242
[illegible]	$90,289	$98,930*	$91,334	$78,602	$89,449	$73,596*	$93,199*
[illegible]	$80,429*	$46,908	$45,267	$44,552	$42,941	$41,292*	$51,096
[illegible]	$81,619*	$75,812	$73,941	$67,479	$82,470	$68,949*	$78,841
[illegible]	$84,479*	$84,980	$87,591	$81,804	$46,547	$82,977	$88,357
[illegible]	$76,776	$72,469*	$70,324	$72,986	$71,420	$67,515	$72,936*
[illegible]	$82,996*	$71,219	$67,470	$82,437	$86,172	$70,467*	$70,291
[illegible]	$90,944*	$98,257	$90,845	$90,491	$82,820*	$80,605	$95,345*
[illegible]	$95,050	$79,996*	$90,557	$79,258	$79,748*	$98,800	$91,275
[illegible]	$98,039*	$77,271	$96,214	$76,765	$81,594*	$82,812*	$90,594
[illegible]	$71,467*	$96,085	$99,127	$83,155	$82,122	$98,274	$99,426
[illegible]	$75,598	$81,223	$95,538	$90,294	$99,100	$58,174	$98,104*
[illegible]	$130,446	$186,557*	$102,842	$95,241	$98,817*	$118,191*	$114,365

* The total base for this job title in this particular region was fewer than 30 responses but more than 15. These figures should be used for comparisons only, because they don't constitute a statistically significant sampling.

Gray text: The total base for this job title in this particular region was fewer than 15 responses but more than zero. These figures should be used for comparisons only.



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COMPUTERWORLD SALARY SURVEY 2004

SENIOR MANAGEMENT POSITIONS

CIO/vice president of IT	Chief technology officer	Director of systems development	Director of IT operations	Internet technology strategist
2.1%	2.1%	2.8%	2.7%	1.3%
Average salary $132,709	Average salary $132,132	Average salary $117,597	Average salary $92,239	Average salary $101,361
Bonus $29,436	Bonus $27,289	Bonus $22,508	Bonus $10,965	Bonus $14,766
Total $162,145	Total $159,421	Total $140,105	Total $103,204	Total $116,127
2003 Total $158,790	2003 Total $156,212	2003 Total $136,262	2003 Total $100,483	2003 Total $114,589

AVERAGE TOTAL COMPENSATION BY INDUSTRY

Manufacturing (noncomputer) $179,389	Computer services/ consulting* $181,309	Computer services/ consulting* $166,555	Education $85,086	Computer services/ consulting* $130,800
Banking $163,005	Government $84,009	Legal/insurance/ real estate $128,304	Health care $92,154	Finance/accounting $127,818
Computer services/ consulting $168,514	Legal/insurance/ real estate $217,867	Manufacturing (noncomputer) $139,815	Manufacturing (noncomputer) $101,631	Telecommunications $104,439
Legal/insurance/ real estate $181,173		Finance $128,110	Government $83,827	
Government* $101,213		Retail $114,867	Computer services/ consulting $137,287	
Education* $125,225			Legal/insurance/ real estate* $109,461	
Finance/accounting* $203,067			Nonprofit* $75,858	
Health care* $158,503				

AVERAGE TOTAL COMPENSATION BY COMPANY REVENUE

Less than $100M $116,688	Less than $100M $147,010	Less than $100M $122,171	Less than $100M $81,907	Less than $100M* $92,708
$100M to $999.9M $172,593	$100M to $999.9M $178,220	$100M to $999.9M $135,278	$100M to $999.9M $111,632	$100M to $999.9M* $104,694
$1B to $10B $202,438	$1B to $10B $189,792	$1B to $10B $139,520	$1B to $10B $133,359	$1B to $10B* $126,258
More than $10B $233,481	More than $10B NA	More than $10B* $182,306	More than $10B $166,174	More than $10B* $133,000

MIDDLE MANAGEMENT POSITIONS

Computer operations manager	Help desk/ tech support manager	Information security manager	[illegible] manager
2.7%	3.8%	4.9%	2.4%
Average salary $72,488	Average salary $67,200	Average salary $69,157	Average salary $70,124
Bonus $6,526	Bonus $4,001	Bonus $12,418	Bonus $6,727
Total $79,067	Total $71,948	Total $82,598	Total $76,851
2003 Total $76,987	2003 Total $69,271	2003 Total $87,777	2003 Total $80,877

AVERAGE TOTAL COMPENSATION BY INDUSTRY

Government $75,744	Computer services/ consulting* $76,245	Government* $91,871	Manufacturing (noncomputer) $96,193
Manufacturing (noncomputer) $72,113	Education* $52,661	Computer services/ consulting $96,596	Government $70,485
Legal/insurance/ real estate $75,167	Government $62,326	Banking $111,193	Computer services/ consulting $68,633
	Health care $68,236		Legal/insurance/ real estate $81,364
	Banking $72,905		Education $85,596
	Finance/accounting $82,409		Mining/agriculture/ construction/ engineering $71,522
	Entertainment/ advertising $79,711		Banking $92,832

AVERAGE TOTAL COMPENSATION BY COMPANY REVENUE

Less than $100M $67,330	Less than $100M $61,441	Less than $100M* $82,300	Less than $100M $80,113
$100M to $999.9M* $78,302	$100M to $999.9M $72,506	$100M to $999.9M* $101,480	$100M to $999.9M $86,762
$1B to $10B* $91,780	$1B to $10B* $76,887	$1B to $10B $115,219	$1B to $10B $98,926
More than $10B $99,402	More than $10B* $99,236	More than $10B* $111,213	More than $10B $110,366

Charts continue on page 56

% Average percentage increase, 2003-2004

* The total base for this job title in this particular industry or company size was fewer than 30 responses but more than 15. These figures should be used for comparison only, because they don't constitute a statistically significant sampling.

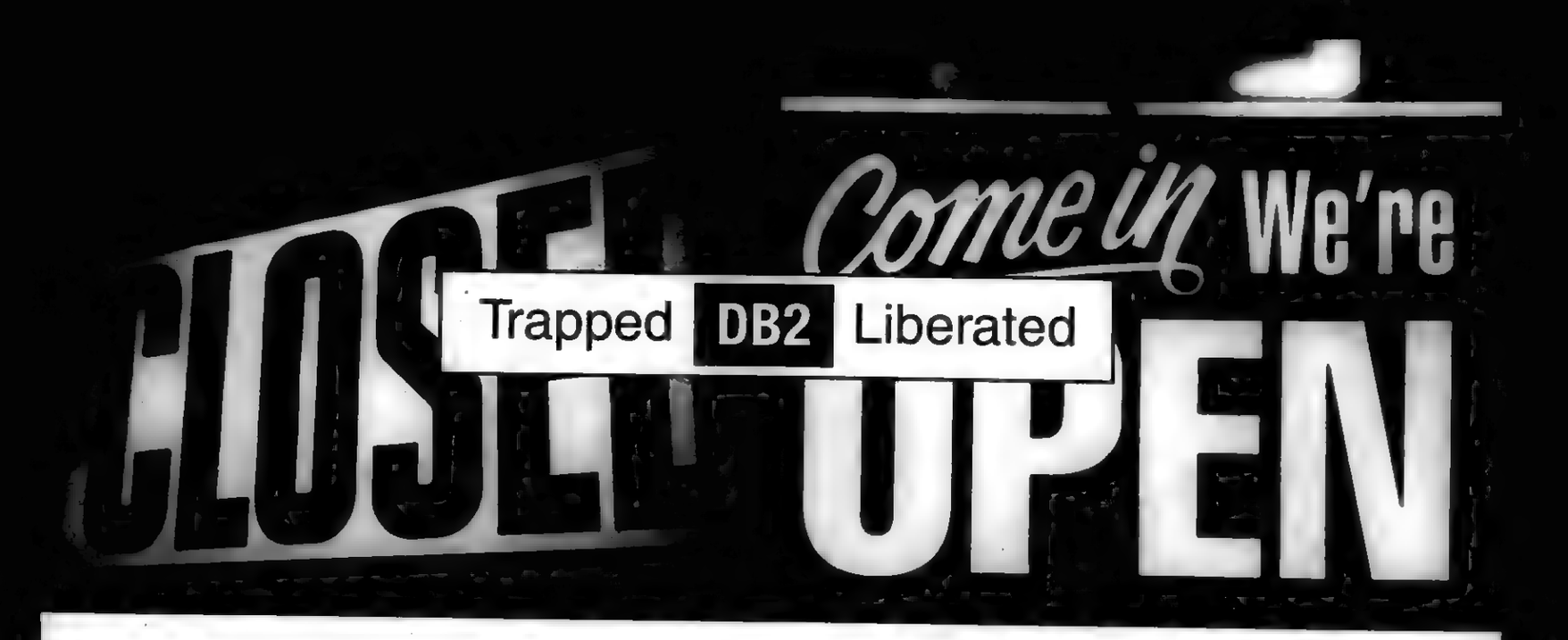
Gray text: The total base for this job title in this particular industry or company size was fewer than 16 responses but more than nine. These figures should be used for comparison only.

BIGGEST UPTICKS IN SALARY

Food/ beverage (Base: 79)	5.4%
Defense/ aerospace (Base: 276)	4.1%
Nonprofit organizations (Base: 413)	4.1%

A SAMPLING OF OTHER JOB TITLES

Chief security officer	Director of e-commerce	Communications manager	Database manager	Data warehousing manager	E-commerce manager	Internet/ intranet manager	Communications specialist	Computer operator/lead operator
6%	1.2%	1.6%	1.1%	5.1%	1.9%	2.4%	1.2%	3.9%
Average salary $106,500	Average salary $111,873	Average salary $74,293	Average salary $87,249	Average salary $82,670	Average salary $75,205	Average salary $77,841	Average salary $62,476	Average salary $35,274
Bonus $13,486	Bonus $19,653	Bonus $5,712	Bonus $10,244	Bonus $9,049	Bonus $8,134	Bonus $13,627	Bonus $3,746	Bonus $1,698
Total $119,986	Total $131,526	Total $80,005	Total $97,493	Total $91,719	Total $83,339	Total $91,468	Total $66,222	Total $36,972
Base: 28	Base: 36	Base: 77	Base: 72	Base: 28	Base: 29	Base: 41	Base: 60	Base: 31
2003 Total $113,228	2003 Total $129,945	2003 Total $78,771	2003 Total $96,449	2003 Total $87,281	2003 Total $81,799	2003 Total $89,337	2003 Total $65,449	2003 Total $35,572



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MIDDLE MANAGEMENT POSITIONS

Network manager	Product manager	Application development manager	Project manager
2.7%	1.4%	2.4%	2.2%
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
2003 Total $70,766	2003 Total $101,833	2003 Total $96,338	2003 Total $99,899

AVERAGE TOTAL COMPENSATION BY INDUSTRY

Government* $82,870	Computer services/ consulting $104,331	Computer services/ consulting $103,796	Computer services/ consulting $99,099
Education* $67,804	Manufacturing (computer)* $120,899	Manufacturing (noncomputer)* $95,953	Banking* $97,976
Manufacturing (noncomputer) $68,562		Government* $75,144	Government $90,248
Health care $75,417		Health care* $96,521	Manufacturing (noncomputer) $94,047
		Banking* $123,990	Legal/insurance/ real estate $92,836
		Manufacturing (computer)* $118,894	Health care $85,148
		Legal/insurance/ real estate $105,781	Finance/accounting* $105,728
			Telecommunications* $96,964

AVERAGE TOTAL COMPENSATION BY COMPANY REVENUE

Less than $100M $84,706	Less than $100M $87,321	Less than $100M $85,281	Less than $100M $78,473
$100M to $999.9M $77,296	$100M to $999.9M $102,526	$100M to $999.9M $95,400	$100M to $999.9M $90,113
$1B to $10B $97,009	$1B to $10B* $108,529	$1B to $10B $102,691	$1B to $10B $99,525
More than $10B NA	More than $10B* $118,496	More than $10B $117,567	More than $10B $104,546

STAFF AND ENTRY-LEVEL POSITIONS

Database administrator	Help desk/ tech support specialist	Information security specialist	Technology/ business analyst	Network administrator	Network engineer	Programmer/ analyst
1.1%	2.5%	4.4%	1.7%	2.7%	1.7%	2.5%
Average salary $76,541	Average salary $44,132	Average salary $69,530	Average salary $64,921	Average salary $50,568	Average salary $67,061	Average salary $62,066
Bonus $5,190	Bonus $2,336	Bonus $3,677	Bonus $4,790	Bonus $3,051	Bonus $5,639	Bonus $3,582
Total $81,710	Total $46,468	Total $73,207	Total $69,651	Total $53,644	Total $72,720	Total $65,680
2003 Total $80,827	2003 Total $45,349	2003 Total $70,124	2003 Total $68,491	2003 Total $52,246	2003 Total $71,492	2003 Total $64,024

AVERAGE TOTAL COMPENSATION BY INDUSTRY

Computer services/ consulting $84,013	Computer services/ consulting $45,236	Computer services/ consulting* $76,741	Computer services/ consulting $75,763	Government $56,000	Computer services/ consulting $73,865	Computer services/ consulting $65,417
Government $67,521	Government $52,235	Banking* $54,502	Government $63,282	Manufacturing (noncomputer) $53,596	Government* $66,917	Manufacturing (noncomputer) $63,414
Manufacturing (noncomputer)* $77,151	Manufacturing (noncomputer) $40,667	Government* $74,731	Manufacturing (noncomputer) $69,379	Education $46,665	Telecommunications* $75,208	Legal/insurance/ real estate $74,793
Legal/insurance/ real estate* $82,220	Health care $41,503	Finance/accounting* $79,121	Health care* $65,196	Computer services/ consulting* $58,788	Manufacturing (noncomputer)* $68,244	Government $57,771
Finance/accounting* $87,267	Education $34,427	Manufacturing (noncomputer) $77,894	Legal/insurance/ real estate* $72,838	Health care* $54,741	Banking $73,685	Banking $71,771
Telecommunications $90,385	Banking* $44,596		Banking* $83,535	Legal/insurance/ real estate* $58,848	Finance/accounting $86,500	Health care $60,533
Banking $90,330	Legal/insurance/ real estate* $46,483		Finance/accounting* $82,148	Banking* $51,399	Manufacturing (computer) $81,913	Finance/accounting* $75,016
Health care $82,784				Nonprofit $43,606		

AVERAGE TOTAL COMPENSATION BY COMPANY REVENUE

Less than $100M $72,470	Less than $100M $40,295	Less than $100M $64,588	Less than $100M $59,109	Less than $100M $51,075	Less than $100M $66,179	Less than $100M $58,852
$100M to $999.9M $81,236	$100M to $999.9M $49,465	$100M to $999.9M $73,118	$100M to $999.9M $70,582	$100M to $999.9M $56,990	$100M to $999.9M $71,927	$100M to $999.9M $66,440
$1B to $10B $86,226	$1B to $10B $51,727	$1B to $10B $73,961	$1B to $10B $74,069	$1B to $10B* $58,436	$1B to $10B $80,005	$1B to $10B $71,419
More than $10B $89,275	More than $10B $57,679	More than $10B $82,590	More than $10B $80,926	More than $10B* $63,545	More than $10B $82,014	More than $10B $71,066

Charts continue on page 58

% Average percentage increase, 2003-2004

• The total base for this job title in this particular industry or company size was fewer than 30 responses but more than 15. These figures should be used for comparison only, because they don't constitute a statistically significant sampling.

Gray text: The total base for this job title in this particular industry or company size was fewer than 16 responses but more than nine. These figures should be used for comparison only.

A SAMPLING OF OTHER JOB TITLES

Database analyst	Database architect	Database developer/ modeler	E-commerce specialist	Messaging/ e-mail/group-ware specialist	Network architect	Quality assurance specialist	Technical trainer	Webmaster
2%	3.7%	1.4%	1.3%	2.3%	2.2%	3.5%	1.4%	2.9%
Average salary $60,792	Average salary $86,659	Average salary $66,635	Average salary $58,017	Average salary $67,334	Average salary $78,469	Average salary $61,234	Average salary $56,018	Average salary $54,005
Bonus $3,359	Bonus $5,545	Bonus $3,467	Bonus $3,074	Bonus $4,218	Bonus $5,121	Bonus $4,882	Bonus $5,880	Bonus $1,363
Total $84,151	Total $92,204	Total $70,102	Total $61,091	Total $71,552	Total $83,590	Total $66,116	Total $61,898	Total $55,368
Base: 40	Base: 33	Base: 58	Base: 27	Base: 22	Base: 35	Base: 93	Base: 84	Base: 57
2003 Total $82,869	2003 Total $86,878	2003 Total $69,122	2003 Total $60,301	2003 Total $69,970	2003 Total $81,824	2003 Total $63,908	2003 Total $61,017	2003 Total $53,818

BIGGEST LOSSES IN BONUSES

Hospitality/ travel (Base: 87)	-19.1%
Entertainment/ advertising (Base: 271)	-7.7%
IT/computer-related services/consulting (Base: 1,786)	-6.2%

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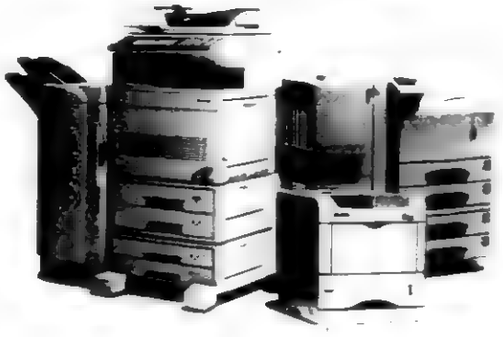
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COMPUTERWORLD SALARY SURVEY 2004

STAFF AND ENTRY-LEVEL POSITIONS

Project leader	Software developer	Software engineer	Systems administrator	Systems analyst	Senior systems analyst	Systems architect	Systems programmer	Technician	Web developer
3.3%	3.1%	1.6%	2.8%	2%	1.9%	2.5%	2.7%	1.5%	4.2%
Average salary $78,513	Average salary $73,206	Average salary $76,292	Average salary $61,771	Average salary $58,178	Average salary $75,834	Average salary $91,003	Average salary $76,987	Average salary $40,313	Average salary $55,464
Bonus $6,786	Bonus $6,504	Bonus $4,868	Bonus $3,154	Bonus $3,038	Bonus $4,256	Bonus $10,305	Bonus $4,319	Bonus $1,444	Bonus $4,395
Total $85,299	Total $79,713	Total $81,160	Total $64,925	Total $61,217	Total $80,090	Total $101,308	Total $81,287	Total $41,757	Total $59,859
2003 Total $82,596	2003 Total $77,319	2003 Total $79,848	2003 Total $63,174	2003 Total $60,044	2003 Total $78,626	2003 Total $96,795	2003 Total $79,148	2003 Total $41,129	2003 Total $57,431

AVERAGE TOTAL COMPENSATION BY INDUSTRY

Computer services/ consulting $86,120	Computer services/ consulting $84,592	Computer services/ consulting $83,821	Computer services/ consulting $72,571	Computer services/ consulting $83,579	Computer services/ consulting $83,712	Computer services/ consulting $96,384	Computer services/ consulting* $78,081	Education $32,290	Computer services/ consulting $82,863
Manufacturing (noncomputer)* $80,543	Banking* $77,261	Manufacturing (computer) $91,025	Manufacturing (noncomputer) $61,158	Manufacturing (noncomputer)* $56,879	Manufacturing (noncomputer) $77,634	Manufacturing (computer)* $127,464	Health care $80,288	Computer services/ consulting* $32,840	Education $37,325
Government $82,466	Legal/insurance/ real estate* $77,884	Defense/aerospace $76,587	Education $53,757	Legal/insurance/ real estate* $62,403	Finance/accounting* $85,060	Telecommunications* $97,053	Government $73,500	Transportation/ logistics* $47,676	Health care $59,479
Banking $97,622	Finance/accounting* $89,017	Manufacturing (noncomputer)* $75,575	Legal/insurance/ real estate $61,536	Government* $56,293	Banking* $77,500	Banking* $102,876		Health care $40,626	Government $61,836
Manufacturing (computer) $97,629	Government $63,475	Banking $82,100	Government $60,833	Health care* $64,357	Government $79,486	Defense/aerospace* $98,956		Government $44,130	
Finance/accounting $101,309	Health care $74,325	Legal/insurance/ real estate $70,511	Health care* $64,734	Education* $53,723	Legal/insurance/ real estate $62,570	Finance/accounting $116,771		Manufacturing (noncomputer) $48,938	
Defense/aerospace $82,121	Manufacturing (noncomputer) $71,027	Telecommunications $78,685	Telecommunications* $70,764	Defense/aerospace $63,878	Health care $68,407	Legal/insurance/ real estate $104,146			
			Energy/utilities* $71,281	Banking $59,267	Defense/aerospace $84,109	Government $92,354			

AVERAGE TOTAL COMPENSATION BY COMPANY REVENUE

Less than $100M $73,279	Less than $100M $74,273	Less than $100M $76,915	Less than $100M $56,911	Less than $100M $53,985	Less than $100M $75,677	Less than $100M $92,417	Less than $100M $74,664	Less than $100M $37,729	Less than $100M $53,648
$100M to $999.9M $78,686	$100M to $999.9M $83,246	$100M to $999.9M $73,214	$100M to $999.9M $66,464	$100M to $999.9M $56,963	$100M to $999.9M $77,004	$100M to $999.9M $91,184	$100M to $999.9M* $83,435	$100M to $999.9M* $41,951	$100M to $999.9M* $72,943
$1B to $10B $85,125	$1B to $10B $80,536	$1B to $10B $79,163	$1B to $10B $71,586	$1B to $10B $67,811	$1B to $10B $79,642	$1B to $10B $103,504	$1B to $10B $96,972	$1B to $10B* $55,676	$1B to $10B* $68,336
More than $10B $96,457	More than $10B $90,216	More than $10B $94,706	More than $10B $80,549	More than $10B $70,275	More than $10B $85,721	More than $10B $109,539	More than $10B* $82,879	More than $10B NA	More than $10B $69,221

% Average percentage increase, 2003-2004

* The total base for this job title in this particular industry or company size was fewer than 30 responses but more than 15. These figures should be used for comparison only, because they don't constitute a statistically significant sampling.

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Methodology

Computerworld's 19th Annual Salary Survey was administered via the Internet. Both *Computerworld* print subscribers and visitors to *Computerworld.com* were included in the survey.

The collection of survey data began May 3 and concluded July 23. A total of 10,745 people responded to the survey. Of those respondents, 9,854 were employed full or part time and were eligible to complete the entire survey. At the 95% confidence level, the margin of error for this sample size is less than +/-1 percentage point.

Respondents were asked to report the percentage change in their compensation for 2003 to 2004. Compensation figures for 2003 were calculated based on the percentage change reported by the respondents.

ONLINE For a detailed look at how we conducted this survey, visit our Web site:
Quick Link 49960
www.computerworld.com

WHO THEY ARE

Eighty percent of the respondents were men, 91% were employed full time, and 46% had a bachelor's degree or higher. The respondents had an average of 14 years in IT, and their average age was 41. Fifty-four percent indicated that they had some level of certification.

Forty-two percent of our respondents indicated that they were in management, whereas 58% said they held staff or technical positions. Five percent said they were employed as contractors or consultants. The most well-represented industry was computer-related services/consulting, with 19% saying they worked in that field. Eighty-three percent reported that they held the same job last year.

More than 29% of the respondents said they reside in the North Central U.S., making it the most well-represented geographic region, followed by the South Atlantic (20%).


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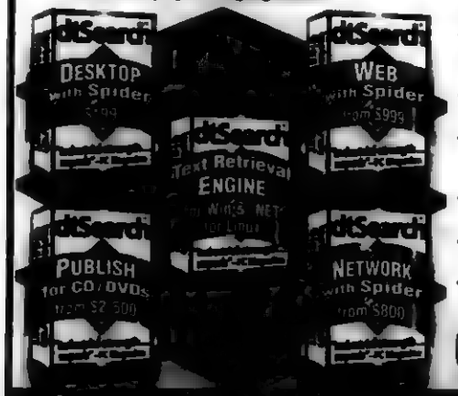
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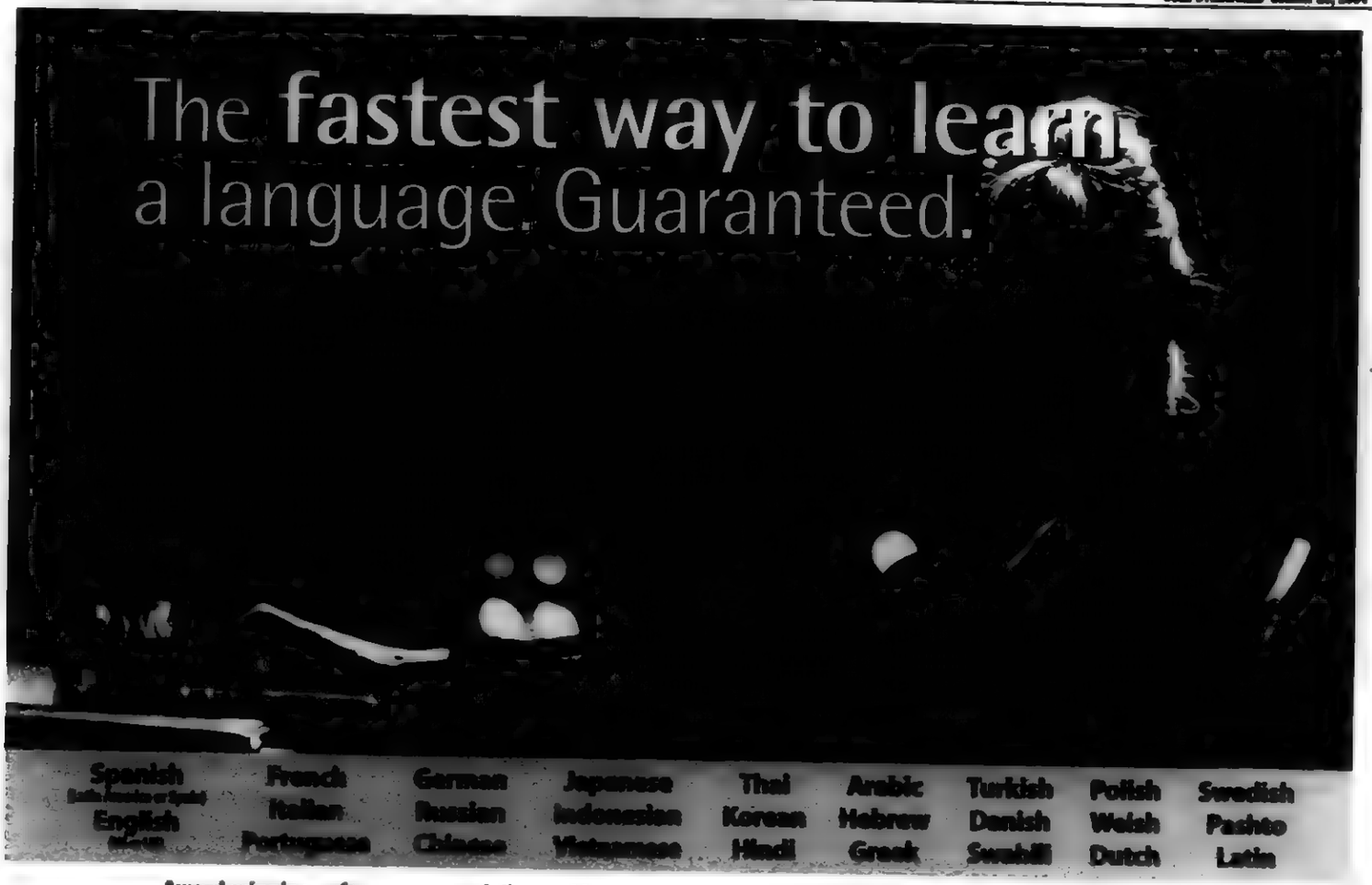
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IT Careers: Software Remains the Hot Skill for IT

Despite heavy losses in jobs over the past four years, more information technology professionals are software programmers than any other job category. According to the Information Technology Association of America, U.S. companies will hire close to 30,000 programmers in 2004. The fall in demand illustrates the change in the software engineering world: two decades ago systems were expensive and people weren't. Today, systems are inexpensive and take up less space and overhead; people are the expense.

Along with this change, the evolution of programming languages allows software engineers to tackle the task at hand versus dealing with the background language that others created to simplify the process. A third factor is that companies no longer want unique programming. They need applications that work together and work with customers' and suppliers' systems, as well. And they need to be able to upgrade quickly, without the rework customization required.

The news isn't all bad, however. There are those 30,000 jobs that need to be filled this year. The software programmers who fill them will have skills that extend far beyond coding. "We used to see a need for people out there creating chunks and pieces of larger systems," says Brad Holtz, president and CEO of Cyon Research and founder of the Congress on the Future of Software Engineering. "Now, programmers work interactively, in real-time, collaborative environments."

The new programming environment requires new skills. Holtz says, "On a simple level, this means programmers needs the ability to work interactively via instant messaging and e-mail, but even that's not enough. The software tools and communication skills need to be an integrated part of the programmer's daily life." Critical among these is a keen understanding of repeatable digital validation that protects the credibility of the data as it shifts among users.



Holtz says protection of intellectual property is another mainstay of the software programmer's new environment. "First, we need to draw a distinction between outsourcing and off-shoring work," he explains. "Many U.S. companies off-shore work to their own operations outside the United States. Many also outsource work to a programmer next door. As both become more prevalent, software programmers have to think in terms of intellectual property and the corresponding security lockdowns. You can't go about programming without thinking through where it's going, the permissions required at the other end to get the job done and the risks of sharing. The software engineer executes those policies."

The secret to careers in software programming, according to Holtz and other career gurus is, "by doing things that aren't likely to be eaten up by the marketplace. Being smart is important," Holtz advises. "If I can say not just how to automate a process but also can focus on how what I'm doing today will play out in the future and on other parts of the organization, then I'm invaluable. Understanding the business systems is crucial – a programmer with an MBA is more valuable than one without one. A single programmer who has a grasp of larger, complex systems can accomplish more than a whole team of programmers who doesn't. That's the premise behind the book *Mythical Man-Month* and it's something I would strongly recommend to programmers."

For more information about IT Careers advertising, please call: 800.762.2977

Produced by Carole R. Hedden

Senior Consultant

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Audit Application Developer (Nashville, Tennessee) - Responsible for all phases of IT project life cycle. Develop & maintain Microsoft web-based apps utilizing C, C++, Visual Basic, VB Script, & JavaScript. Gather & analyze audit & facility end-user requirements, project planning, client-server/web app dev & testing/documentation of apps. Administer Microsoft platform database. Use data mining concepts including: neural networks, linear & logistical regression & decision trees. Travel required. Must have a Bach deg. or foreign deg equiv. in Comp. Sci, Eng, or related field & 1 yr exp. in the job offered or 1 yr exp. in all phases of the IT project life cycle. Exp. may have been obtained concurrently & must include: (i) 1 yr exp. each in dev. C, C++, Visual Basic, VB Script, & JavaScript; (ii) 1 yr exp. administering a Microsoft platform database; (iii) 1 yr dev. & maintaining Microsoft web-based apps; (iv) 1 yr exp. in data mining concepts including: neural networks, linear & logistical regression & decision trees. Must have legal authority to work in U.S. Send resume to B. Carver, (REF:AAD), Director, Employee Relations, HCA Management Services, LP, One Park Plaza, Nashville, TN 37203.

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- NETWORK ENGINEERS
- PROGRAMMER/ANALYSTS
- SOFTWARE ENGINEERS

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- VISUAL C++ - SIEBEL - ASP
- COM, DCOM - JSP - HTML
- JAVA, JAVA BEAN - EJB JAVA SERVLETS - WEBSPHERE
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F/T Computer Programmer. Responsible for evaluating user requests for new and modified programs and formulating plans, outlining steps to develop or modify programs. Consult with users to identify current operating procedures and clarify program objectives. Develop and maintain specifications, modifications and additions to programs using systems analysis. Implement the development of, and modifications to, programs using iSeries, AS/400 systems, and RPG/400. Recreate steps taken by users to locate and correct problems. Analyze, review and modify programs to increase operating efficiency using Delphi and Java programming languages. Adapt programs to new requirements and monitor their performance after implementation. Must have a Bachelor's degree in Computer Science, Electronic Engineering, related field or foreign degree equivalent. Must have 3 yrs. of exp. in job offered or a position w/ same duties. Salary: Competitive. Send resume to: C. Lesker, Datalex TIS, Inc., 11810 Northfall LN, Bldg. 1203, Alpharetta, GA 30004.

Embedded Software Engineer for NE OH to lead design, development/implementation of embedded software projects, preparing detailed design documentations, technical specifications/code/test/debug and provide functional & empirical analysis related to the design/development/implementation of embedded software systems. Develop intelligent electro-mechanical systems/sub-systems using real time OS, e.g. QNX, C/C++. Required skills in Robotics, embedded software/hardware design, automatic control, and intelligent electro-mechanical system control including: DC motors, digital/analog sensing systems, PC104 system, microcontrollers, motion control, control algorithm development, distributed system control, RTOS including POSIX multithreads, scheduling, priority, interrupt and memory management, IPC, CAN/Serial communication, TCP/IP, simulation, dynamic analysis using MARLAB/SIMULINK. Strong software and electronics troubleshooting capability desirable. Minimum Master's degree or equivalent in Electrical Engineering with 3 year's experience. Resumes: HR Representative, 5335 Avion Park Dr., Cleveland, OH 44143. No calls. EOE

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OATSystems, Inc. in Waltham, Massachusetts seeks candidates for the following positions:

Software Engineer - Design and develop software for high volume, data intensive RFID (radio frequency identification) systems and applications. Must have Master's degree or equivalent in Computer Science or related engineering field, 1 year of experience in the design and development of real-time, secure, large-scale enterprise application software in the areas of logistics, e-commerce or point of sale systems, and expertise in: data modeling, migration, and integration interface design and development, Java, JavaScript, XML, HTML, JSP & CSS, Windows and UNIX,TCP/IP, HTTP & SOAP, Weblogic and TOMCAT and MS SQL Server and Oracle. Job reference: SW Eng.

Systems Engineer - Design, develop and implement software systems for secure enterprise and RFID (radio frequency identification) systems and applications. Will determine end-user requirements, define software deployment procedures; deploy and customize solutions and quality assurance. Must have Bachelor's degree in Engineering, Computer Science or related field, 3 years of experience in the design, development and deployment of real-time, secure, large-scale enterprise applications designed for e-commerce, point of sale systems, or supply chain management, and expertise in data modeling, migration, and integration interface design and development, Java, JavaScript, XML, HTML, JSP, J2EE & CSS; UNIX and Windows; HTTP & SOAP; Weblogic and TOMCAT; Oracle and MS SQL Server. Job reference: Sys Eng

Please e-mail a cover letter with Job reference, resume and salary requirements to [redacted].

IT Analyst I

Roxane Laboratories, Inc. has an immediate opening in its Columbus, Ohio office for the position of IT Analyst I.

Assists with maintaining codes for new systems, builds install packages, ensures that all solutions are implemented in a timely manner and properly tested, edits application component functional specifications and technical design documents and assists with web development.

Must possess a Bachelor's degree in Management Information Systems, Business, Computer Science or a related field and relevant experience, including college course/project work and/or work experience with PowerBuilder, Enterprise Java Beans, C# and Delphi.

Resume and/or cover letter must reflect each requirement above and specify reference code AD-GCD/GC0804 or it will be rejected. Forward resume to BI Staffing Center, PO Box 534, Waltham, MA 02454. Fax number: (781) 663-2431. Email: BIP1@BI-careers.com. EOE.

Manager, Mgmt. Info. Systems

Design info. systems to provide data from computer storage; design methods for collecting & classifying info. for input/output retrieval using symbolic language & optical/pattern recognition; manage life-cycle of Marine Inventory Mgmt. & marketing platform; create graphic yacht presentations in qualifying process of MMM platform; create web sites using HTML, Macromedia Flash, Dreamweaver, Adobe Photoshop, Image ready/styler; create CD/DVD based marketing promos incl. flash imbedded video & interactive digital manuals. Req. 5 yrs. exp. Resume to HR, TAAS Enterprises 14202 Belmont Trace Wellington, FL 33414. No calls.

NOTICE OF VACANCY #2005-4
Network Applications Analyst, (Non-Classified Position): DUTIES AND RESPONSIBILITIES: The Network Applications Analyst will be responsible for implementing Web, Internet, Local Area Network (LAN) and Wide Area Network (WAN), connectivity. Will be involved in network programming, installation, operation, maintenance, administration, and performance testing of University Internet and intranet. Will develop networking and data communications strategies. Will implement security and disaster recovery solutions for University network. SALARY: Commensurate with experience and education. QUALIFICATIONS: Bachelor of Science degree in Computer Science or related field with 3 years of experience. EFFECTIVE DATE: Upon approval. TO APPLY: Send letter of interest and résumé to: Human Resources, Fairmont State, 1201 Locust Ave., Fairmont, WV 26554-2470. DEADLINE: For full consideration, résumés should be received by October 8, 2004. The position will remain open until filled. FAIRMONT STATE IS AN AFFIRMATIVE ACTION, EQUAL OPPORTUNITY INSTITUTION. INDIVIDUALS FROM TRADITIONALLY UNDER REPRESENTED GROUPS ARE ENCOURAGED TO APPLY.

Software Engineer - various locations (2 positions) - Research, design and develop computer software systems in conjunction with hardware product development applying principles and techniques of computer science, engineering and mathematical analysis. Requires Master or equivalent in Computer Science, Engineering or Mathematics. Equivalent is Bachelors plus 5 yrs exp. Requires 3-5 yrs exp in the job offered. Three yrs exp if Masters or 5 yrs exp if Bachelors. Must have 1-yr exp using Oracle and SQL. 5 day, 40 hr/wk, $77,542/yr. Please mail resumes to Workforce Development Programs, PO Box 46547, Denver, CO 80202 and refer to order number COS093902.

Programmers (Level-3): Develop & write computer programs for web/client-server software appls. & convert project specs. in JD Edwards One World, Microsoft tech., Oracle and Java/J2EE. BS in Comp. Sc., or rel. field & 2 yrs. software development exp. including at least 12 months exp. in job offered required. $50,200/Yr. & benefits. Mail resume to Jann Nielsen, Melaleuca, Inc., 3910 S. Yellowstone Hwy., Idaho Falls, ID 83402. No phone calls please. EOE.

Mphasis Corporation has multiple openings for the following positions at its offices in New York, NY, Memphis, TN, Houston, TX, San Mateo, CA and unanticipated client sites throughout the U.S.: Programmer Analyst, System Analyst, Software Engineer, Project Manager, Management Analyst, Sales Engineer, Business Development Manager, Finance Manager. Please send resume, salary history and position applied for to 460 Park Avenue South, Suite #1101, New York, NY 10016, Attn: H.R. Manager.

NET MATRIX SOLUTIONS

Net matrix Solutions has the following positions open:

SOFTWARE ENGINEERS: to research, design, develop computer software systems and lead new product development projects to timely completion. Ability to evaluate and design SAP software is required. Needs a Masters in CS/MIS or any related degree combined with 1 + years experience or Bachelors with 5 years experience in designing and developing computer software systems.

SYSTEMS ANALYSTS: to analyze, design and develop operational procedures to automate processing and to develop new systems to improve production. Knowledge of SAP, Oracle, and other business related software is essential. Needs Bachelors in Engineering/CS or in any related field combined with 5 years relevant experience in designing and developing computer software systems.

Please send resumes to: Human Resources, 480 Congress Street, 1st floor, Suite #317, Portland, ME 04101.

Programmer Analyst - Microsoft & ERP Engineer: Wanted by an IT consulting firm in Keene, NH to work at various client locations throughout USA. Respond to HRD, Infowave Systems, 39 Central Square, Suite #201A, Keene, NH-03431. Requires: Bachelor Degree in Computer Science or related field and one year experience in the alternative will accept applicants with three years of university level education plus three years of experience performing analysis, development and testing of enterprise web applications. Primary experience must include working with technologies such as Erwin, ERP Great Plains, Dexterity, C#, ASP.net, VB.net, MTS, RDBMS tuning on SQL Server /Oracle 8.x/9i on .Net Frame work, Windows and UNIX. Other skills preferred: shell scripting languages, MTS, other ERPs.

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Senior Project Mgr: Direct offshore software eng. teams (20+) in dev. of software app. projects. Manage software design and dev. for final delivery & QA. Plan & monitor project implement., resources & assignmts. Provide tech. guidance. Freq't overseas travel req. & relocation to sites in the U.S. Must have MS in CS or Comp-Aided design or equiv; 3 yrs exp in proj.mgmt of software dev incl. 1 yr mgmt of offshore software dev teams according to CMM 3 processes and 1 yr exp in Lotus Notes, J2EE, Conf. mgmt, CORBA, Unix, Windows, Solaris, embedded programming. Job Location: Bellevue, WA. Salary: $113+K/yr. Send resume to Job # ANLC04 IBS Capital Main Office 136 Summit Ave. 2nd Fl. Montvale, NJ 07645



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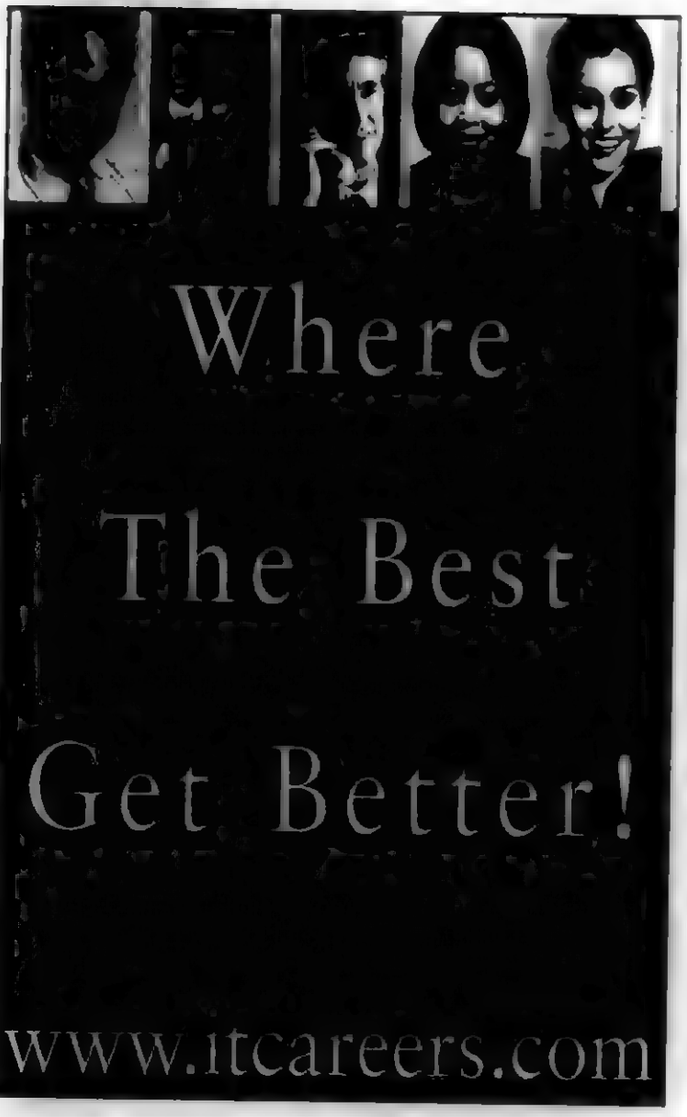
GlobalSource IT, Inc. (GSI) is a recognized leader in the specialty ERP professional services market. We seek SAP, PeopleSoft, Oracle, J.D. Edwards or Baan consultants. Candidates must have BS/MS with IT experience. Competitive salary with full benefits. Please resend resumes to: pdamp@globalsourceit.com. EOE. No calls.

Bayou Healthcare LLC (dba CrossRoads Regional Hospital) is looking for system analysts or software engineers to handle our IT projects. We offer competitive wages. Interested applicants must have Bachelor or Master degree with IT experience. Please mail resumes to 644 High Plains Ave., Baton Rouge, LA 70810. EOE.

Chad Oils, Inc. seeks an experienced Programmer/Business Analyst with 5 yrs. experience in Systems Programming and VB, Oracle and SQL server. Mail resume to: Attn. Chad, 600 Parsons Street, Pine Bluffs, WY 82082.

Embedded Software Eng. wanted by company engaged in graphics and multimedia technology design, manufacturing and marketing. Requires Bach. in CS or EE plus 2 yrs exp. including Set Top Box methodologies and ATSC. Reply to ATI Research, Inc. H.R. Dept., Attn: K.B., 62 Forest Street, Marlborough, MA 01752.

Programmer. Web app. Development including database, business object and presentation layer design and programming. Maintain web apps. used in Judicial Agencies. Position requires developing dynamic government/commercial web sites using C#, ASP.Net, XML, SQL, and migrating existing ASP sites into ASP.Net. Req. BS or foreign equivalent in CS. Must be proficient in ASP.NET, C#, XML, SQL, and JavaScript. 40 hrs/wk, 9-5. Send resume to Advanced Computer Technologies at 600 South Court St. Suite #215, Montgomery, AL 36104.



SYSTEMS ANALYST

Analyzes user requirements, procedures and problems to automate processing or to improve existing computer systems. Bachelor's Degree and 2 yrs. exp. required in job offered. Must be able to travel. Incl. in the 2 yrs. must have 2 yrs. exp. with various computer skill sets such as OOP/OOD with J2EE, Struts, design patterns, EJB2, JNDI, JMS, JDBC, JNI, JavaScript, Eclipse, XML, UML, XSLT, SMTP, MQ Series, Apache, Websphere Studio, WSAD, WebLogic, UDB, TERADATA, Oracle, SQL Server, DB2, JUnit, JProbe, Webload, TOAD, ERWIN, Informatica, UNIX & MS Windows. 40 Hrs./wk. 9 to 5, Monday thru Friday, no overtime. Apply by resume to Nagesh Ganta, HR Manager, Capricorn Systems, Inc. 3599 Habersham-at-Northlake Building K, Tucker, GA 30084.

Senior Enterprise Infrastructure Engineer wanted to participate in arch. designs for the planning, integration & development of J2EE applications. Must have Master's deg. in Comp. Sci. or Eng. & 2 yrs. software development & object oriented analysis & design exper. incl. commercial software eng. exper. in EJB, SOAP, Weblogic & WSAD, exper. in Content Mngmnt. or Digital Asset Mngmnt. Systems, & exper. in a tech. leadership role, responsible for design & development of core functional modules of J2EE based application. (A Bach. deg. & 5 yrs. exper. can substitute for a Master's & 2 yrs. exper.) Send resume to Human Resources, Job Code SE89, Context Media, Inc., 1 Providence Washington Plaza, Providence, RI 02903.

DATABASE ADMINISTRATOR wanted by Int'l freight forwarders/logistics co. in Houston, TX. Must have B.B.A. in MIS or CIS plus exp. Respond by resume only to: Alice Darragh, General Manager, H/C-810, FTS International Express, Inc., 480 North Sam Houston Parkway East, Ste. 223, Houston, TX 77060.

Immediate openings for entry & experienced Prog/Systems Analysts, Software Engineers, DBA & IT Consultants. Job duties and tools vary depending upon position. BS/MS. 0-3 yrs exp reqd, also accept foreign edu equiv. Travel maybe required. Send résumé and salary reqs to: Saras America, Inc., hr@SarasAmerica.com. EOE.

Livermore Software Technology Corp (LSTC), owner of LS-Dyna, LS-PrePost, LS-Opt, is expanding worldwide & seeks software developers in area of multimaterial Eulerian fluids. Min qualification is BS/MS with 1-8 yr. exp. Please mail resumes to: 7374 Las Positas Road, Livermore, CA 94550. EOE.

Software Engineers needed. Seeking qual. candidates possessing BS or equiv. &/or rel. work exp. Part of req. rel. work exp must include 3 years working w/ASP, ASP.Net & C#. Duties include analyze, design, develop & maintain existing & proposed apps./systems using ASP.Net, VB.Net, C#, MS SQL Server, Oracle & ASP. Responsible for successful design, development & implementation of apps./systems at various client sites. Fwd. resume, ref. & salary req. to Computer Consulting Associates International, Attn: HR, 200 Pequot Ave., Southport, CT 06890.

Senior Consultant

(Glen Mills, PA and other locations throughout the United States) Work on Oracle projects involving functional and technical implementations utilizing the industry standard Oracle development methodologies, such as AIM and CDM. Lead and manage functional implementation in Oracle CRM, Mobile and Wireless Applications as it relates to business requirements analyses, design of best in practice industry solutions, configuration, testing and delivery of Oracle Applications. Utilize Oracle Technology to perform Oracle Mobile and Wireless Implementation. Wireless Applications Architecture and Oracle Data Warehousing Design and Development. Lead and manage technical development of RICE components (custom Oracle Reports, Inbound and Outbound Interfaces, legacy system data conversion, custom workflows and custom extensions) across Supply Chain, CRM, Financials and HR modules) Utilize Oracle Development Tools such as PL/SQL, Oracle Forms, Oracle Reports for RICE components and customizations. Work with Java, JSP's, Servlets, BC4J to extend or customize the self service modules in Oracle applications. Engage in upgrades, setup, & system administration of Oracle Applications 11i instances & Oracle 9i, & databases on UNIX/NT platforms utilizing Oracle Applications Architecture. Work on middle tier, Oracle 9ias application server administration, configuration and architecture. Work with integration tools like Informatica, Tawz and Kintana on multiple Oracle client engagements. Plan and lead the team structure, strategy, delivery process for Deloitte Oracle Extended Delivery model.

The wage offered is $78,764/year. The work schedule is Monday-Friday 9:00am-5:00pm. The minimum requirements are as follows: Master's degree in Information Systems, Computer Science, or Engineering (any) + 2 years experience in the job offered or 2 years experience as a Business Analyst, Associate Consultant, Consultant, Senior Consultant, or Applications Developer. Related experience must include at least 2 years of Oracle Development Tools, Oracle Development Methodologies, Oracle 9ias Application Server Administration, Configuration and Architecture, and Oracle Technology.

Please send your resume, referencing Job Order Number **WEB 484617** to the PA CareerLink, 701 Crosby Street, Suite B, Chester, PA 19013-6096. EOE.

IT consulting firm located in Vermont has multiple openings for IT professionals to serve multiple clients throughout the U.S. Job duties include: Analysis, design, development and testing of computer applications. Specific skill sets needed include:

- .Net developers
- J2EE developers
- Datawarehousing developers (Cognos/Informatica, Abinitio or Business Objects)
- Oracle Developers /DBA
- Siebel Developers
- ATG Developers
- QA Testers
- ERP Consultants - Oracle/ PeopleSoft/SAP

Some senior level positions available. Competitive salaries. Send resumes with salary requirement to: vt@eTechUS.com. Applicants must have authority to work permanently in the U.S.

Exec Search, Inc. a technology-consulting firm in Wisconsin has multiple IT positions around the country w/ exp in one or more (depending on need) of the following skills: WebMethods Integration Server, WebMethods Trading Networks, WebMethods Enterprise Server, IBM MQSeries, IBM Assembler, IBM WebSphere, Mainframes, CICS, DB2, COBOL, Unix, Sun Solaris, Windows, C/C++, Visual C++, Visual Basic, Power Builder, Designer 2000, Developer 2000, Oracle, Oracle Application, SQL Server, MS Access, SQL, SQL Plus, PL/SQL, Data warehousing Tools, HTML, DHTML, XML, TCP/IP, Perl, JSP, Weblogic, J2EE, Java, Java Script, VB Script, ASP, Clarify, Documentum, CoreDossierX, Rational Rose, Testing tools and QA methodologies. Related edu and /or exp req'd. Relocation may be necessary for most jobs. Send resume to Exec Search, Inc., C/O ISS, 1300 Bent Creek Blvd, Ste. 200, Mechanicsburg, PA 17050.

Lead Java Developers needed. Seeking qual. candidates possessing MS or equiv. &/or rel. work exp. Part of req. rel. work exp. must include 3 years working with Java, Rational Rose, & either Servlets or XML. Duties include: design, document & maintain Java-based web applications; develop back-end code using Servlets & JSP; work with Oracle, XML, Rational Rose & HTML. Fwd. resume & ref. & salary req. to Petra Technology, Attn: HR, 1900 St. James, #700, Houston, TX 77056.

F/T Research Software Engineer for NM location. Responsible for performing database design, system configuration data conversion planning, application design and development, documentation development, and application and system training. Configure hardware, software, and network components of GIS and LIDAR systems. Assist clients in developing practical programs that maximize the benefits of their GIS investment. Analyze clients' system operations to determine opportunities for increasing production efficiency. Must have a Master's degree Computer Science, related field, or foreign degree equivalent. Must have 2 yrs. of exp. in job offered or a position w/ same duties. Salary: Competitive. Send resumes to: Sheila Seals, Spectrum Mapping, LLC, Ref. 222, 28969 Information Lane, Easton, MD 21601.

Systems/Programmer Analyst

(For Dayton, OH and Chicago, IL) Multiple openings. Will be resp. for complete life cycle of software applications using C, C++, Java, PL/SQL, Oracle, DB2, SQL Server, Sybase, Oracle Express, Financial Analyzer, Warehouse Builder, Informatica, ETL, Business Objects, Java Script, XML/XSL, .NET, ASP, Lotus Notes, Weblogic and Data Warehousing tools on Windows and UNIX platforms. Masters with 3 months or Bachelors with 2 years exp. w/proven expertise on above tools and technologies required. Competitive salary. 40 hrs/week, Mon-Fri, 8am to 5pm. Job requires travel to client sites within U.S. Must have legal auth. to work in U.S. Submit two sets of resumes w/covers to HR Mgr., Paramount Global Solutions Inc. 1458 Yankee Park Pl., Dayton, OH-45458 or to 2520 S. King Dr. Suite 505, Chicago IL 60616.

Software Engineer: B.S. in Comp Sci., Eng. or related field + 4 yrs. exp in Tandem, COBOL, Tandem C, Pathway & Enscribe; 1 yr. exp in MQ Series, TPF, Visual Basic & ASP. Reply to American Computer Services, 2163 66th St., Ste B, Des Moines, IA 50325. EOE.

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Install, support and train customers on QUALCOMM AS/400 software products. Write integration to and from various third party applications. Travel is required. Must have 5 years' of RPG experience and BSCS preferred. Transportation experience is a plus. Experience with Microsoft Office, Java and Websphere application skills are a plus.

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Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Biztalk, SQL Server 2000, MSMQ, C# and ASP.NET. Requirements: Bachelor's Degree, educational or functional (3 years experience=1 year of college) equivalent, in Engineering, Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Biztalk, SQL Server 2000, MSMQ, C# and ASP.NET. Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Fayette County CareerLink, Attn: CareerLink Program Supervisor, 139 Wayten Smith Drive, Uniontown, PA 15401, Job No. WEB465721

SysaProg. Analyst with experience in Microsoft Development platforms. Applicant would assess the current environment within the required time frames, and provide remediation assistance to the team. Ability to write dispatch and accounting applications. Position requires an understanding of generally accepted accounting principles, methods and must be able to apply such concepts to the development and enhancements of applications. MS in IS or equivalent + 1yr Exp. in s/w design, development and implementation. Exp with VB, VB.NET, ASP, ASP.NET, SQL Server, Access, OOPS, SOAP, XML is required. Apply to Computerized Management Systems, Inc. 520 W. 10th St., Sioux Falls, SD 57104

Software Professionals Needed

Hewlett-Packard GlobalSoft Limited (formerly Digital GlobalSoft Limited) is a leading software company with offices nationwide. With HP you will get: Extensive Benefits, Additional Compensation for referrals, and Professional Challenges with training and assignments to keep you at the leading edge of technology.

We are searching for software professionals (software engineers, programmer/analysts, systems analysts), with the following skills:

OS: NT/Windows 2000/XP, Unix.

Languages/Tools: Net, ASP Net, C#, ASP, Com/Dcom, Java Script, VB Script, VB, VC++, PERL, J2EE, Java, EJB, CORBA, RMI, C/C++, Informatica, BR9O

Middleware: MSMQ, TUXEDO

Database: Oracle, SQL Server, Sybase

We are also searching for SAP functional experts with 2 years implementation experience in various modules and Siebel certified consultants with 2+ years post certification experience.

All positions require relevant industry experience. Most positions require a degree in computer science, engineering or a related field. Travel to job sites throughout the United States required. Some positions may require relocation to Europe and Asia Pacific. Applications can be sent to North America F & A Manager, Hewlett-Packard GlobalSoft Limited, 2 Results Way, MAIL STOP: MRO2-2/09, MARLBORO, MA 01752. Hewlett-Packard GlobalSoft Limited is an equal opportunity employer

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Software Engineer III

(Temple Terrace, FL) Provide conceptual & high-tech solutions to complex business & technical problems. Develop & implement standards & verify results. Provide technical expertise in operating systems & applications systems in the telecommunications industry. Design & develop customer appointment scheduling systems for the telecommunications industry on client server architecture using C/C++, Java, CORBA, Unix & Windows NT. Provide technical solutions to meet documented requirements within schedule. Identify, recommend, & document effective design methodologies & tools to be utilized during the design, coding, testing & implementation, & installation phases. Position requires a Bachelor's degree, or foreign equiv, in Comp Sci., Info. Tech. or Comp. Eng. & 3 yrs of exp in the job offered or as an Engineer, Analyst or Programmer. 3 yrs of progressive exp. must include exp. with C/C++, Java, CORBA, Unix & Windows NT. $69,720/yr, 9-5, M-F, 40 hrs/wk. Submit resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869. Job Order # FL-2564855.

GIS Programmer. Responsible for the programming of all mapping components of the company's software products, delivering support, maintenance, & troubleshooting to clients using such products, managing projects. Req B.S. in Comp. Engineering or Related Field & 1 yr of exp in job/1 yr exp as a Programmer. Send Resume: Henry P. Unger, Hitech Systems Inc., 1925 Century Park East, Ste. 1650, Century City, CA 90067 (jobsite).

Software Engineer VI - Systems/Architecture

(Temple Terrace, FL) - Lead a team to provide conceptual & technical solutions to complex problems. Design, develop & implement & integrate information system solutions including hardware, software, & network environment determinations. Analyze software release under deadlines. Lead & mentor team members. Perform Java based distributed computing technologies in Java programming language & J2EE technologies in a distributed design environment. Manage & configure application user management functions utilizing Windows NT operating systems & Oracle platforms. Create software models using UML modeling & project management methodologies. Standardize transmission of objects between operating systems & platforms using Rational Rose. Position requires a Master's Degree, or the equiv., in Computer Science or Computer Engineering & 1 yr of experience in the job offered or as an Engineer, Programmer or Analyst. As equiv. to a Master's Degree & 1 yr of experience the employer will accept a Bachelor's Degree in Computer Science or Computer Engineering plus 5 years of progressive, post-Bachelor's experience. 1 yr of progressive experience must include experience with Java, J2EE, Oracle, Windows NT & Rational Rose. $94,000/year, M-F, 9-5, 40 hrs/wk. Submit resume to Workforce Program Support, PO Box 10869, Tallahassee, FL 32302-0869. JO FL #2568822.

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Computer Graphic Designer /Animator. Responsible for character animation, modeling, prototype design, lighting, particle systems, rendering, texturing & screen design of products. Req Master Degree in Fine Arts. Jobsite: Irvine, CA. Send Resume: Karin Seis, Blizzard, 2655 Campus Dr., #100, San Mateo, CA 94403.

Multiple positions available for computer professionals including Soft. Eng.'s, Programmers, Jr. Programmers, Systems Analysts, Network Analysts, DBA'S, etc. Locations vary. Req's BS, MS, or equiv depending on pos. & 0-2 yrs exp depending on pos. For some positions, we also accept any suitable combination of education, training or experience in lieu of the req. edu. Travel/frequent relocation. E.O.E. Competitive salary & benefits. Resume to: Pinnacle Talent, Inc. Attn: HR 1919, Midwest Road, Suite 210, Oakbrook It. 60523 ID Job No. FL8-11-04

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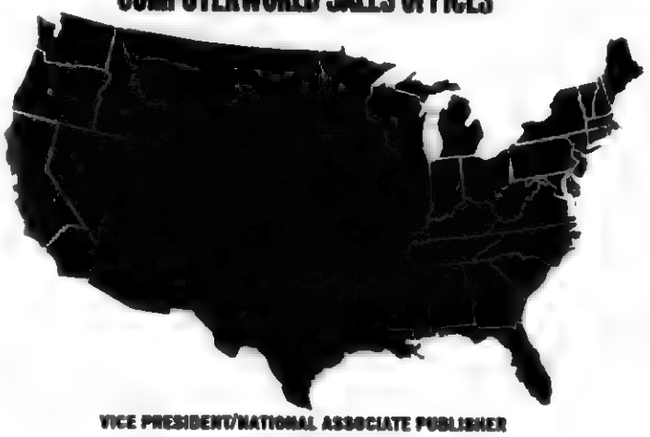
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Storage Networking World (SNW), in conjunction with Computerworld and the Storage Networking Industry Association (SNIA), proudly presents the fifth SNW "Best Practices in Storage" Awards Program. This program honors ten IT user "best practice" case studies selected from a field of qualified finalists.

Meet the winners at the SNW Awards Ceremony – Wednesday, October 27th, 7:30pm

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- Financial return and measurable payback (returns on investment, assets, resources) through created/protected revenue opportunities or cost savings.
- Strategic importance to the business.
- Substantive customer impact (service, retention, acquisition).
- Positive impact on other business/organization units.
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- Provides a strategic advantage to the business/organization while anticipating and accommodating the deployment of future storage solution initiatives.
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Licensing Status

The server software that Microsoft licenses on a per-processor basis includes the following products:

- BizTalk Server
- Commerce Server
- Content Management Server
- Host Integration Server
- Identity Integration Server
- Internet Security and Acceleration Server
- SQL Server
- Speech Server

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MORE MULTICORE NEWS

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Online: Intel says it doesn't plan to ship its first dual-core Xeon processors until 2006.

QuickLink a5110
www.computerworld.com

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QuickLink 50119
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FRANK HAYES • FRANKLY SPEAKING

Scary Monsters

HALLOWEEN IS ALMOST HERE. Costumed figures will soon be lining up at your front door to yell, "Trick or treat!" You'll see Spider-Men in large numbers this year and, as usual, lots of princesses, ballerinas and angels. But you'll also see plenty of ghosts, vampires, mummies, skeletons and other monsters of every description.

You know how to deal with the monsters at your doorstep. You either buy them off with a handful of treats for each of them, or you turn off the porch lights and pretend they're not out there.

After all, you know there's nothing to fear from those pint-size creatures. The really scary monsters lurk around your IT shop.

You've heard about zombies, of course — those computers that have been taken over by intruders and turned into relay stations for viruses, worms and especially spam.

But zombies aren't the only kind of IT undead. There are also vampires that suck the life out of your resources and budget, such as those servers that are hardly ever used these days but still require maintenance, updates and patches.

And mummies, in the form of old bugs that you thought you had wrapped up and buried but return when a new patch or code change reverses your fix and resurrects the problem.

You probably have a Frankenstein monster or two around your operation: patchwork systems that were cobbled together in an emergency, never quite worked right and certainly won't ever scale.

Werewolves show up, too — hardware and software that seem to be fine but intermittently change into a beast and then, just as suddenly, return to normal.

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The monsters aren't just in your systems, either. Almost every organization has its Jekyll and Hydes, those business managers who tell you one thing about what's needed for new systems but tell users to expect something entirely different.

We've all seen Jack the Ripper — the budget-cutting CFO who really doesn't understand that not every new project is a boondoggle and that a staff or project can't accomplish anything if it's gutted.

And if your CFO isn't a Ripper, there's a good chance that he's a Grim Reaper whose budgetary touch brings death to good and bad projects alike.

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No wonder life in corporate IT sometimes feels like a horror show. It's not your imagination, and these creatures don't just come out once a year.



FRANK HAYES, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

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But for the rest, you'll just have to live in IT's Halloween world — all year long. **50227**

SHARK TANK

Dawn of the Dead . . . line

The IT pilot fish is called on to fix everything in this office, from the microwave to the fire alarm. So when the fax machine starts sending faxes with big black streaks, fish installs a new machine. But the same problem returns immediately – and this time, fish notices it happens only late in the morning on some days. Then fish notices that the sun shines directly on the machine in the late morning. "I closed the blind," says fish. "Problem solved."

The Exorcist

Trash is piling up in this pilot fish's cube, so he asks facilities guy why. Turns out the non-English-speaking cleaning ladies won't go near that cubicle because a threatening, demonic voice comes out of it at odd times. That's when fish realizes his PC is on all night, and whenever e-mail arrives, a Klingon voice announces, "Captain! Incoming message!" "I changed my theme to something less vocal," says fish. "The facilities guy assured the janitorial staff that the cube had been deconsecrated, and my cube started getting cleaned again."

Poltergeist

"My mouse is opening and closing programs on its own," user at a remote site tells help desk. Pilot fish tests the PC across the network and, sure enough, the pointer moves, though user swears she's not touching the mouse. Much troubleshooting later, fish hops a plane to the site. "I find that the two users in this office replaced their company-provided keyboards and mice with unapproved cordless setups," he sighs. "They were both set to the default frequency. A quick turn of the frequency dial cleared up the problem."

Friday the . . . er, 31st

User complains she's having trouble entering a date in a database. Database support staffer tries, but after the date is entered, he can't move the cursor out of the field. Frustrated, he asks pilot fish to enter the date into the table manually. That's when fish explains why he won't: "The date they wanted to enter was June 31."

Trick or Treat

When this user's PC suddenly starts making a loud, continuous sound, she calls support pilot fish. "I was initially thinking it was a thermal alarm, but the fans and temperature were fine," says fish. "But when I started the word processor, the cursor took off across the screen, filling it with spaces." Under the space bar, fish finds a big chunk of candy bar. "Then I turned the keyboard over," he sighs, "and shook what looked like a complete candy bar out of it."

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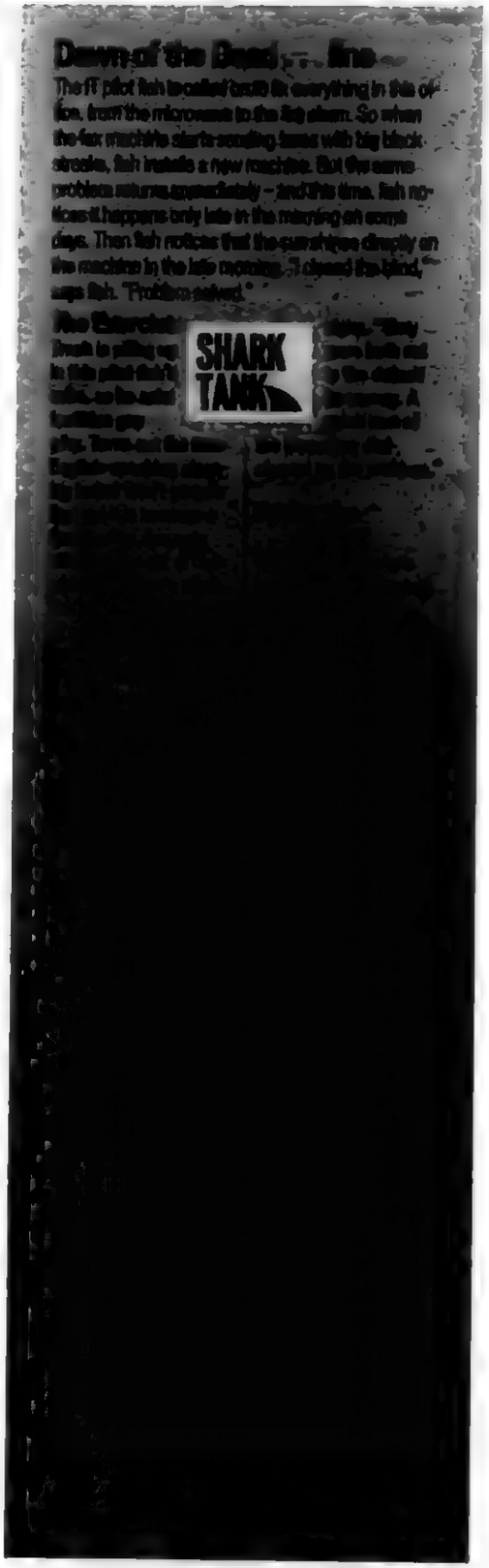
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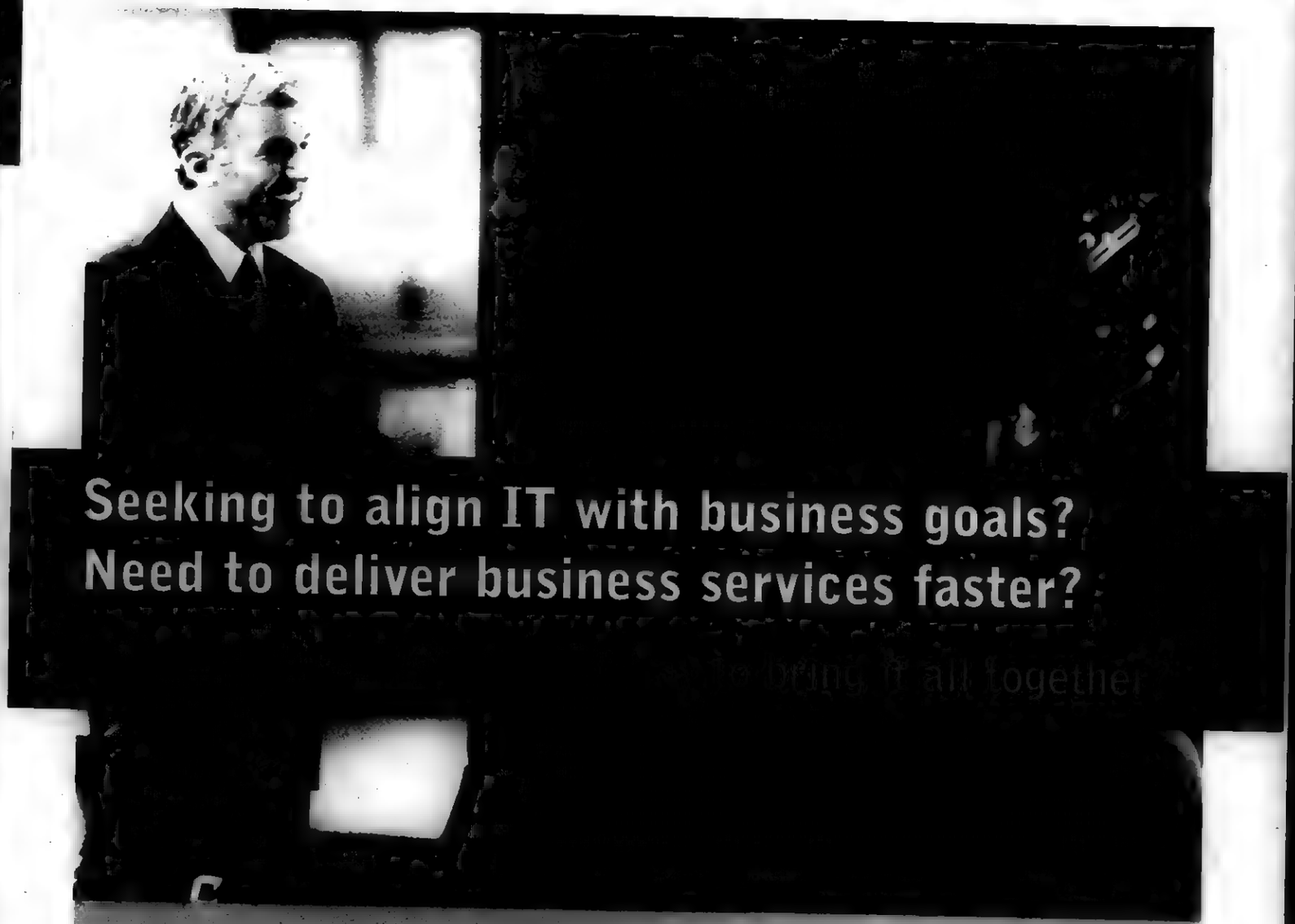
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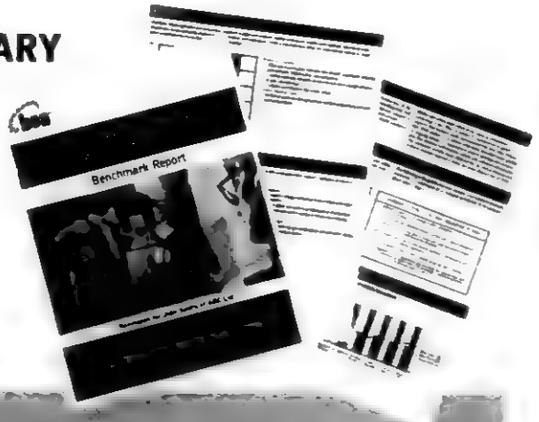
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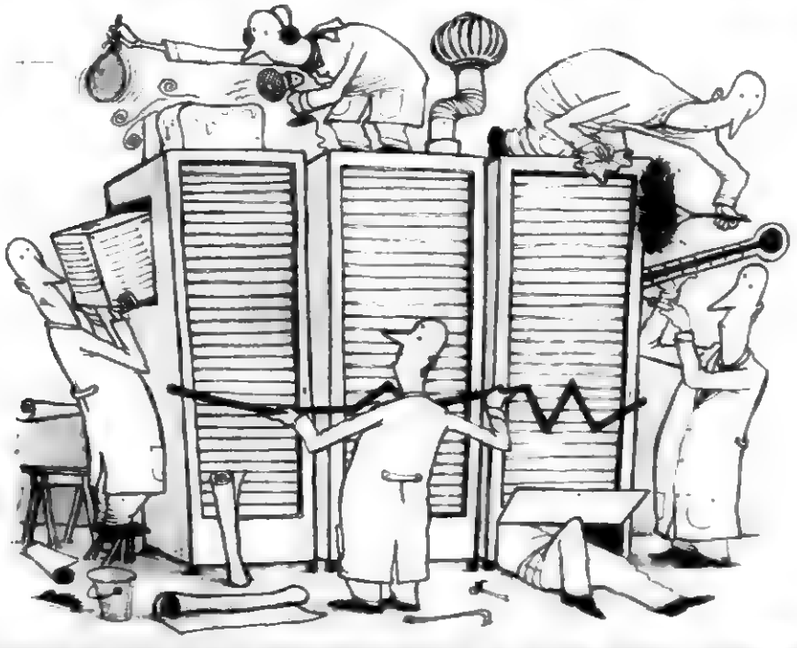
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Data Centers Get a Makeover

Ultradense server racks, disaster recovery requirements and IP networks are forcing big changes in the way new data centers are built. By Gary H. Anthes PAGE 23

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Software Vendors' Audit Requests Irk IT Managers

Some view Sarb-Ox tie-ins as a ploy; others see nothing amiss

BY THOMAS HOFFMAN
LAS VEGAS

A number of software vendors are requesting that large corporate customers conduct self-audits against their software usage, allegedly to help the suppliers meet Sarbanes-Oxley regulatory requirements, according to several attendees at an IT asset management conference held here last week.

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The letter said the audit was required to help Interwoven meet the Sarbanes-Oxley Act's compliance mandates but didn't mention which regulatory requirements had to be met, said the purchasing manager. "It seemed like a soft-step approach to get us to conduct an audit," he said.

His company ended up conducting the audit. It then reviewed the results with its legal department and informed

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GM, Boeing Push Identity Management

Expect single-sign-on rollouts to lower costs, improve access to apps

BY JAIKUMAR VIJAYAN
DENVER

General Motors Corp. plans to migrate its end-user identity management services to a single global system over the next several years as part of a broad initiative to improve IT efficiency and reduce the automaker's operational costs.

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When it's completed, the consolidated identity management system will enable universal application access and single-sign-on capabilities for about 500,000 end users, including GM employees and workers at suppliers, contractors and other business partners, according to Tony Scott, the company's chief technology officer.

The new infrastructure will replace numerous silos of identity information at GM and will play a crucial role in its ongoing move toward a global supply chain and manufacturing model, Scott said at the Digital Identity World conference here last week.

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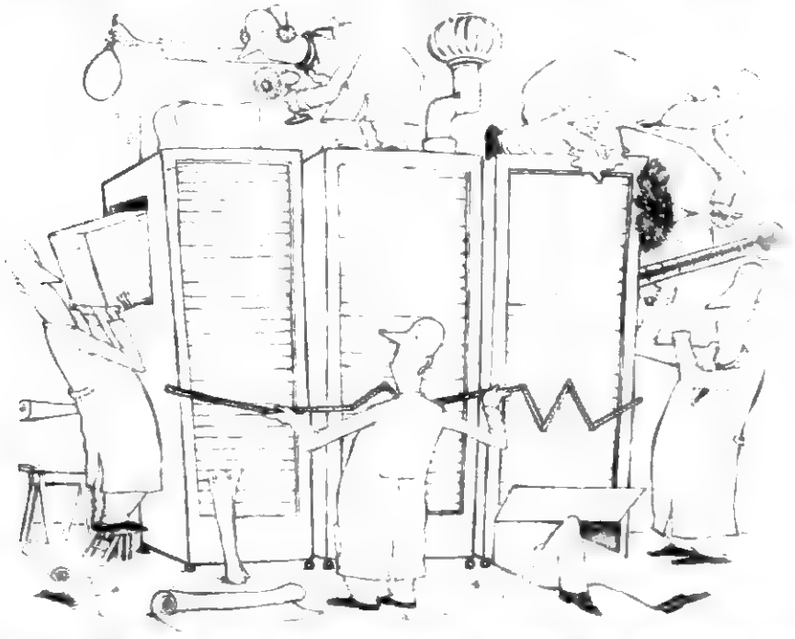
Corporate weblogs are rife with legal liabilities. Before your company sponsors one, take these precautions. PAGE 40

Starwood Hotels books HP to replace IBM as its outsourcing vendor and help it move off the mainframe. PAGE 5

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E-voting flaws could make all of IT look bad, says columnist Dan Gillmor PAGE 18

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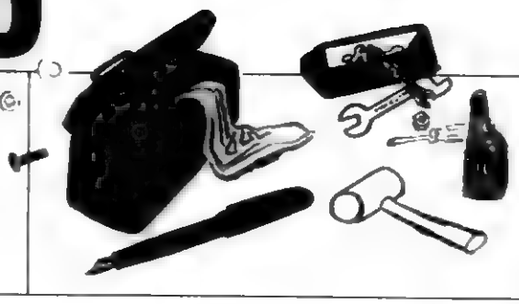
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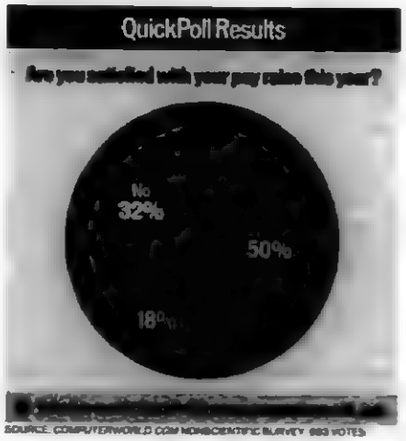
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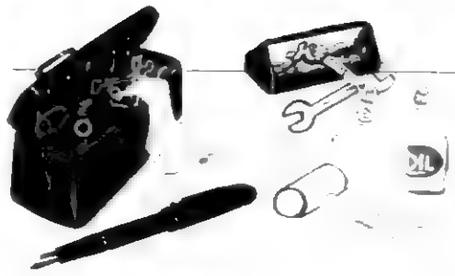
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AT DEADLINE

Textron, CSC Sign Outsourcing Deal

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Oracle Sets Release Date for New Apps

Oracle Corp. said it plans to ship the latest version of its ERP applications next Monday, although a spokeswoman noted that logistical issues could delay the release by a few days. Oracle announced the E-Business Suite 11i.10 software at its OpenWorld conference in early September and has already released some modules, including its CRM applications.

Revenue Down at i2; Sales, Profits Up

Supply chain software vendor i2 Technologies Inc. reported a 5% dip in third-quarter revenue compared with its year-earlier results. But Dallas-based i2 said its software license sales rose 21% year over year to $17 million. Profits more than doubled, it said.

i2'S Q3 FINANCIAL RESULTS

	REVENUE
Q3 '04	$17.1M
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Cybercrime Arrests Net 28 Suspects

The U.S. Secret Service said it has arrested 28 people from eight U.S. states and six countries for alleged involvement in a global cybercrime ring. The Secret Service claimed that the suspects had collectively trafficked in at least 1.7 million stolen credit card numbers and caused $4.3 million in losses among banks.

Feds Issue Test Copies Of E-voting Software

Officials can match digital signatures to reference copies, but initial use is limited

BY DAN VERTON

FEDERAL OFFICIALS last week released a set of software files submitted by five vendors of e-voting systems and voting verification tools, saying that election officials can use the code and related digital signatures to check whether the software they have bought has been modified without their knowledge.

But the so-called reference data set issued by the National Institute of Standards and Technology will likely be of little use to state officials for verifying the integrity of e-voting systems being used in tomorrow's election. And the future value of the files could be limited for states that have customized their e-voting software.

The National Software Reference Library's (NSRL) Web site said the files typically can be used only to check software that has yet to be installed on a voting machine. The notice added that "with limited exceptions," e-voting software can't generate digital signatures after it has been installed.

The NSRL notice also said that election authorities using software that has been legitimately altered won't be able to use the reference data set to compare digital signatures. Only signatures derived from the identical product releases submitted by the five vendors are available on the NSRL's Web site.

Vendors that had provided software to the NSRL as of Oct. 22 include Diebold Inc., Election Systems & Software Inc., Hart InterCivic Inc., Sequoia Voting Systems Inc. and VoteHere Inc. Oakland, Calif.-based Sequoia said it has made several submissions over the past two weeks.

Bellevue, Wash.-based VoteHere said in late June that it had submitted a reference source-code implementation for inclusion in the NSRL. Omaha-based ES&S made a similar announcement in August, and Austin-based Hart InterCivic followed suit in mid-October. North Canton, Ohio-based Diebold couldn't be reached for comment.

Facing Skepticism

The submissions were made after the U.S. Election Assistance Commission called on all e-voting software vendors to provide code to the NSRL. In a letter dated July 13, commission Chairman DeForest Soaries Jr. said having access to the code would "facilitate the tracking of software version usage." Some observers have claimed that vendors have installed patches and upgrades prior to elections without letting officials inspect the code first. Sequoia spokesman Alfie Charles said the NSRL is storing "pristine copies" of vendor-submitted software "to help prepare for the inevitable challenges that take place whenever there are close elections."

But Avi Rubin, a professor at Johns Hopkins University who has criticized e-voting security controls, called the NSRL "smoke and mirrors." Rubin said that if e-voting software "is already rigged, storing the [digital signature] hashes only guarantees that the malicious code will be there if the hashes match."

Kim Alexander, president of the California Voter Foundation, called the vendor submissions good news, but only if there are no last-minute changes to the software. "If there are technical problems with software vote counts on election night, it's possible that vendors will, as they have in the past, install patches or upgrades to get the vote count started again," she said.

Election officials will have to keep a public audit log of all software testing and installations to ensure that there's no appearance of impropriety, Alexander added. **50423**

EXCERPT

"This effort is a first step in being able to trace software from the vendor through the accreditation process to the states and other purchasers of voting systems. Now election authorities have a reference database to compare with the digital signatures of software provided to them by vendors."

Officials Defend Systems, Despite Early E-voting Problems

SINCE early voting began on Oct. 18 in Florida and at least seven other states where tight presidential contests are expected, voters have reported hundreds of problems to the Election Incident Reporting System, some of which resulted from technical glitches in the computers being used to support the voting process.

The incident reporting system is an online database set up by grass-roots organizations, including Verified Voting Foundation Inc. and Computer Professionals for Social Responsibility. Of the 666 incidents reported in Florida as of last Wednesday, 33 were linked to alleged malfunctions of e-voting systems in nine counties. In Broward County, for example, some voters claimed that touch-screen systems presented incomplete ballots.

Aika Faraj, a spokeswoman for Florida Deputy Secretary of State Dave Mann, said that contrary to news reports, there have been no problems related to any of the touch-screen e-voting systems being used in the state during the early voting period. "The touch-screen systems have been operating as planned," Faraj said.

The only problems, she added, involved laptop PCs that were used to check voter-registration rolls in some counties. Those problems were fixed immediately by a simple reboot of the laptops, Faraj said.

Will Doherty, executive director of the San Francisco-based Verified Voting Foundation, said that despite Faraj's characterization of the laptop malfunctions as minor, his organization is aware of dozens of Florida voters who were turned away from the polls "because of that minor system crash."

Doherty also said there have been multiple reports of touch-screen calibration problems in Florida. Some voters have said that when they touched the screen next to their candidate's name, the screen highlighted the name of the opposing candidate, according to Doherty.

In addition to the Florida counties, localities in Colorado, Tennessee and Texas, as well as two-thirds of Georgia's counties, have experienced connection problems between their early voting sites and the central servers that hold voter registration databases, said VotersUnite, a nonpartisan voter advocacy group.

Alfie Charles, a spokesman for Sequoia Voting Systems, said it's important not to confuse a minor glitch in a voter-registration system with voting problems. All touch-screen systems are reportedly operating normally, he said.

– Dan Verton

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Cybercrime Arrests Net 28 Suspects

The U.S. Secret Service said it has arrested 28 people from eight U.S. states and six countries for alleged involvement in a global cybercrime ring. The Secret Service claimed that the suspects had collectively trafficked in at least 1.7 million stolen credit card numbers and caused $4.3 million in losses among banks.

Feds Issue Test Copies Of E-voting Software

Officials can match digital signatures to reference copies, but initial use is limited

BY DAN VERTON

FEDERAL OFFICIALS last week released a set of software files submitted by five vendors of e-voting systems and voting verification tools, saying that election officials can use the code and related digital signatures to check whether the software they have bought has been modified without their knowledge.

But the so-called reference data set issued by the National Institute of Standards and Technology will likely be of little use to state officials for verifying the integrity of e-voting systems being used in tomorrow's election. And the future value of the files could be limited for states that have customized their e-voting software.

The National Software Reference Library's (NSRL) Web site said the files typically can be used only to check software that has yet to be installed on a voting machine. The notice added that "with limited exceptions," e-voting software can't generate digital signatures after it has been installed.

The NSRL notice also said that election authorities using software that has been legitimately altered won't be able to use the reference data set to compare digital signatures. Only signatures derived from the identical product releases submitted by the five vendors are available on the NSRL's Web site.

Vendors that had provided software to the NSRL as of Oct. 22 include Diebold Inc., Election Systems & Software Inc., Hart InterCivic Inc., Sequoia Voting Systems Inc. and VoteHere Inc. Oakland, Calif.-based Sequoia said it has made several submissions over the past two weeks.

Bellevue, Wash.-based VoteHere said in late June that it had submitted a reference source-code implementation for inclusion in the NSRL. Omaha-based ES&S made a similar announcement in August, and Austin-based Hart InterCivic followed suit in mid-October. North Canton, Ohio-based Diebold couldn't be reached for comment.

Facing Skepticism

The submissions were made after the U.S. Election Assistance Commission called on all e-voting software vendors to provide code to the NSRL. In a letter dated July 13, commission Chairman DeForest Soaries Jr. said having access to the code would "facilitate the tracking of software version usage." Some observers have claimed that vendors have installed patches and upgrades prior to elections without letting officials inspect the code first. Sequoia spokesman Alfie Charles said the NSRL is storing "pristine copies" of vendor-submitted software "to help prepare for the inevitable challenges that take place whenever there are close elections."

But Avi Rubin, a professor at Johns Hopkins University who has criticized e-voting security controls, called the NSRL "smoke and mirrors." Rubin said that if e-voting software "is already rigged, storing the [digital signature] hashes only guarantees that the malicious code will be there if the hashes match."

Kim Alexander, president of the California Voter Foundation, called the vendor submissions good news, but only if there are no last-minute changes to the software. "If there are technical problems with software vote counts on election night, it's possible that vendors will, as they have in the past, install patches or upgrades to get the vote count started again," she said.

Election officials will have to keep a public audit log of all software testing and installations to ensure that there's no appearance of impropriety, Alexander added. **50423**

EXCERPT

"This effort is a first step in being able to trace software from the vendor through the accreditation process to the states and other purchasers of voting systems. Now election authorities have a reference database to compare with the digital signatures of software provided to them by vendors."

Officials Defend Systems, Despite Early E-voting Problems

SINCE early voting began on Oct. 18 in Florida and at least seven other states where tight presidential contests are expected, voters have reported hundreds of problems to the Election Incident Reporting System, some of which resulted from technical glitches in the computers being used to support the voting process.

The incident reporting system is an online database set up by grass-roots organizations, including Verified Voting Foundation Inc. and Computer Professionals for Social Responsibility. Of the 666 incidents reported in Florida as of last Wednesday, 33 were linked to alleged malfunctions of e-voting systems in nine counties. In Broward County, for example, some voters claimed that touch-screen systems presented incomplete ballots.

Alia Faraj, a spokeswoman for Florida Deputy Secretary of State Dave Mann, said that contrary to news reports, there have been no problems related to any of the touch-screen e-voting systems being used in the state during the early voting period. "The touch-screen systems have been operating as planned," Faraj said.

The only problems, she added, involved laptop PCs that were used to check voter-registration rolls in some counties. Those problems were fixed immediately by a simple reboot of the laptops, Faraj said.

Will Doherty, executive director of the San Francisco-based Verified Voting Foundation, said that despite Faraj's characterization of the laptop malfunctions as minor, his organization is aware of dozens of Florida voters who were turned away from the polls "because of that minor system crash."

Doherty also said there have been multiple reports of touch-screen calibration problems in Florida. Some voters have said that when they touched the screen next to their candidate's name, the screen highlighted the name of the opposing candidate, according to Doherty.

In addition to the Florida counties, localities in Colorado, Tennessee and Texas, as well as two-thirds of Georgia's counties, have experienced connection problems between their early voting sites and the central servers that hold voter registration databases, said VotersUnite, a nonpartisan voter advocacy group.

Allie Charles, a spokesman for Sequoia Voting Systems, said it's important not to confuse a minor glitch in a voter-registration system with voting problems. All touch-screen systems are reportedly operating normally, he said.

– Dan Verton

Tech Standards Set Tone for On-Demand Systems

IT managers cite need for application flexibility and broader data integration

BY PATRICK THIBODEAU
NEW YORK

When The Museum of Modern Art undertook an $858 million renovation and expansion project eight years ago, it gave CIO Steve Peltzman a blank canvas for rebuilding its data center and systems.

Peltzman said last week that he's making the most of the opportunity. His staff is removing IT silos and integrating systems, with the goal of creating what he described as an "Amazon-like" flow of information that lets MOMA's business users access data no matter where it's stored.

Peltzman spoke at a forum held here by IBM to mark the second anniversary of its on-demand computing initiative. Other vendors, such as Hewlett-Packard Co. with its adaptive enterprise strategy, also are championing the use of highly integrated and flexible systems. But underpinning the marketing terms is something IT managers have understood for years: the need to support open standards.

"Anybody who realizes that integration has got to be the way, and who is dealing with a lot of legacy information, it's got to be obvious [to them] that open standards is going to make that easier," Peltzman said in an interview.

Peltzman and other users said adherence to open technologies such as XML, J2EE and SOAP is critical. But many added that vendors continue to knock on their doors with proprietary products in hand.



...took advantage of a physical renovation to remove IT silos and integrate systems.

Chris Dorsey, CIO at Chase-Pitkin Home & Garden, a division of Wegmans Food Markets Inc. in Rochester, N.Y., is building an integrated inventory and order management system. The ability to share information and improve business intelligence is central to the project, he said.

But Dorsey noted that one vendor pitched an order entry system with a graphical user interface that looked as if it used Java and XML when in fact it didn't. The vendor put "window dressing on it to make it appear to be more open-standards-based and user-friendly, when in reality, it isn't that flexible or customizable," Dorsey said.

Gaining Leverage

Users said that in many cases, they're willing to give up the functionality that's included in a proprietary product because one built on open standards gives them more leverage with technology vendors.

The ability to "pluck out" applications that aren't meeting business needs "gives me leverage and also challenges vendors in a different kind of way," said Sherra Pierre, vice president of information services at Sesame Workshop, the New York-based nonprofit group that produces *Sesame Street* and other educational programming for children.

"IT is no longer about building specific applications; it really has become more fluid in its delivery," Pierre said.

David Balik, president of General Glass International Corp. in Secaucus, N.J., said he's pleased with his IBM systems but doesn't feel joined at the hip with the vendor. "An awful lot of the applications are quite portable to other places, so the 'gotcha' factor, I think, is a lot less," Balik said.

Even so, IBM's on-demand effort is making it easier for IT managers to sell open-source and open standards concepts to business executives, said Robert Rosen, who heads the Share user group in Chicago.

MOMA is scheduled to open its revamped facility on Nov. 20, but Peltzman said the work to integrate its departmental systems will continue for months to come. The museum is using IBM's iSeries servers and WebSphere software as part of the project, which involves developing a system architecture that enables all its databases to share information. For instance, the museum is linking its membership and retail systems to help it reach out to potential members. **50421**

Starwood Taps Hewlett-Packard for System Development, Outsourcing Deal

Hotel chain plans phaseout of its IBM mainframes

BY PATRICK THIBODEAU

IT flexibility has become vital to Starwood Hotels & Resorts Worldwide Inc. And to try to make that a reality, Starwood has immersed itself in a project called Fusion that tightly couples its IT plans with business needs and includes a new reservation system that will link many of the company's hospitality services and make them more accessible online.

Starwood last week said that it has signed a seven-year, $100 million technology and outsourcing deal with Hewlett-Packard Co., which will help develop the J2EE-based reservation system and then manage it while providing a variety of other IT services to White Plains, N.Y.-based Starwood (see box).

HP is replacing IBM as Starwood's outsourcing vendor, and the decision to build a service-oriented architecture for the new reservation system means that the hospitality company will gradually end its use of the IBM mainframes that run its existing Cobol-based applications.

Tom Conophy, Starwood's chief technology officer, said the goal is to create a system that can handle room rentals plus a range of other services, such as spa reservations for hotel guests. In addition, improved integration of back-end systems will allow for more-sophisticated credit card processing functions, he said.

Handle Future Growth

Starwood's IT team looked at IBM's ability to run Linux on the mainframe. But Conophy said the company's long-term direction of its IT architecture hinged on moving from a mainframe environment to lower-cost Unix and Linux systems that could easily increase in size to handle future business growth.

Conophy said the new system should help Starwood save $15 million to $20 million annually in IT operating costs.

As part of the project, Starwood will install HP's Itanium-based Superdome high-end systems running a mix of HP-UX and Linux. HP-UX will be used on the company's database servers, and Conophy said the Unix operating system is well designed to work with the Superdome hardware — a strength that it has over Linux. Starwood also plans to use HP's x86-based ProLiant servers.

The company, which owns Sheraton Hotels & Resorts, Westin and other hospitality chains and operates 738 hotels in 82 countries, outsourced its data center operations to IBM six years ago. IBM declined to comment about the new contract with HP, which Starwood negotiated when the deal with IBM came up for renewal.

IBM is as capable as HP is in providing technology, Conophy said. He added that the decision to switch to HP as an outsourcer was based on its willingness to be more flexible on the terms of the managed services contract than IBM would be.

Among the issues that Conophy cited was the ability to do third-party benchmarking. He said he wanted to be able to use a third-party firm to help compare Starwood's IT service-level agreements against marketplace trends over the course of the contract. HP was more willing to allow periodic benchmarking than IBM was, he said.

Stan Lepeak, an analyst at Meta Group Inc., said the use of benchmarking during an outsourcing contract could result in cost reductions for users or commitments by vendors to improve performance. And as more and more data center systems are commoditized, such benchmarking is becoming easier to do, Lepeak said. **50420**

HP will handle the following IT tasks for Starwood:

OPERATE the company's core computing complex and its messaging systems.

PROVIDE network management and multivendor server support services.

ASSIST with application development and host Starwood's Web sites.

BUILD an upgraded disaster recovery facility.

Business Execs Must Learn to Embrace ILM

But convincing them that ILM can cut costs and ease data flow is a challenge

BY LUCAS MEARIAN
ORLANDO

CORPORATE IT operations are moving ahead with efforts to develop information life-cycle management (ILM) schemes that can efficiently and cost-effectively store data so that its level of availability is consistent with its importance to the business.

But users at last week's Storage Networking World conference here maintained that before a company can establish an ILM policy or begin a search for products that can migrate data across tiers of storage, the business side must take ownership of the project and define the importance of different types of data.

Paul Seay, chief infrastructure architect at Northrop Grumman Corp. in Los Angeles, said his company is focusing on convincing business groups of the potential cost savings of storing data on the medium that's most appropriate for it, based on its importance.

"We're focusing on the cultural problem first," Seay said.

Seay declared that standards should be established to identify data on open systems, just as standards were developed in the mainframe world to identify data sets. XML could help with the tagging of metadata, but a copy of the application that created the data would have to be maintained in order to read it in the future, which brings up digital rights management issues, he said.

Ken Walters, senior director of enterprise platforms at the Public Broadcasting Service in Alexandria, Va., agreed that management must agree to create the necessary policies and procedures before ILM technology can be installed.

"ILM is a must-do," said Rod Mueller, manager of technology and infrastructure at Stamford, Conn.-based International Paper Co. "ILM gives me a huge competitive advantage by reducing the cost of storage." Mueller said he began pitching the scheme to the company's business units after learning about ILM at last fall's conference. Today, International Paper's seven units are evaluating the validity of their data based on its age and how often it's used, he said.


a huge competitive advantage," says Rod Mueller of International Paper Co.

Mueller said changing mind-sets within the business has been difficult because managers consistently require that data be stored on top-tier arrays. But he has found that once chargeback for storage costs enters the conversation, attitudes change.

Steve Duplessie, an analyst at Enterprise Strategy Group Inc. in Milford, Mass., said technologies pitched today as ILM are actually point products designed for specific functions such as data migration from secondary storage to tape. "ILM is still more hallway discussion than practical technology," he said.

John Halamka, CIO at CareGroup Inc., a Boston-based operator of six hospitals, has developed an ILM strategy for his 100TB storage-area network so that it automatically migrates patient documents and medical images between tiers of storage consisting of EMC Corp. Symmetrix, Clariion and Centera arrays. Still lacking is the ability to manage data movement at the point of creation by business applications like SAP, Oracle or Sybase. **50394**

EMC 'Virtualizes' the Network

ORLANDO
EMC last week unveiled its long-anticipated storage virtualization technology, which the company said lets users manage its arrays – and high-end boxes from major competitors – through a single interface.

"This is finally EMC giving in to the fact that storage is going to become virtualized," said Nancy Hurley, an analyst at Enterprise Strategy Group.

EMC said at Storage Networking World here that its product, called Storage Router, is a combination of its own firmware and so-called intelligent switches and directors from Cisco Systems Inc., Brocade Communications Inc. and McData Corp.

The switches are among a new breed of storage technology that uses application-specific integrated circuits to crack open data packets, read the information inside and route the data.

Robert Sadowski, a product marketing manager at EMC, said that the company will eventually write its code to a standard API called Fabric Application Interface, which is being developed by the Washington-based International Committee for Information Technology Standards.

EMC first tipped its hand about Storage Router at its annual user conference last April, outlining plans to release a beta version to users the following quarter. The router, in beta now, will ship in the first half of 2005.

The product will work with EMC's Symmetrix and Clariion products as well as Hitachi Data Systems Corp.'s 9900 series, Hewlett-Packard Co.'s EVA line and IBM's Enterprise Storage Server, also known as Shark.

EMC said that Storage Router can perform port-level processing at a rate of 30,000 to 40,000 I/Os per second and is highly scalable.

– *Lucas Mearian*

Dell CEO Says EMC Pact Could Expand; Merger Unlikely

BY LUCAS MEARIAN

Dell Inc. has been a reseller and manufacturer of EMC Corp. low-end and midrange arrays since 2002. As the partnership grows and Dell's annual storage revenue passes the $1.5 billion mark, Dell CEO **Kevin Rollins** *must clearly define his company's role as a partner and potential competitor to EMC.*



At Storage Networking World last week, Rollins spoke with Computerworld *about Dell's evolving relationship with EMC and about his plans to support the emerging Internet SCSI standard to help users manage increasingly complex storage-area networks.*

How much is Dell competing with EMC as you creep up the storage stack and EMC creeps down the stack? Not too much, because most of our business will be in the small-to-medium business space. That's why we did the partnership.

Are there any plans to expand the agreement to have Dell manufacture EMC's high-end systems? Probably. Well, I don't know. Maybe. It's so problematic, because if they sell them through any channel partners, it's hard for those channel partners to buy from us. Up until this point in time, it hasn't made any sense.

Are Dell and EMC potential merger candidates? I don't think so. The partnership came about because we've got the access to markets, and [they've] got the technology but can't ramp it.

We haven't stated [a merger] as a goal. And I think EMC is very happy staying independent. We don't need to join each other, and if we did, I'm not sure what the benefit would be.

How is Dell working on standards other than through its membership in standards bodies? We're not only on them . . . we're trying to drive them. It's clear that as we do that, there are two or three major players that don't want that to happen very fast.

Why are some vendors hoping to slow down the process? They have their own proprietary technology, and it'll force them to give that up on behalf of an industry standard, which will mean customers will have more choice and can shift from vendor to vendor or bring [multiple] vendors into their shops.

How does the iSCSI standard play into Dell's plans? Our plans are to introduce a product in our fourth quarter.

What will that be? An array or a network device? I really can't say yet.

Do you think iSCSI will overtake Fibre Channel for storage networking? Not right away, but over time, iSCSI is going to pose a big challenge to Fibre Channel. **50370**

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BRIEFS

EDS Postpones Q3 Earnings Report . . .

Electronic Data Systems Corp. delayed the release of its third-quarter financial results from last Monday to this Wednesday, saying that it was reviewing the value of the IT assets being used as part of its $8.8 billion intranet contract with the U.S. Navy. Auditor KPMG LLP is seeking a charge against EDS's third-quarter earnings to cover a decline in the worth of the equipment that supports the Navy/Marine Corps Intranet.

. . . And Offers Early Retirement Program

EDS also said it's offering early retirement incentives to about 9,200 of its 53,000 U.S. workers. EDS expects about half of the eligible employees to accept the buyouts, although it noted that some of the vacated jobs would likely have to be filled again. The early retirement offer is part of a plan, disclosed in September, to cut another 15,000 to 20,000 jobs in the next two years.

EC Clears Oracle's Bid for PeopleSoft

The European Commission has given Oracle Corp. the green light to proceed with its hostile takeover bid for PeopleSoft Inc., removing the last regulatory roadblock to a deal. The commission said it was unable to find "sufficient evidence of competitive harm" that would result from a merger. PeopleSoft said its board will review the decision's implications "in due course."

Short Takes

RED HAT INC. warned its Linux users about an e-mail hoax urging recipients to download purported software patches that actually contain malicious code. . . . Japan's Fair Trade Commission held an initial hearing with MICROSOFT CORP. over allegations that the company violated the country's antitrust laws.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FAULKNER

CIO Relishes 'Guinea Pig' Role . . .

. . . inside Microsoft because "I can realize value earlier." So says Ron Markezich, CIO for IT at Microsoft. But Markezich might easily be misconstrued as a senior executive on the vendor's quality assurance team. His staff is responsible for putting Microsoft technologies targeted for enterprise use into the company's production IT environment at their alpha stage, long before they're ready to ship. "I look at our IT organization as an extension of our product development team," Markezich says. Given his reliance on prerelease versions of products, you'd think his bosses would cut him some slack in delivering services to Microsoft's end users. Not so, he claims. "I don't feel like I get more slack," Markezich says, noting that his service-level requirements actually increased this year. That logic stems from the belief that early product adoption gives him a head start on improving system capacity, performance and reliability while keeping a lid on costs. Markezich cites his early deployment of Exchange Server 2003, which Microsoft began using well before the software's commercial release. He says he was able to eliminate 67 Exchange Server 2000 processing sites and consolidate the company's global e-mail system into seven sites running the newer software. That has helped Markezich cut $100 million from what he calls "sustainer spend," the fixed IT costs for supporting employees — dropping the annual total to about $300 million. His next big project doesn't revolve around Microsoft's core software. He's beginning to upgrade the company's 802.11b Wi-Fi infrastructure, most likely to 802.11g technology. He calls the project "the world's largest wireless WAN deployment" and says it should be done by June. That doesn't mean he's refraining from putting Microsoft's alpha products through their paces, though. In fact, Markezich acknowledges that sometimes Microsoft IT is the bottleneck on the company's delivery of new products. "A lot of the times a Microsoft product slips its ship date is because we did not sign off on it," he says. Now you know who to blame.

CIW looks beyond alpha products . . .

. . . and slips its R&D work into "the office of the future." The Microsoft Center for Information Work on the company's Redmond, Wash., campus gives corporate users a glimpse of IT's misty future through a series of hands-on demos. "We're out past Longhorn," says Thomas Gruver, a group product manager who oversees CIW. The arrival of Longhorn, the next major release of Windows, may seem to be taking forever, but for Gruver, it's just around the corner. He's looking at technology that's a little further in the distance, such as a blend of networking and groupware technology that will let Tablet PC users share data immediately on a common conference room display. Gruver hopes to showcase that possibility to CIW visitors starting next year. A CIW highlight, the Ringcam, may soon become a Microsoft-branded product. It contains a half-dozen mini-cameras installed in a ring plus a directional microphone that can locate a speaker at a conference room table and project him on PCs or video displays during a multimedia conference call. Expect to, um, see it in 2005.



Forget Java, C# or C++ because . . .

. . . the next hot development language is Flash. Although Kevin Lynch, chief software architect at San Francisco-based Macromedia Inc., doesn't claim that you'll never need to program in anything but Flash again, he does argue that if you're creating Web-based applications that need graphical user interfaces — and which ones don't? — Flash is the ideal technology. Why? He says Flash "needs far less bandwidth" for downloading graphical pages because it updates only the parts of a page that contain new information as opposed to doing a full page refresh. The market size should also attract developers. Lynch estimates that 500 million PCs are equipped with Flash Player. Flash developers currently use Macromedia's J2EE-based Flex server software to compile Flash code. But a .Net version is in beta now and will likely go gold early next year.

2M Daily downloads of Flash Player

Faxes to use IP networks in a . . .

. . . new release of RightFax from Captaris Inc. in Bellevue, Wash. Version 9.0, available this week, includes an optional board from Brooktrout Inc. that slips into the Captaris fax server. The board handles the electrical differences between an Ethernet network and the public switched telephone network, while the Captaris software smoothes out the protocol conflicts so a fax that's designed to be transmitted only over the phone network can use IP as its transport mechanism. Matt Shoening, chief operating officer at Captaris, acknowledges that few fax-over-IP installations exist now, but he insists that they'll be here someday because centralized IP-based network administration cuts costs. RightFax 9.0 also adopts Microsoft SQL Server as its data store, upping capacity from 1 billion faxes to a virtually unlimited number. ● 50360



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BRIEFS

Dell Installs SUSE Linux on Servers

Dell Inc. said it plans to preinstall Novell Inc.'s SUSE Linux operating system on several of its PowerEdge servers and fully support users of the software. Dell already preinstalls Red Hat Linux on its servers, but it had offered SUSE Linux only as an add-on until now. SUSE Linux Enterprise Server 9 will be available on the PowerEdge 1850, 2800 and 2850 models, with annual subscription fees starting at $192 per CPU.

Nortel Again Delays Release of Results

Nortel Networks Corp. again delayed its release of restated financial results for 2003 as well as its numbers for the first half of this year. The Brampton, Ontario-based company was due to report the results by the end of October, but CEO Bill Owens said it was unable to meet the deadline "given the enormous details and complexity involved." Nortel set mid-November as its new target.

Nextel Extends IT Deal With Amdocs

Wireless carrier Nextel Communications Inc. has extended by two years an IT services contract under which Chesterfield, Mo.-based Amdocs Ltd. manages its billing and customer support systems. Reston, Va.-based Nextel said the contract, originally a nine-year deal signed in 2000, will now run through 2011. Financial details weren't disclosed.

Short Takes

The U.S. appeals court in Cincinnati vacated a preliminary injunction blocking Sanford, N.C.-based STATIC CONTROL COMPONENTS INC. from distributing chips it uses to clone Lexmark Inc.'s printer cartridges. . . . CINGULAR WIRELESS LLC completed its acquisition of AT&T WIRELESS SERVICES INC. after agreeing to divest itself of assets in 11 states.

BEA Aims to Boost WebLogic Business

Bundled solutions target vertical markets, IBM

BY HEATHER HAVENSTEIN

BEA SYSTEMS INC., looking to broaden its middleware business, last week took the wraps off a solutions framework that can help WebLogic Platform users build service-oriented architectures (SOA) for tackling common enterprise pain points like boosting customer service.

The move marks BEA's entry into the bundled technology solutions arena, traditionally a stronghold for rival IBM, and it is supported by several major software suppliers.

The framework is part of BEA's Liquid Computing initiative, unveiled at its user conference last spring. The bundled offering will use BEA's WebLogic Platform, through its portlets and reusable service-oriented integration components called controls, to build SOAs for five common enterprise goals: customer service, employee service, service delivery platforms, trade processing and radio frequency identification capability.

The framework includes elements supplied by a slew of partners, including SAP AG, Business Objects SA, Documentum Inc. and Siebel Systems Inc., that add to the offering's architecture reference blueprint, workflow examples, best practices and services. BEA plans to provide frameworks for four vertical markets: telecommunications, financial services, manufacturing and government.

Oncology Therapeutics Network Corp. (OTN), a San Francisco-based distributor of specialty medical products, has been talking to BEA about using the new frameworks to help it integrate pieces of its CRM and ERP packages via an SOA, said Rajan Jena, an enterprise architect at OTN. "We are particularly interested in a set of prebuilt components that are a one-time effort to create and can be reused," he said.

OTN already has used the Web services framework in BEA's WebLogic development platform to streamline the creation of a Web-based front end for its employee self-service portal. "It helps us do our round-trip development much faster than plain-vanilla J2EE," Jena said. For existing applications, OTN has used the framework to create a "facade" of a Web services API call on top of legacy applications. Then the applications are exposed inside the portal.

Companies need guidance on many aspects of building an SOA, such as arranging Web services in the right order, said Ronald Schmelzer, a senior analyst at ZapThink LLC in Waltham, Mass. But although the new program is a forced response to IBM's success in the bundled solutions business, Schmelzer said BEA runs the risk of alienating its integration partners. **50409**

BEA's Plan

- BEA Solutions Frameworks are designed to help extend the WebLogic Platform to build SOAs for customer service, employee service, service delivery platforms, trade processing and RFID.
- The program encompasses telecom, financial services, manufacturing and government markets.
- Partners include SAP, Documentum, Siebel, Hyperion, Business Objects, Interwoven, Convergent and Epiphany.

MICROSOFT'S MOVES

Microsoft continues its push into the enterprise-level development market.

QuickLink 50329
www.computerworld.com

Symantec Tries to Move Beyond Security Tools

BY JAIKUMAR VIJAYAN

Symantec Corp. last week outlined an "information integrity" strategy that users and analysts said addresses a growing need for a more holistic view of the operational and security risks that companies face.

But they added that whether the new approach succeeds will depend on how well Symantec, which is primarily known for its antivirus tools and firewalls, can execute on its wider vision.

As part of the initiative, Symantec will deliver products and services designed to give companies a full assessment of the risks and vulnerabilities they face and then enable them to act upon that information, said Enrique Salem, the Cupertino, Calif.-based company's senior vice president of security.

For instance, a new version of Symantec's Enterprise Security Manager software that was released last week can help companies identify compliance problems related to regulations such as the Sarbanes-Oxley and Gramm-Leach-Bliley acts, Salem said.

Similarly, other products will let companies capture snapshots of the operational state of their servers, PCs, applications and operating systems, as well as information about their configuration settings and patch levels. Some of those capabilities are available now, but more will be added in the future.

"It's a model and a set of policies that CIOs can use to manage their environment," Salem said. "It stresses the concept of understanding your environment, acting on the information and controlling it."

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A Better View

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Symantec's road map "provides a framework to help guide us," said Shaun Catlin, a senior systems analyst at Atlanta-based law firm Ford & Harrison LLP. "It's something that we knew needed to be done."

The alignment of information from the operational and security sides should give companies more control over possible risks, said Cory Ferengul, an analyst at Meta Group Inc. "What Symantec is saying is, 'You can't secure what you can't control, and you can't control what you don't understand.' "

Other vendors, such as IBM and Computer Associates International Inc., are making similar pitches, according to Ferengul. But, he added, "there's a lot of maturing that has to happen" before all of the required information can truly be integrated. **50416**

BRIEFS

Dell Installs SUSE Linux on Servers

Dell Inc. said it plans to preinstall Novell Inc.'s SUSE Linux operating system on several of its PowerEdge servers and fully support users of the software. Dell already preinstalls Red Hat Linux on its servers, but it had offered SUSE Linux only as an add-on until now. SUSE Linux Enterprise Server 9 will be available on the PowerEdge 1850, 2800 and 2850 models, with annual subscription fees starting at $192 per CPU.

Nortel Again Delays Release of Results

Nortel Networks Corp. again delayed its release of restated financial results for 2003 as well as its numbers for the first half of this year. The Brampton, Ontario-based company was due to report the results by the end of October, but CEO Bill Owens said it was unable to meet the deadline "given the enormous details and complexity involved." Nortel set mid-November as its new target.

Nextel Extends IT Deal With Amdocs

Wireless carrier Nextel Communications Inc. has extended by two years an IT services contract under which Chesterfield, Mo.-based Amdocs Ltd. manages its billing and customer support systems. Reston, Va.-based Nextel said the contract, originally a nine-year deal signed in 2000, will now run through 2011. Financial details weren't disclosed.

Short Takes

The U.S. appeals court in Cincinnati vacated a preliminary injunction blocking Sanford, N.C.-based STATIC CONTROL COMPONENTS INC. from distributing chips it uses to clone Lexmark Inc.'s printer cartridges. . . . CINGULAR WIRELESS LLC completed its acquisition of AT&T WIRELESS SERVICES INC. after agreeing to divest itself of assets in 11 states.

BEA Aims to Boost WebLogic Business

Bundled solutions target vertical markets, IBM

BY HEATHER HAVENSTEIN

BEA SYSTEMS INC., looking to broaden its middleware business, last week took the wraps off a solutions framework that can help WebLogic Platform users build service-oriented architectures (SOA) for tackling common enterprise pain points like boosting customer service.

The move marks BEA's entry into the bundled technology solutions arena, traditionally a stronghold for rival IBM, and it is supported by several major software suppliers.

The framework is part of BEA's Liquid Computing initiative, unveiled at its user conference last spring. The bundled offering will use BEA's WebLogic Platform, through its portlets and reusable service-oriented integration components called controls, to build SOAs for five common enterprise goals: customer service, employee service, service delivery platforms, trade processing and radio frequency identification capability.

The framework includes elements supplied by a slew of partners, including SAP AG, Business Objects SA, Documentum Inc. and Siebel Systems Inc., that add to the offering's architecture reference blueprint, workflow examples, best practices and services. BEA plans to provide frameworks for four vertical markets: telecommunications, financial services, manufacturing and government.

Oncology Therapeutics Network Corp. (OTN), a San Francisco-based distributor of specialty medical products, has



been talking to BEA about using the new frameworks to help it integrate pieces of its CRM and ERP packages via an SOA, said Rajan Jena, an enterprise architect at OTN. "We are particularly interested in a set of prebuilt components that are a one-time effort to create and can be reused," he said.

OTN already has used the Web services framework in BEA's WebLogic development platform to streamline the creation of a Web-based front end for its employee self-service portal. "It helps us do our round-trip development much faster than plain-vanilla J2EE," Jena said. For existing applications, OTN has used the framework to create a "facade" of a Web services API call on top of legacy applications. Then the applications are exposed inside the portal.

Companies need guidance on many aspects of building an SOA, such as arranging Web services in the right order, said Ronald Schmelzer, a senior analyst at ZapThink LLC in Waltham, Mass. But although the new program is a forced response to IBM's success in the bundled solutions business, Schmelzer said BEA runs the risk of alienating its integration partners. **50409**

MICROSOFT'S MOVES

Microsoft continues its push into the enterprise-level development market.

QuickLink 50329
www.computerworld.com

Symantec Tries to Move Beyond Security Tools

BY JAIKUMAR VIJAYAN

Symantec Corp. last week outlined an "information integrity" strategy that users and analysts said addresses a growing need for a more holistic view of the operational and security risks that companies face.

But they added that whether the new approach succeeds will depend on how well Symantec, which is primarily known for its antivirus tools and firewalls, can execute on its wider vision.

As part of the initiative, Symantec will deliver products and services designed to give companies a full assessment of the risks and vulnerabilities they face and then enable them to act upon that information, said Enrique Salem, the Cupertino, Calif.-based company's senior vice president of security.

For instance, a new version of Symantec's Enterprise Security Manager software that was released last week can help companies identify compliance problems related to regulations such as the Sarbanes-Oxley and Gramm-Leach-Bliley acts, Salem said.

Similarly, other products will let companies capture snapshots of the operational state of their servers, PCs, applications and operating systems, as well as information about their configuration settings and patch levels. Some of those capabilities are available now, but more will be added in the future.

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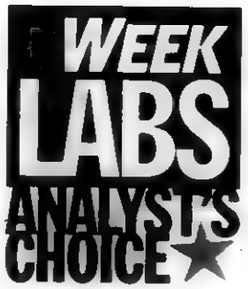
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Oracle Database

"Does more. Demands less."

— July 5, 2004, eWEEK



July 5, 2004
Oracle Database 10*g*

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GLOBAL — An International IT News Digest

Germans Assess Linux Deployment Costs

FRANKFURT

Tough economic times in Germany have made Linux operating systems and other open-source products tantalizing to local businesses. Yet many remain hesitant to dump their Microsoft Corp. software completely, if only because it performs relatively well and nearly everyone in corporate Germany uses it.

That was the consensus of speakers at the LinuxWorld conference in Frankfurt last week. IDC analyst Wafa Mousawi-Amin warned users that although Linux software is basically free to acquire, it can be costly to deploy. "Businesses can see costs pile up quickly for support, maintenance and, in particular, training if they lack in-house knowledge," he said. "Each enterprise should carefully study whether the low fee to acquire the software will offset these other costs."

Among server operating systems in Europe, Linux grew from a 1% market share in 1999 to 9% in this year's third quarter, IDC said.

■ JOHN BLAU, IDG NEWS SERVICE

Spain's PC market leaders:
1. Hewlett-Packard Co.
2. Acer Inc.
3. Dell Inc.
4. Airis Computer
IDC, LONDON, OCTOBER 2004

Cable & Wireless Continues Fire Sale

LONDON

London-based network operator Cable & Wireless PLC agreed last week to sell its Japanese business, Cable & Wireless IDC Inc., to Softbank Corp. for $133.3 million. But C&W will retain two international data nodes so it can continue to provide network services to and from Japan.

The sale of the Japanese unit continues C&W's retreat from an earlier plan to develop a $3.5 billion global IP network. The company's fortunes plummeted in 2001, triggering a series of asset sales, thousands of layoffs, the dismantling of its global data services division and an exit from the U.S. and continental Europe except for continued support of multinational customers. In January, C&W sold its U.S. Web hosting and IP services units to Savvis Communications Corp. in Herndon, Va., for $155 million.

■ LAURA ROHDE, IDG NEWS SERVICE

N.Z. Regulator Blocks Westpac Outsourcing

AUCKLAND, NEW ZEALAND

Westpac Banking Corp's plan to move its New Zealand mainframe processing to Australia has been scuttled by the Reserve Bank of New Zealand. A cutover to an IBM Global Services facility in Sydney was scheduled for earlier this month, but just a day before the move, the Reserve Bank pulled the plug.

Westpac's New Zealand division, based in Auckland, agreed to hold off on the move until the Reserve Bank finishes developing an outsourcing policy. The Reserve Bank said that it's concerned about outsourcing's potential effect on the bank's ability to continue operating in a crisis and that Westpac's proposal wasn't "sufficiently robust" to address that concern.

■ RANDAL JACKSON, COMPUTERWORLD NEW ZEALAND ONLINE

Compiled by Mitch Betts.

Briefly Noted

Advanced Micro Devices Inc. last week unveiled a $249 PC for the developing world. The Personal Internet Communicator is a bare-bones PC with basic software, AMD's Geode GX500 embedded processor, 128MB of RAM and a 10GB hard drive.

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The government of Ghana recently signed an agreement with Data Centa Ghana Ltd. and Lexis Nexis Butterworths (Pty) Ltd. that will make the country's laws accessible online. Durban, South Africa-based Lexis Nexis Butterworths has similar projects under way in Uganda, Kenya, Tunisia and Nigeria.

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Sybase Inc.'s Financial Fusion Inc. subsidiary in Concord, Mass., has won a multimillion-dollar contract to set up an online banking system for Bank of China, one of China's largest banks.

■ SUMNER LEMON, IDG NEWS SERVICE

Users Call for Improved Wireless Management

BY MATT HAMBLEN
SAN FRANCISCO

At a conference held here last week by wireless industry trade group CTIA, IT managers, analysts and vendors all cited the need to find better ways to deploy and manage handheld devices as well as wireless services.

Vendors such as Sprint Corp. and Intel Corp. announced new managed services or upcoming technologies designed to help IT managers incorporate wireless devices into corporate settings. But it was obvious from the comments of some people at the conference that wireless rollouts can still be frustrating.

"The wireless industry is not taking a clear answer to the end user," said attendee Leonard Loventhal, referring to both IT managers and business users. Loventhal is an executive vice president at Honolulu-based Hawaii HomeLoans Inc., which launched wireless data services for its 100 loan officers nearly three years ago. The process was very confusing, especially when it came to picking handheld devices, middleware and wireless service plans, he said.

Loventhal said that thanks to help from Sprint engineers, Hawaii HomeLoans has seen a solid return on its investments in Treo 600 handheld devices from PalmOne Inc. and wireless cards for the laptop PCs used by its loan officers. Both technologies help the workers do text and voice messaging when they're out in the field and in the office at costs lower than the prices companies typically pay for communications, according to Loventhal.


LOVENTHAL says, "If it was easy to set [wireless] up, more companies would be doing it."

But Loventhal said that many of the larger mortgage firms he's familiar with haven't taken the same path because of the complexity of wireless deployments. "If it was easy to set this up, more companies would be doing it," he noted.

Sprint said it's beginning 90-day pilot rollouts of its Managed Mobility Services offering at 12 companies. The service is due to be launched early next year at a cost that will be "incremental" on top of Sprint's monthly wireless service fees of $40 to $80 per end user, said Rob Kermode, general manager of the new service.

Kermode added that the work Sprint did with Hawaii HomeLoans is similar to the help it will provide to Managed Mobility Services customers. The offering supports devices running Windows or PalmOS and includes security management services such as data encryption and the ability to remotely disable devices.

Analysts said Sprint's move will likely be quickly matched by other wireless carriers. "Wireless rollouts are still complex, despite all the years of working on the problem," said Bob Egan, president of Mobile Competency Inc. in North Providence, R.I. "The complexity requires the operators to do some of the heavy lifting, so Sprint's announcement is a good first step."

Nikhil Deshpande, a business development director at Intel, said the chip maker is working on technology designed to let systems administrators use existing management tools to bring wireless devices under the IT umbrella. Intel began a proof-of-concept deployment with the University of Arkansas at Pine Bluff in April, but Deshpande said the technology likely is three to five years away from commercial release. **50422**

Tom Krazit of the IDG News Service contributed to this story.

MORE NEWS ONLINE

CA releases a tool for managing wireless LANs and identifying rogue users.

QuickLink 50397
www.computerworld.com

Correction

A story about dual-core processors that ran in last week's Technology section ("CPUs Rev New Engines") incorrectly listed the year in which Intel Corp. introduced its first microprocessor, the 4004. Development of the 4-bit chip began in 1969, and Intel announced the device in 1971.

GLOBAL

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Continued from page 1

ID Management

sign collaboration we are going to need won't tolerate a world where you have silos of identity [data]," Scott said in an interview prior to delivering his keynote speech.

GM's plan is a prime example of the increased focus some companies are putting on identity and access management as a way of cutting administrative costs and improving end-user access to applications, said Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa.

The Boeing Co. is another large user that's in the midst of a long-term effort to give employees, customers and suppliers single-sign-on access to a range of applications and computing services.

Already, Boeing employees can use their corporate log-ons to access information on password-protected Web sites operated by benefits providers, said Michael Beach, an associate technical fellow at the Chicago-based company.

In addition, mechanics at a major airline customer of Boeing can use their regular usernames and passwords to access electronic repair manuals stored on Boeing's internal networks. The aircraft maker is working to extend the capability to other airlines, he said.

The drastically reduced number of end-user accounts that need to be maintained and supported in such a federated identity management infrastructure has resulted in "substantial cost savings" and improved user productivity, according to Beach.

The federated system is built around single-sign-on software from Cupertino, Calif.-based Oblix Inc., although Beach said that Boeing had to do "quite a bit of customization."

Regulatory Pressures

Also playing a key role in driving consolidated identity management projects are new regulations, such as the Sarbanes-Oxley Act, that require companies to get a better handle on their application access-control capabilities, Lindstrom said.

"Regulatory pressures are driving a lot of what's happening in the security space," said Lindstrom. Implementing consistent identity and access management tools can give large companies such as GM and Boeing "a way of getting a top-down look at what legitimate users are doing with applications and of monitoring that access," he added.

GM's existing identity management infrastructure is "not an enterprise solution," Scott said, adding that functional units such as manufacturing and engineering control their own user identity information.

The global identity management architecture and governance model will use a combination of directory management technologies, such as the Lightweight Directory Access Protocol and Microsoft Corp.'s Active Directory, Scott said.

The company also plans to use identity federation technologies based on the Security Assertion Markup Language and Liberty Alliance Project standards to provide cross-domain application access to GM employees and external users. "A system that is not federated will be impossible for us to manage," Scott said. "It would kill us administratively."

GM plans to hire a prime contractor to install and manage the global identity management services once its existing IT services contract with Electronic Data Systems Corp. ends in June 2006, according to Scott. He wouldn't disclose a specific deployment schedule or a cost estimate for the project but said he expects the tab to be "in the millions" of dollars. **50417**

Expedia Unit Offers Single Sign-on for Travel Bookings

DENVER

Business travelers who use Expedia Corporate Travel's Web site can now access its online services from within their own intranets via a single-sign-on approach, using their regular usernames and passwords.

The Bellevue, Wash.-based unit of Expedia Inc. said at the Digital Identity World conference here that it has installed identity management technology that eliminates the need for customers to separately log on and authenticate themselves to its password-protected Web site.

Indiana University, which uses Expedia's site to book travel for its employees, is testing the single-sign-on feature. "The bottom line is that you don't need to keep logging into systems to get something done," said John Herner, director of travel services at the Bloomington-based university.

Expedia has installed Oblix's SharedID federated identity management software and has partnered with the software vendor to help users install the required single-sign-on starter kits on their systems. Simon Tam, vice president of product development at Expedia Corporate Travel, said that existing users can get the Oblix technology at a discounted price.

"What it does is remove an impediment for business travelers," said Henry Harteveldt, an analyst at Forrester Research Inc. "It makes the booking process easier and saves the traveler time." Such improvements are needed because a substantial number of corporate users with access to Web-based travel services don't use them, he noted.

—Jaikumar Vijayan

Toledo Schools May Resurrect Stalled PeopleSoft Implementation

BY MARC L. SONOMI

As it looks to upgrade its big-iron ERP system, the public school system in Toledo, Ohio, is also eyeing the resurrection of a $4.3 million PeopleSoft Inc. accounting and human resources software installation it abandoned five years ago.

Toledo Public Schools needs to do something with the quarter-century-old ERP mainframe system, which still relies on a clumsy green-screen interface, said chief business manager Daniel Burns. He would like to see it replaced outright, or at least Web-enabled with a menu-based interface to help automate tasks such as processing purchase orders.

"You want to do it right and identify your risks and make sure you identify your costs," Burns said. That includes "not just the software purchase, but the training," he said.

One of the main drivers behind an outright replacement of the system is the fact that the application is written partially in Cobol, and it's difficult to find staff to support it.

Burns intends to devise two potential solutions. One might involve throwing an easy-to-use Web-based front end on the mainframe, hiding the back end's complexity from users. Another option would be to add a graphical user interface and swap in a third-party ERP application running on Windows NT and an Oracle database. That would keep any future move to a new system transparent to the users.

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>
> **DANIEL BURNS**, CHIEF BUSINESS MANAGER, TOLEDO PUBLIC SCHOOLS

In the long run, Burns said he would like to implement a joint human resources and financials ERP backbone that could transmit student enrollment information seamlessly between those two systems. In addition, he said he would like any new system to support reporting and remote access and be able to extract human resources information, such as a teacher's profile, and put it on the Web for public review.

Since the Toledo school district has spent millions of dollars on the PeopleSoft software, there could be an advantage to resurrecting that plan.

In 1998, the district paid $2.6 million for the vendor's accounting and human resources software and another $1.7 million to an integrator for the actual rollout. However, budget cutbacks in 1999 killed the project. The district still owns the software, and the only way to recover its investment is to try to install it again. But doing that isn't necessarily a given, Burns said.

"I'm not going to rule out other applications," he said.

Whatever the Toledo school system does, the plan presented to the superintendent of schools will have to show cost savings that justify any new expenses. Burns said he would also consider staggering the implementation, installing one application at a time.

It's not uncommon for past multimillion-dollar investments to lie fallow, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif. "With local and municipal governments, there seems to be a bad legacy of doing this." **50400**

Microsoft Recants Pledge for Exchange Add-on

Exec retreats from promise of 2005 ship

BY JORIS EVERS

Microsoft Corp.'s plans for its Exchange Server line have become even more uncertain than they were earlier this year when the company removed the 2006 "Kodiak" release of the messaging software from its product road map.

Microsoft officials are backpedaling on a May promise to ship an addition to Exchange called Edge Services in 2005. The company described the add-on as an intelligent message-transfer agent that offers security, spam and virus protection. It was the only announced release for the Exchange line beyond 2004.

"We remain very committed to Edge Services," said Kim Akers, a senior director in Microsoft's Exchange Server group. But, she added, "it is premature to talk about timing."

Analysts said that with no product road map, it's difficult for customers to make licensing decisions and plan upgrades. "Microsoft owes it to its customers to specify and deliver more or less on time the products and updates they say are coming," said Peter Pawlak, an analyst at Directions on Microsoft Inc. in Kirkland, Wash. The onus is on Microsoft to provide a true road map because its multiyear licensing contracts include a maintenance program that covers software updates, Pawlak said.

Although Microsoft makes it difficult to anticipate which products are in the pipeline, it's delivering incremental updates to Exchange, said Teney Takahashi, an analyst at The Radicati Group Inc. in Palo Alto, Calif. "Microsoft is taking its time to develop these products right," he said. "I think that is more important than offering a road map."

User Timetables

Philip Colmer, IT manager at ProQuest Information and Learning Ltd. in Cambridge, England, said he's content with the Exchange Server 2003 system he upgraded to at the beginning of the year. "I am not too bothered at this point that Microsoft has not made any announcements," he said.

Microsoft is heralding Exchange Server 2003 this week at a user event in Orlando. However, the company isn't ready to publicly discuss a road map there, Akers said.

In a keynote at the Exchange Connections event, Dave Thompson, corporate vice president of Microsoft's Exchange Server products group, said the company has sold 55% more Exchange Server 2003 licenses in its first year than for the predecessor version in the same time frame. In addition, the vendor received more than 175,000 requests to evaluate the product.

Still, Microsoft faces a challenge in getting customers to upgrade Exchange environments. The Radicati Group expects that Exchange Server 2003 seats won't exceed the number of Exchange 5.5 or Exchange 2000 seats until the end of 2005. **50327**

Evers reports for the IDG News Service.

Microsoft Revises Antispam Plan

BY PAUL ROBERTS

After running into loud opposition to its first Sender ID antispam plan, Microsoft Corp. revised it and resubmitted it to the Internet Engineering Task Force (IETF) last week.

The new plan resolves disputes with Internet service providers and the open-source software community about the use of patent-pending technology, said Meng Weng Wong, chief technology officer at Pobox.com and a co-author of the revised proposal.

The standard combines two authentication standards — Caller ID, which Microsoft developed, and Sender Policy Framework (SPF), which Meng developed. Microsoft submitted a draft of Sender ID to an IETF working group in June, but the approval process became bogged down because Microsoft said it held patents for algorithms used to check PRAs, or purported responsible addresses, and planned to require that users obtain licenses for Sender ID [QuickLink 49427].

The dispute produced some high-profile defections from the specification, including The Apache Software Foundation. America Online Inc. also opposed Sender ID because it wasn't compatible with early forms of SPF. AOL said it will support the revised version of Sender ID.

Microsoft expects the specification to be given "experimental" status by the IETF but doesn't know if it will be taken up for formal approval by the group, according a Microsoft spokesman.

Despite the changes, the new specification still might not satisfy open-source software advocates, who continue to be concerned about Microsoft's patent claims and the larger problem of proliferating intellectual property patents, Meng said. **50350**

Roberts reports for the IDG News Service.



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MAGAZINE OF THE YEAR FOR 2004.

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COMPUTERWORLD

THE VOICE OF IT MANAGEMENT

Hosted SAP Service Targets Midmarket

BY MARC L. SONGINI

SAP AG is rolling out a hosted service it hopes will appeal to midsize customers that can buy the software at a monthly fee as low as $325 per user per month while avoiding much of the complexity of in-house installations.

SAP last week unveiled the managed offering, which officials said delivers prepackaged bundles of software aimed at specific vertical markets, such as consumer goods and high-tech device manufacturers. The bundles use server and storage hardware in the data centers of SAP partner Hewlett-Packard Co. HP will also provide security and other technical support and services.

Previously, SAP primarily offered hosted applications only to very large companies with special requirements consistent with their scale, said Bill McDermott, CEO and president of SAP America Inc.

Dedicated Servers

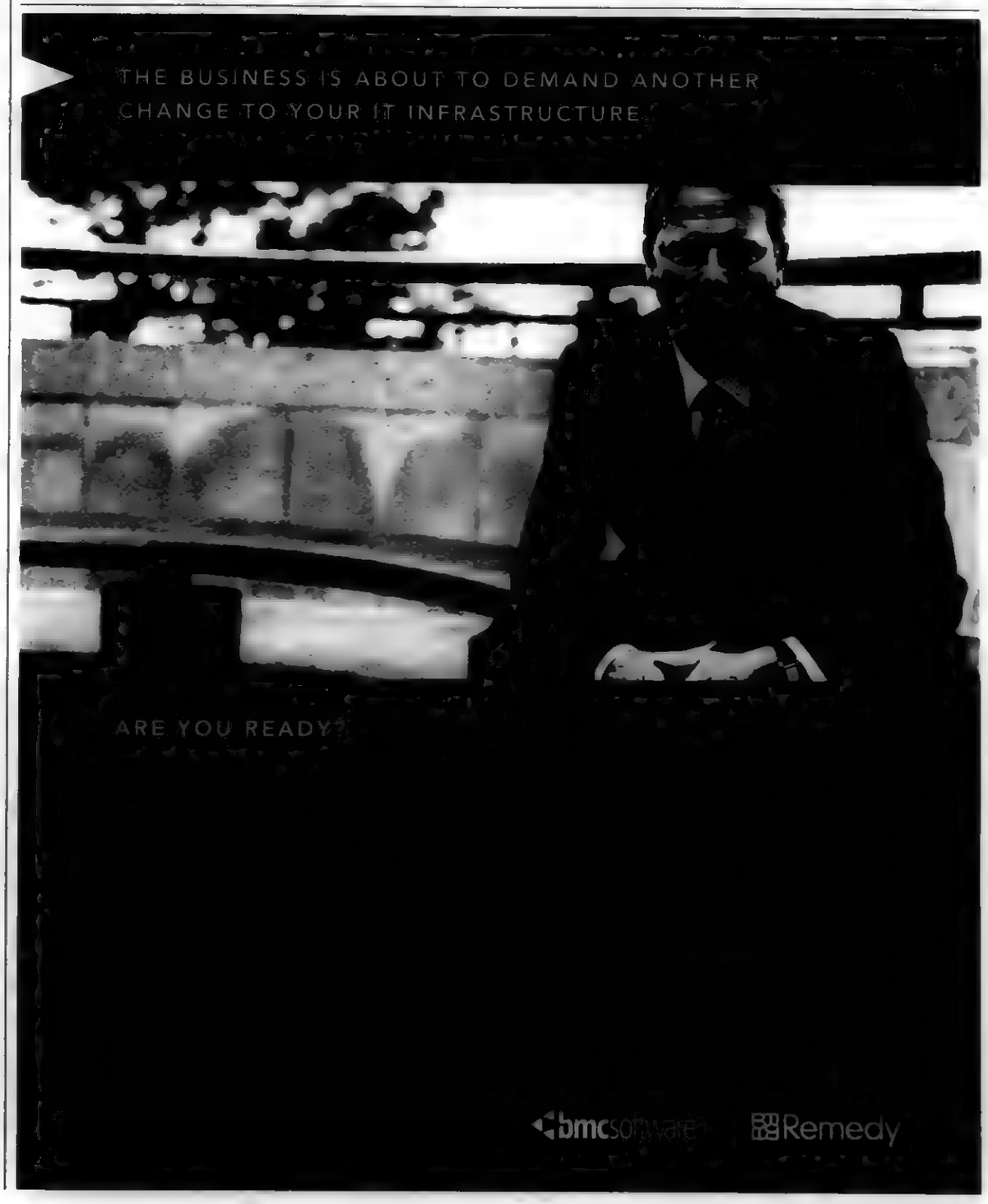
Under the new plan, each customer gets a dedicated server in an HP data center. "A lot of customers in small to medium-sized businesses told me they don't like the one-to-many [hosting] model where their data is managed in an open environment," McDermott said. "They want a one-to-one relationship."

Gary Walden, SAP project manager at refiner C&H Sugar Co., said that if a single monthly pricing scheme had been available a year ago when his company was negotiating with SAP for a hosted service, "we would have looked at it very hard" as a way to save money. C&H, in Crockett, Calif., has used a full suite of hosted SAP applications since March.

The C&H hosted systems contract listed separate prices for implementation and consulting fees, among other things, Walden said. Nevertheless, the hosting service has helped boost C&H's operational efficiency without requiring extra IT support staff around the clock.

For a large company like Halliburton Corp. in Houston, the new SAP offering sparks no interest at all, said IT vice president Mike Perroni. The energy and construction services provider currently runs SAP R/3 hosted by an HP data center and technical staff. "We only have one instance of SAP, and it's big," Perroni said.

Amy Konary, an analyst at IDC, said SAP separates itself from other hosted application providers by targeting packages to specific industries. The managed offering will likely appeal to large SAP shops extending the software to subsidiaries or regional offices, she said. 50364



DON TENNANT

In Praise of Perseverance

FOR AS LONG AS I can remember, whenever anyone has asked me what trait I admire most in a person, I've been able to respond without having to ponder the question. It's perseverance. The faith, courage, strength and will it takes to refuse to give up even when the obstacles seem overwhelming define an attribute that, more than any other, enables people to leave this world a better place.



Last week, my dad lost his battle with ALS — the disease I've mentioned here before that's also known as Lou Gehrig's disease — after a three-year fight that epitomized what it means to persevere. Through all the unspeakable physical suffering, he remained emotionally strong and characteristically selfless, and he did it all without ever losing his sense of humor. Enough people were inspired by the example he set throughout his life, and especially during the past three years, for there to be no question that he has indeed left this world a much better place.

He used to really enjoy reading my columns, and I know he wouldn't want me to use this space to thank him for the gift of his inspiring perseverance. He'd want me to thank you for yours instead.

It is indeed through sheer perseverance that the community of IT professionals has created and advanced the systems that have changed and improved our lives so dramatically in recent years. So thanks for that.

Thank you for not giving up back when it seemed like the Web was a pipe dream because the pipes couldn't deliver the bandwidth cheaply enough for the average guy. My dad loved what the Web enabled him to do, and he took full advantage of it until he could no longer lift his arms to his keyboard and his fingers could no longer press the keys.

Thank you for not giving up when the naysayers scoffed at the notion of making airline reservation systems accessible to anyone with a computer. After attending the Storage Networking World event in Orlando last week, I was on my way to a Kronos user conference that was also being held there when I got the call that my dad was nearing the end in a San Antonio hospital. I turned my rental car around, headed straight to the airport and made a call to Linda Gorgone, *Computerworld*'s miracle-working office manager, who booked a flight for me.

Upon my arrival at the airport, I checked in with an electronic ticket. That technology enabled me to get to San Antonio in time to thank my dad for everything he has done for me, tell him I love him and say goodbye.

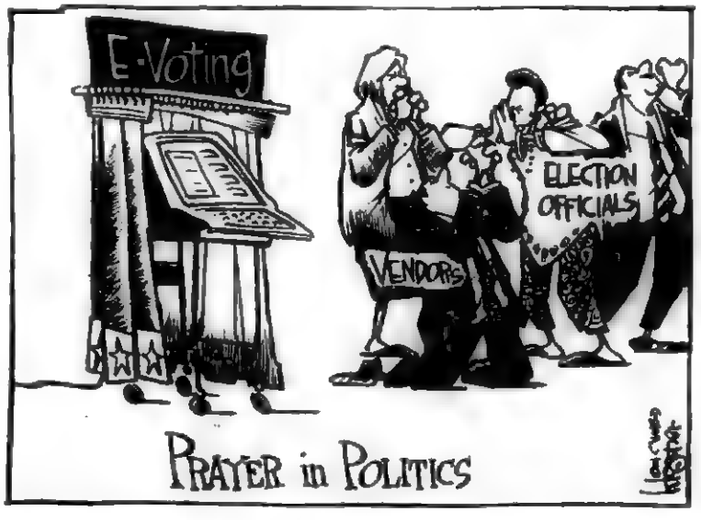
There are no doubt countless stories of perseverance on the part of the IT professionals who made all this technology happen, and most will never be told. That perseverance will therefore never be fully or properly appreciated. I want it known that I appreciate it deeply.

Finally, a note of thanks to everyone who wrote with such kind words in response to my previous references to ALS. This note from an IT manager in Arizona whose wife has ALS was especially touching: "I have never met anyone with ALS that was not a sincerely good person," he wrote. "I'll bet your dad was a wonderful man."

Yeah, he was. And he was clearly in very good company before he died. What's heartening is that he's in even better company now.

50375

Don Tennant



DAN GILLMOR

Flawed Vote Could Give IT A Black Eye

IT'S LESS THAN two weeks before the 2004 elections as I write this, and I'm going to go out on a not-very-long limb with a prediction. Who's going to win the presidency is anyone's guess, but it's a no-brainer to say ahead of time that we'll look back on this as another messy election, in a technological sense.

Many of the electronic voting machines in use this year are flawed. Some are simply untrustworthy. It's the result of a screw-up that shouldn't have happened in the first place and must not be allowed to occur again.



Why is this relevant to the IT community? Because the crummy voting technology is ultimately an indictment of IT, not just of the voting machine companies and sloppy (or worse) bureaucrats.

The 2000 presidential election was almost a tie. The narrow margin brought to light a host of problems with punch-card voting machines, which deserved the garbage bins into which many were tossed.

Congress understood that there was a crisis — of technology, of voter confidence and, ultimately, of our very system of selecting governments. But lawmakers launched more money than brainpower at the problem. The result was the Help America Vote Act, which encouraged state and local voting officials to spend wildly, and too quickly, with not nearly enough due diligence.

Among the worst flaws was an astonishing omission. There was no requirement that touch-screen voting machines come with a verification method like that of automated teller machines: a paper printout.

The voting machine companies, and their too-credulous customers in government, pooh-poohed the matter. One Florida official said the voting totals

were verifiable because, well, you could just ask the machine to repeat what it had told you. Good grief.

Voting activists might have been less worried had they and many concerned computer scientists not uncovered a host of problems with the software in several of the most widely sold machines — including security flaws that tech professionals found almost literally beyond belief. But despite the ongoing whacks to their credibility, the machine manufacturers have continued to insist that all is well.

What has made the situation worse yet is their black-box approach. They insist that the source code is proprietary, and unless forced by law, they won't even show it to government officials. One e-voting system vendor, Diebold, went so far as to launch legal threats against some students who posted internal memos on the Web that the company found embarrassing; thankfully, a federal judge ruled against Diebold.

Only one state, Nevada, required a voter-verifiable paper trail this year. California will require one in 2006, and some other states are also moving toward such measures.

But a better answer is to bite the bullet, write off the billion-dollar-plus investment to date — and start over. We need open-source voting software and much better controls over the companies selling the machines.

I'd like to see IT people become more active in the voting system. They could be poll watchers in the near term, but in the long run, they should take the lead in fixing a badly flawed system.

There's not much at stake here — just democracy. **50248**

MICHAEL H. HUGOS

'Hi, I'm From IT, and I'm Here to Help'

MY COMPANY has a hard time maintaining its profit margins. Customers can buy what we sell (stuff like paper cups, plastic spoons, paper towels, mops and floor wax) from lots of other companies. The prices we can charge are always being driven down.

So how do we avoid having our profits squeezed to nothing? IT helps. We start when one of us walks into a business meeting and says, "Hi, I'm from IT, and I'm here to help." The business people in my company are glad to hear this because my IT staffers are becoming masters of the 80% solution: We identify the repetitious things the business people do. As the company grows, such routine work (typically 70% to 90% of what they do) is overwhelming these users. The IT group is learning to design and quickly roll out simple systems that automate this routine work. These systems are cheap and quick to build because we never try to automate anything that isn't routine.



I see this as a major paradigm shift. For the past 30 years or more, people in IT have dreaded questions like, "Yes, but what about this?" or, "Can your system handle that?" Those comments always focus on exceptions to the general rules that a system is built to handle. Often, they have the power to stop new systems dead. They cause IT people to add complexity and expense to otherwise simple systems in order to handle exceptions that happen only once in a while.

In the past, such comments were often voiced by people who didn't want computers anyway and who were motivated to come up with ways to delay or stop a rollout of new systems. Times have changed. Older people have gotten used to computers, and younger people can't imagine living without them. And everyone's workload has doubled or tripled.

There's no longer a need to build complex systems to appease obstructionists, because there aren't many of them left. And since workflows change quickly and the most complex workflows change the fastest, why spend a lot of time automating them? Instead, learn to see complexity as combinations of simple, repetitive tasks and automate the simplest and most repetitive of them.

Figuratively speaking, people in my company are often too busy mopping to fix the leak. So we in IT build cheap, simple systems to do the mopping and free people up to figure out why the leak is happening and how best to fix it. Once freed from the burden of routine tasks, they have time to do root-cause analysis and fix problems at the source. They also have time to be more responsive to unique customer needs. If we serve those customers well, they'll do business with us again.

The company wins in two ways. First, there are increased operating efficiencies and cost savings that come from eliminating recurring problems. Then there are the benefits of attracting and retaining customers with unique needs — and such customers are often the most profitable ones. These wins happen because simple, stable and scalable systems hum away in the background, handling more and more of the routine transactions. That frees up people to focus on the nonroutine and to find the profit opportunities that are hidden there. This is how IT helps my company thrive. **46717**

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READERS' LETTERS

Programmers Can Learn From Mechanics

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Morris Campbell
Systems manager, Norfolk Department of Human Services, Norfolk, Va., Morris.campbell@norfolk.gov

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Senior network analyst, Columbus, Ga.

Job Hunt Peeves

SINCE GETTING DOWNSIZED from a Big Five consulting firm two years ago, I have been on numerous interviews and have a few pet peeves of my own ("Hiring Horrors," QuickLink 49556). The biggest is being asked to walk the hiring manager through my résumé. This translates as, "I didn't have time to read your résumé, so I have no idea who you are or what you've done." I've spent hours researching the prospective employer. I am fully prepared to talk about what I can do, but I never get a chance to do so. Other peeves are interviews with everybody I could possibly come in contact with, even after the manager realizes the job isn't a good fit, and insulting salary offers. When I was a hiring manager, the goal was to get the best person for the job at fair market value. Hiring an employee was perceived as making an investment, not bargain-basement shopping. It's an old maxim but true – you get what you pay for.

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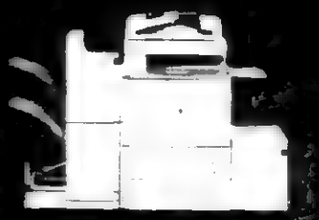
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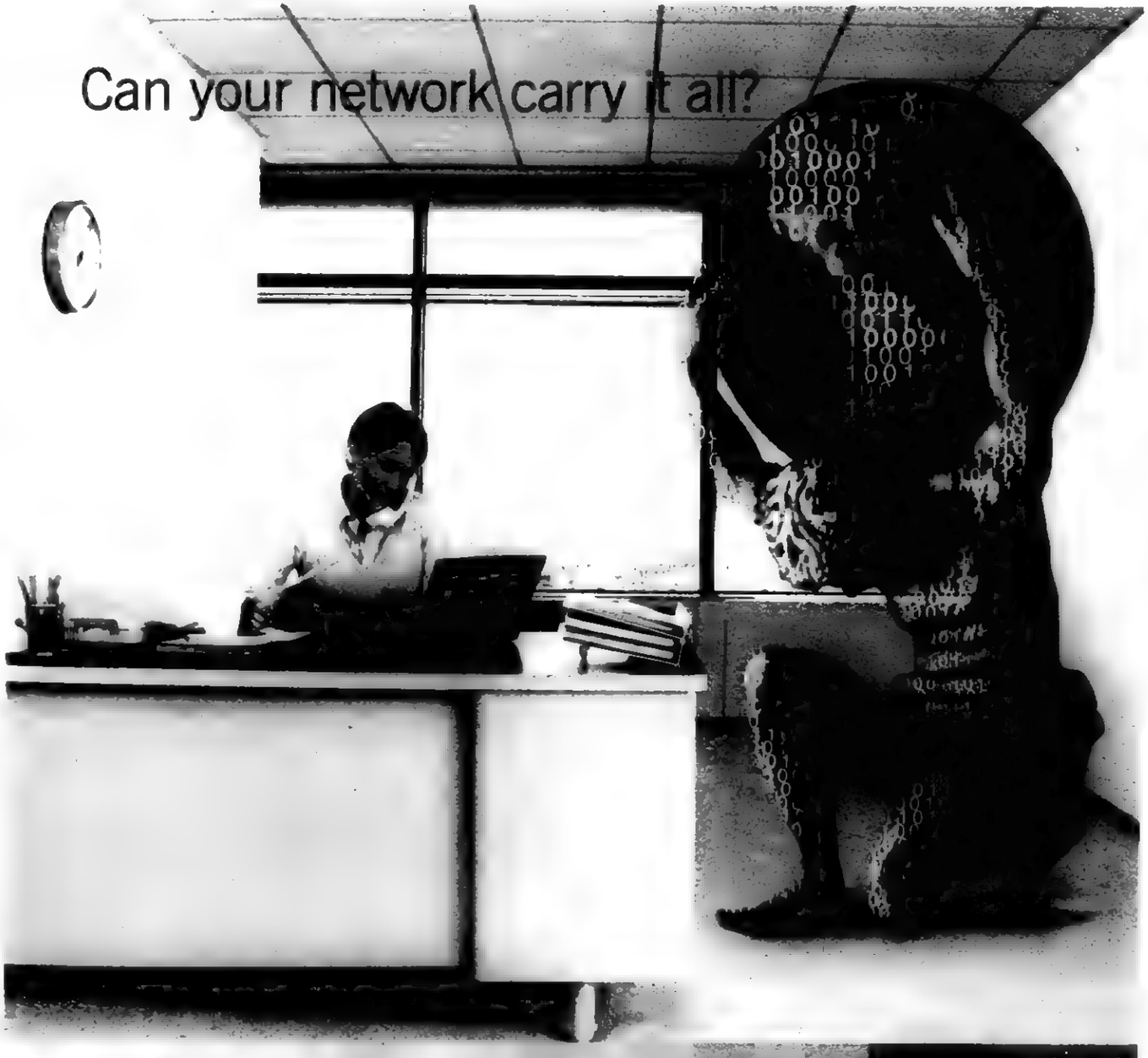
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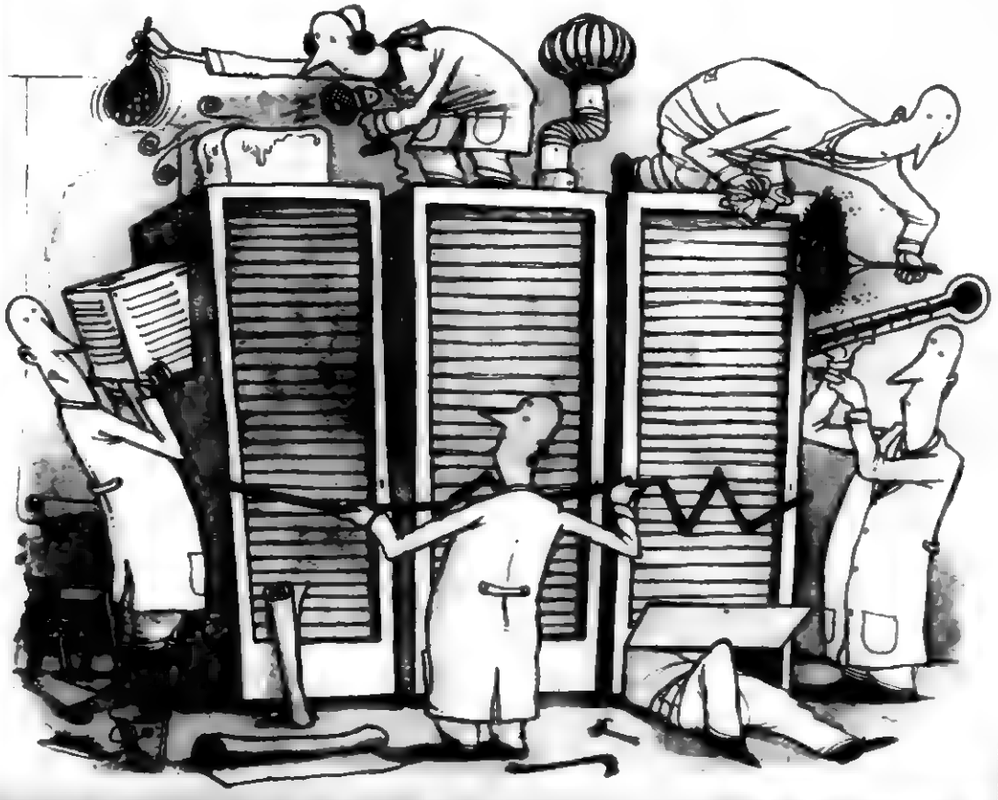
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QUICKSTUDY
Error Checking and Correction
Error checking and correction is the process of detecting errors during the transmission or storage of digital data and correcting them automatically. This usually involves sending or storing extra bits of data according to specified algorithms. **Page 30**

SECURITY MANAGER'S JOURNAL
Lack of Control Becomes Nightmare
Not having complete control of network security operations is a nightmare for C.J. Kelly, and now she has to find out what's really going on in the network. **Page 32**



OPINION
Make Vendors Pay For Security Flaws
Bruce Schneier says that the ultimate answer to security vulnerabilities is to make software vendors liable for the holes in their products. **Page 34**



DAVID CLARK

Data Centers Get a Makeover

TAKE A STROLL through almost any data center today, and you will see pretty much what you would have seen a decade ago — square white tiles over a raised floor, bright florescent lights, little red fire alarms everywhere and rows of faintly humming computer equipment and air conditioning gear.

But this familiar scene masks some big changes in the way that data centers are built, as well as changes in computer technology and an evolution in what data centers are expected to accomplish. Ultradense server racks, the move to distributed and virtual processing, a requirement for instant fail-over, and new requirements for IP telephony and voice over IP are all driving changes above and below the raised floor.

Keeping Cool

Perhaps the greatest challenge in data centers today is how to keep those rooms — and the components within them — cool. Facility designers used to apply a simple rule of thumb: If the room was going to be *x* thousand square feet, it would need *y* tons of air conditioning. Or designers relied on equipment "nameplates" that listed peak power usage based not on cooling requirements but on safety requirements.



Those simple approaches don't work well today. They're likely to result in expensive overcooling of the overall facility, even as temperatures in small areas — such as inside a rack of blade servers — soar.

Ron Hughes, president of California Data Center Design Group, says the typical data center last year consumed 40 watts of power per square foot and used server racks that consumed 2 kilowatts each. This year, he's designing a facility that will average 120 watts per square foot and support racks that use 4 to 5 kilowatts.

"And if you look at the latest projections from HP, Sun, IBM, Dell and so on, they are predicting that racks will be 15 to 25 kilowatts for blade servers," Hughes says. "The overall direction is toward smaller footprints, increased capacity, increased power and cooling requirements. I've seen projections for blade servers as high as 30 kilowatts per rack, and that's well over 500 watts per square foot."

The issue at those levels isn't cooling per se, but

Continued on page 36

QUICKSTUDY

Error Checking and Correction

Error checking and correction is the process of detecting errors during the transmission or storage of digital data and correcting them automatically. This usually involves sending or storing extra bits of data according to specified algorithms. **Page 30**

SECURITY MANAGER'S JOURNAL

Lack of Control Becomes Nightmare

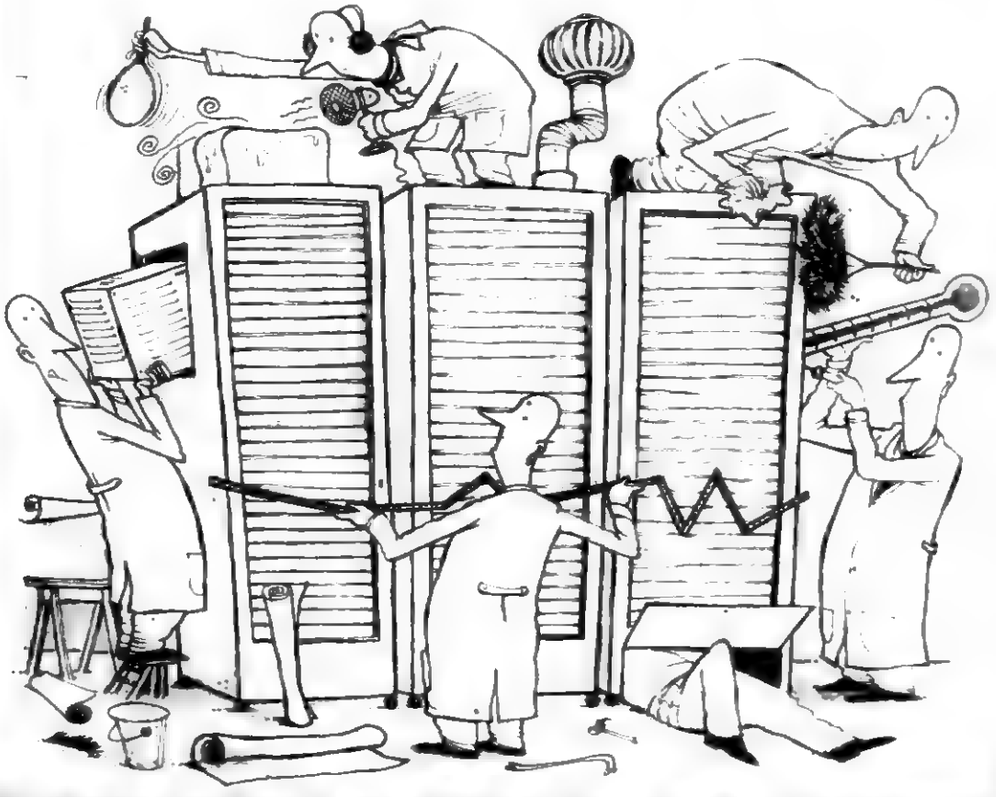
Not having complete control of network security operations is a nightmare for C.J. Kelly, and now she has to find out what's really going on in the network. **Page 32**



OPINION

Make Vendors Pay For Security Flaws

Bruce Schneier says that the ultimate answer to security vulnerabilities is to make software vendors liable for the holes in their products. **Page 34**



Data Centers Get a Makeover

By Gary H. Anthes

TAKE A STROLL through almost any data center today, and you will see pretty much what you would have seen a decade ago — square white tiles over a raised floor, bright florescent lights, little red fire alarms everywhere and rows of faintly humming computer equipment and air conditioning gear.

But this familiar scene masks some big changes in the way that data centers are built, as well as changes in computer technology and an evolution in what data centers are expected to accomplish. Ultradense server racks, the move to distributed and virtual processing, a requirement for instant fail-over, and new requirements for IP telephony and voice over IP are all driving changes above and below the raised floor.

Keeping Cool

Perhaps the greatest challenge in data centers today is how to keep those rooms — and the components within them — cool. Facility designers used to apply a simple rule of thumb: If the room was going to be *x* thousand square feet, it would need *y* tons of air conditioning. Or designers relied on equipment "nameplates" that listed peak power usage based not on cooling requirements but on safety requirements.

Those simple approaches don't work well today. They're likely to result in expensive overcooling of the overall facility, even as temperatures in small areas — such as inside a rack of blade servers — soar.

Four Trends Driving New Data Center Designs

1 Need to support ultra-dense server racks

2 Move toward distributed and virtual processing

3 Requirement for instant fail-over

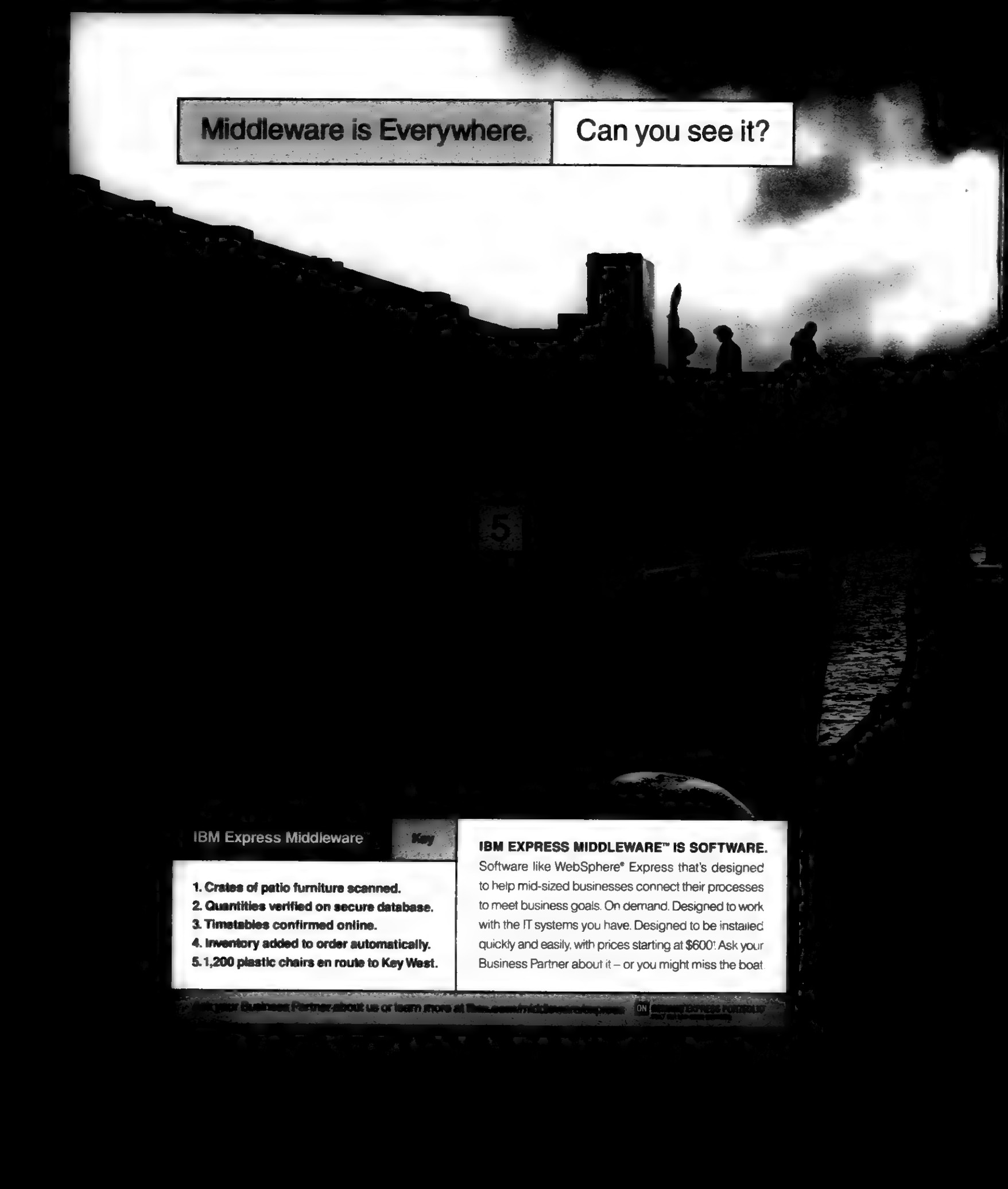
4 Migration to IP telephony and voice over IP

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Continued on page 3


Middleware is Everywhere.
Can you see it?
5
IBM Express Middleware
Key
1. Crates of patio furniture scanned.
2. Quantities verified on secure database.
3. Timetables confirmed online.
4. Inventory added to order automatically.
5. 1,200 plastic chairs en route to Key West.
IBM EXPRESS MIDDLEWARE™ IS SOFTWARE.
Software like WebSphere® Express that's designed to help mid-sized businesses connect their processes to meet business goals. On demand. Designed to work with the IT systems you have. Designed to be installed quickly and easily, with prices starting at $600†. Ask your Business Partner about it – or you might miss the boat.


IBM
3
2

Continued from page 23

affordable cooling. Hughes says that at 40 watts per square foot, it costs $400 per square foot to build a data center, or $20 million for a 50,000-square-foot facility. But at 500 watts per square foot — which Hughes says we could see by 2009, well within the lifetime of any data center built today — the amount of air conditioning, uninterruptible power supply (UPS) units, power generators and related gear jumps dramatically. Construction costs soar to $5,000 per square foot, and the same data center busts the budget at $250 million, he says.

The cooling challenge is compounded when a data center switches to emergency backup power. UPS units kick in instantly in a power failure, so there is no interruption in the flow of electricity to computers. But there is often a delay of 15 to 60 seconds for generators to restart the cooling units. That hasn't been a problem in the past, but for some newer equipment, temperatures can rise fast.

The temperature in a data center that averages 40 watts per square foot will rise 25 degrees in 10 minutes with cooling shut off, says Bob Sullivan, a senior consultant at The Uptime Institute Inc. in Santa Fe, N.M. But in places where power consumption is 300 watts per square foot, the temperature can rise that much in less than a minute.

The solution, Sullivan says, will be uninterruptible cooling that works the same way as uninterruptible power. That would involve putting air fans, and possibly systems that pump chilled water, on a UPS, he says.

Distributing the Data Center

Many companies today have just one big data center, or maybe two or more depending on the locations of users. But an abundance of cheap "dark" fiber, plus new virtualization software, is enabling a much more flexible, dynamic and user-transparent distribution of processing workloads.

For example, the Federal National Mortgage Association has two data centers, including one designed to be mostly a contingency site. Fannie Mae is building another data center to replace the contingency center and will then evolve both centers to a "co-production environment," says Stan Lofton, director of Wintel systems at the Washington-based mortgage financing company.

"We have a few applications today that we consider dual-site production, in operation all the time, so if we lost one site, it would be seamless to the user," he says. "Over time, we see more and more applications going that way."

That approach helps avoid single points of failure and makes disaster recovery faster and easier, says Joshua Aaron, president of Business Technology Partners Inc. in New York. "And not having to consolidate all your real estate in one location allows you to negotiate better deals in off-the-beaten-path areas."

That approach is leading some companies to bring disaster recovery in-house, rather than using a service from another company, Sullivan says. "You're seeing those disaster recovery facilities used also for development, testing and co-production," he says.

Co-production data centers carry with them the requirement of "continuous availability," says Terry Rodgers, a facilities manager at Fannie Mae. Increasingly, users are saying they can't wait a few hours or even a few minutes to bring up their systems at a backup site if the main site is knocked out by a fire or some other disaster. Fail-over has to be instantaneous, and that's both a software and a hardware issue, Rodgers notes.

Redundancy Times Two

Continuous availability requires a Tier IV data center, as defined by The Uptime Institute. Tier IV requires two independent electrical systems, all the way down to dual power cables into the computer hardware. Fannie Mae's new data center will be built to Tier IV specs and will offer "real-time backup," Rodgers says.

Visa U.S.A. Inc. has two 50,000-square-foot-plus data centers in the U.S., one on each coast. Either can instantly back up the other. Each center is rated as N+1, which means that every system with *n* components has at least one hot spare. For example, if a data center has six UPS modules in use, there will be a seventh standing by under the N+1 principle.

Building a Data Center: Soaring Costs

	TODAY	2009
Watts per square foot	40	500
Cost per square foot to build and equip a data center	$400	$5,000
Cost for a 10,000-square-foot facility	$4M	$50M

Source: The Uptime Institute, A Data Center in Your Future

Within a year, Visa will migrate to a 2(N+1) architecture, in which every system is completely duplicated. In the above example, the data center would have two active UPS systems, each with separate cables to the equipment and each with N+1 redundancy.

"Ten years ago, N+1 allowed for a component failure," says Richard Knight, senior vice president for operations at Foster City, Calif.-based Visa. "Now, with technology changes and everything dual-powered, the ultimate design is 2(N+1). It's dual systems versus dual components."

In addition to offering the highest levels of fault tolerance, 2(N+1) will enhance flexibility because an entire system can be taken down for maintenance, says Jerry Corbin, Visa's vice president for central facilities. But, he says, "it also tremendously increases the complexity to be managed."

Communications Buildup

Networking issues are also changing data center designs, and storage-area networks pose special challenges, Aaron says. "SANs typically attach to Fibre Channel switches, although IP SCSI is making inroads in the market," he says. "Today's Fibre Channel switches require their own infrastructure and must be planned for during data center design. They take rack space and consume a lot of power."

Indeed, communications considerations will increasingly influence data center design, Aaron predicts. "With the proliferation of voice over IP, the data center now has to support a very mission-critical application: voice," he says. "How do you provide power to the IP phones? How do you handle 911 service? How do you provide voice mail? How do you or will you support unified messaging?"

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Unified Management

IP networks bring relief as well as challenges. Data centers are starting to connect environmental monitoring sensors to the data network so both facilities managers and IT managers have a unified view of the health of all systems.

Facilities equipment manufacturers use common data-exchange standards and network protocols to help bridge the facilities and IT worlds. For example, NetBotz Inc. in Austin sells IP-addressable wireless "monitoring appliances" that can be fitted with security cameras, microphones and sensors for humidity, temperature and airflow. They can be read remotely or send alerts by e-mail.

"The cost, size and complexity of these kinds of things has come down," Aaron says. "Plus, they are now integrated with the network so you can see them across the WAN in a remote location." **49777**

MORE ABOUT DATA CENTERS

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Cool tools: Here are four ways engineers are dealing with balancing data center heat loads

QuickLink 49775
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HP's Experiment in Cool

ADVANCED TECHNOLOGY intended to cool data centers in just the right spots is under development at Hewlett-Packard Co. "The old approach was to keep the room at a constant temperature, much like an auditorium," says Chandrakant Patel, distinguished technologist at HP Laboratories. "But new data centers are starting to look like Carnegie Hall, with 100 people per seat."

In an approach that HP calls "smart cooling," there are temperature sensors everywhere in the data center, including six to eight in each server rack. HP even has robots with sensors on them that travel about, looking for unanticipated hot spots. The sensors send data over the network to an analysis and control program that dynamically models the data center based on preset policies and the principles of thermodynamics.

The system uses the results of the modeling to direct vents and blowers so that cool air is sent just where it's needed. The control software can also redistribute processing workloads within the data center or across a network of data centers. HP says smart cooling will reduce energy costs for cooling by 25%.

HP currently offers professional data center design services, and it plans to sell the hardware components for smart cooling systems when it establishes partnerships with vendors of the hardware, according to Patel.

– Gary H. Anthes

Continued from page 23

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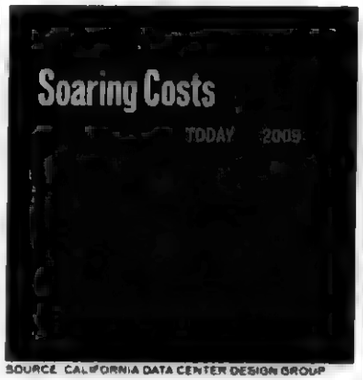
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SOURCE: CALIFORNIA DATA CENTER DESIGN GROUP

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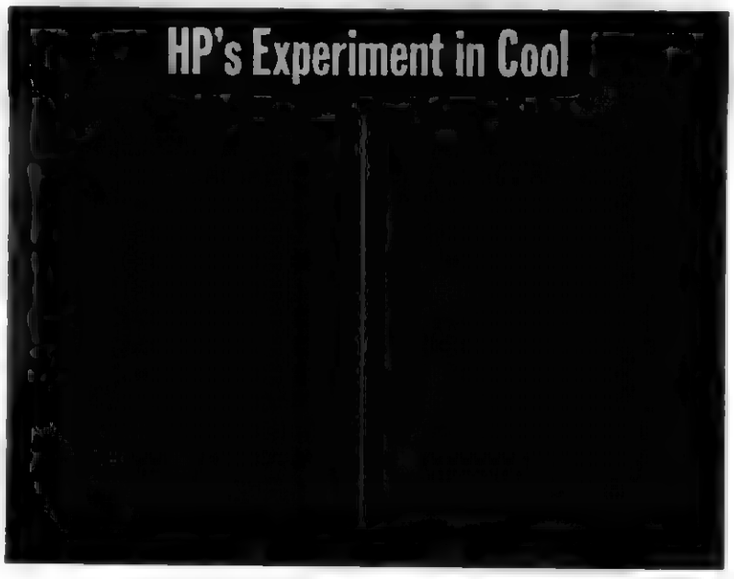
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1. NPD Group, July-August, 2005, U.S. retail shipments.

OpenVMS SURVIVES AND THRIVES

The 'legacy' operating system maintains a substantial base in large organizations, and there's promise of new interest as it moves to 64-bit Itanium. By Drew Robb

OpenVMS was supposed to have died a slow and unheralded death sometime during the 1990s. Labeled passé by analysts and "legacy" by Windows and Unix enthusiasts in the wake of the distributed computing boom of the '90s, it hardly merits a mention in the computer press. Yet the operating system has stubbornly refused to go away.

Digital Equipment Corp. developed the Virtual Memory System in 1977 for VAX hardware as a multiuser, multitasking operating system. (Digital was eventually absorbed by Compaq Computer Corp., which merged with Hewlett-Packard Co. in 2001.) OpenVMS is a later version that runs on VAX and Alpha and will soon be available on HP Integrity servers, part of the company's 64-bit Itanium line.

One of the perceived drawbacks contributing to the aura of doom around OpenVMS was the operating system's tie to expensive proprietary hardware — first VAX, then Alpha. But now that Integrity servers — which also support HP-UX, Linux and Windows — run OpenVMS, its users will benefit from the same manufacturing economies of scale that users of those other operating systems do.

Even now, however, annual OpenVMS-related hardware, software and services earn in excess of $2 billion annually for HP, and more than 400,000 VMS systems are still operating worldwide, according to a source at the company. Those numbers are backed up by Ken Farmer at OpenVMS.org, an independent Web site dedicated to OpenVMS users. He estimates that there are 10 million users worldwide and hundreds of thousands of installations of OpenVMS.

"There were about 456,000 VMS systems almost a decade ago, and after a slight yearly decline for a few years, the operating system is now staging a revival," says high-performance computing guru Terry Shannon, a 22-year VMS veteran in Amarillo, Texas, who wrote the original VMS user guide. "Some of the folks who drank the Windows Kool-Aid and dumped VMS for Windows are now coming back."

When the Chips Are Down

OpenVMS/Alpha systems are commonly used by financial services, health care, manufacturing and aerospace companies, as well as utilities and state lotteries and other government agencies. HP says that 50% of major telecommunications providers and 80% of chip manufacturers use OpenVMS. Users say that they've stuck with OpenVMS because the operating system has provided all of the features they've needed, along with tested stability.

"We chose VMS due to reliability, availability, solid performance, the fact that it's mature and proven, and the stability of both the hardware and software," says Joseph Stenz, senior systems programmer/administrator at Albert Einstein Healthcare Network in Philadelphia. "There were some IBM mainframe and Windows solutions offered, but they didn't justify moving off of Alpha."

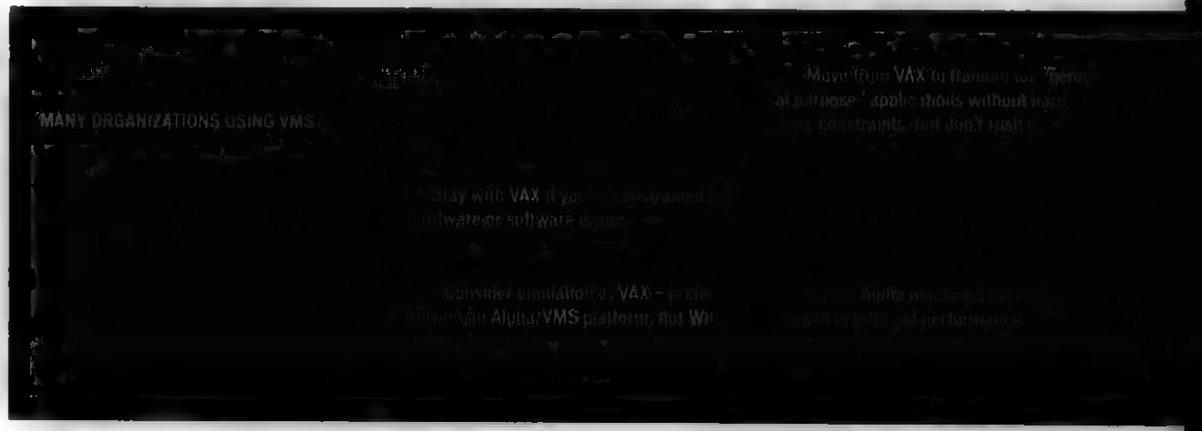


> **"Our intention is to keep on using VMS until doomsday, as long as it keeps innovating and providing the highest standards in the IT world.**
>
> DANIEL SANCHEZ REINA, IT MANAGER, SONY CORP.'S BARCELONA CENTER FOR DISTRIBUTION

Einstein Healthcare will be installing a new AlphaServer ES47 this fall. It will be the third VMS/Alpha system within the 6,000-employee campus encompassing six major facilities. Einstein Healthcare also has over 100 Windows NT/2000 servers in an enterprise LAN/WAN (frame relay/Asynchronous Transfer Mode) environment.

Einstein Healthcare's Alpha-based systems include an ES47 Model 2 OpenVMS machine with two 1-GHz Alpha EV7 processors with 1.75MB Level 2 cache (four-processor capable) and 4GB of error checking and correcting memory. There's also an HP AlphaServer ES47 Model 2 OpenVMS enterprise server with a memory expansion up to 8GB, and an HP AlphaServer ES47 Model 2 OpenVMS enterprise server with memory expansion up to 8GB and optional RAID memory support.

Einstein hasn't clustered its Alpha environment, which also includes two



HP MSA1000 Fibre Channel storage arrays.

The ES47 supports several applications that demand reliability and high availability: Siemens Document Imaging 23.4 for billing purposes; IDXtend 9.0 for physician billing and scheduling; and McKesson/HBOC Trendstar for decision support and cost accounting.

Einstein Healthcare isn't the only user gravitating toward Alpha. Annual sales of Alpha hardware add up to several hundred million dollars, according to HP.

Rising to the Challenge

A major impetus behind the VMS/Alpha revival appears to be its performance during the Sept. 11 attacks on New York's World Trade Center.

According to David Freund, an analyst at IT research firm Illuminata Inc. in Nashua, N.H., several financial services businesses in the towers and numerous others in the immediate vicinity had OpenVMS disaster-tolerant clusters with backup sites outside the area. Every one of them had their operations running just moments after the catastrophe, says Freund.

Following that awful day, OpenVMS seems to have gained new prominence. In some IT circles, it's now regarded as the crème de la crème in disaster recovery and high availability, according to users and analysts.

"OpenVMS uptimes can be measured in years," says Stenz. "This is certainly preferable to a culture of rebooting and disruption that plagues other platforms due to viruses, Trojans, denial-of-service attacks and endless patching of systems."

OpenVMS Globalization

It isn't just U.S. companies that are remaining on or rediscovering OpenVMS. The operating system has maintained a strong hold overseas, according to Colin Butcher, a systems architect at systems integrator XDelta Ltd. in Bristol, England, who has 20 years' experience on OpenVMS for clients such as HP, Ikea International AS, the U.K.'s air traffic control service and the U.K. National Health Service.

When Sony Corp. opened its Barcelona Center for Distribution (BCD) in Spain 12 years ago, it trusted its business-critical systems to VAX/VMS. The facility is highly automated and runs 24 hours a day, six days a week in order to keep up with tight deadlines for the distribution of Sony and Aiwa products throughout southern Europe.

Daniel Sanchez Reina, BCD's IT manager, lists the usual reasons for choosing the operating system: its robustness, reliability, powerful features, high performance and memory management.

"You get true clustering on VMS as the number of machines becomes transparent to you; they work as a single unit," says Sanchez Reina. "This is made possible by the fast, powerful and clusterwide lock manager."

In 1998, BCD ported VMS from VAX to Alpha. It now runs a three-machine Alpha/VMS cluster in conjunction with a customs system and optical archive running on Windows 2000 Server, an HP StorageWorks EVA 5000 storage array and an Oracle Corp. database.

Future Plans

How much longer will OpenVMS remain viable?

"Our intention is to keep on using VMS until doomsday, as long as it keeps innovating and providing the highest standards in the IT world," says Sanchez Reina. "We have no plans to migrate to VMS on Itanium, at least for now."

That seems to be the consensus among IT shops: Stay on Alpha, milk it for all it's worth, and keep a close eye on developments in the VMS/Integrity server space.

Like BCD and many other users, Einstein Healthcare has no immediate plans to migrate. Stenz says he has a four-year lease on Alpha hardware and is unlikely to change during that period.

"We are going to adopt a wait-and-see approach to developments on Itanium and VMS," he says.

Meanwhile, HP has had OpenVMS Version 8.1 in field testing on Itanium for many months. At the recent HP World Conference, it released Version 8.2 for testing. The company expects the first shipments of OpenVMS/Integrity servers either late this year or early next year.

Few anticipate significant problems in the system or in porting applications from Alpha to Itanium.

"The OpenVMS APIs are so correct architecturally that the operating system has not required substantial change since its original design in 1977," says Bob Gezelter, a software consultant in New York who has tested the new system. "OpenVMS on Integrity is a case of seamlessly assimilating a new processor, not using a high-tech shoehorn to force an old architecture into an ill-fitting shoe."

XDelta's Butcher has also tested Itanium/VMS. Other than needing some time to figure out the console interface, he says he found that VMS seemed to run and behave just as it always does.

Butcher does, however, express some reservations. "Performance might be an issue at the moment," he says. "The big Alphas probably outperform the larger Itanium boxes, but that will change with time."

Few Alpha users are in a hurry to make the switch.

"After seeing where the market and technology direction is heading, we may adjust our direction after the third year of our lease," says Einstein Healthcare's Stenz. "Depending on how things play out on Itanium 64 and VMS, we could very well then migrate to that architecture or extend/augment our ES47." **50085**

Why OpenVMS Hasn't Faded Away

Performance
OpenVMS can handle 3,000 simultaneous active users and almost 2 million database transactions per minute on Oracle.

Uptime
It's quite normal for VMS cluster uptimes to be measured in years. User after user has verified this.

Clustering
OpenVMS offers shared-everything clustering, i.e., applications running on 96 servers can simultaneously write to the same files on shared disks. If one server goes down, there's no data loss, and the application stays up. Similarly, two physically separate data centers can be part of a single VMS cluster. This feature kept several Wall Street firms in business on Sept. 11, 2001.

Disk Mirroring
Known as volume shadowing on VMS, this feature mimics disk drives for applications using a set of virtual devices. Synchronously mirrored write operations are transparent to users.

Maximum Nodes
OpenVMS can run a maximum of 96 nodes in one cluster, far more than any Unix or Windows-based systems. That equates to over 3,000 processors.

Intersite Distance Limit
The maximum distance allowed between disaster recovery sites is 800 kilometers on OpenVMS, compared with 100 kilometers at best on other systems.

Security
OpenVMS is "virtually unhackable," says Ken Farmer of OpenVMS.org. Indeed, at the DefCon 9 Hacker Conference a couple of years ago, OpenVMS beat out Windows NT and XP, Solaris, Linux, BSD and others and was graded as unhackable by the best hackers in the business, according to Farmer.

– *Drew Robb*

MORE ONLINE

For a list of vendors with products that support OpenVMS, see our Web site.

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OpenVMS SURVIVES AND THRIVES

The 'legacy' operating system maintains a substantial base in large organizations, and there's promise of new interest as it moves to 64-bit Itanium. **By Drew Robb**

OpenVMS was supposed to have died a slow and unheralded death sometime during the 1990s. Labeled passé by analysts and "legacy" by Windows and Unix enthusiasts in the wake of the distributed computing boom of the '90s, it hardly merits a mention in the computer press. Yet the operating system has stubbornly refused to go away.

Digital Equipment Corp. developed the Virtual Memory System in 1977 for VAX hardware as a multiuser, multitasking operating system. (Digital was eventually absorbed by Compaq Computer Corp., which merged with Hewlett-Packard Co. in 2001.) OpenVMS is a later version that runs on VAX and Alpha and will soon be available on HP Integrity servers, part of the company's 64-bit Itanium line.

One of the perceived drawbacks contributing to the aura of doom around OpenVMS was the operating system's tie to expensive proprietary hardware — first VAX, then Alpha. But now that Integrity servers — which also support HP-UX, Linux and Windows — run OpenVMS, its users will benefit from the same manufacturing economies of scale that users of those other operating systems do.

Even now, however, annual OpenVMS-related hardware, software and services earn in excess of $2 billion annually for HP, and more than 400,000 VMS systems are still operating worldwide, according to a source at the company. Those numbers are backed up by Ken Farmer at OpenVMS.org, an independent Web site dedicated to OpenVMS users. He estimates that there are 10 million users worldwide and hundreds of thousands of installations of OpenVMS.

"There were about 456,000 VMS systems almost a decade ago, and after a slight yearly decline for a few years, the operating system is now staging a revival," says high-performance computing guru Terry Shannon, a 22-year VMS veteran in Amarillo, Texas, who wrote the original VMS user guide. "Some of the folks who drank the Windows Kool-Aid and dumped VMS for Windows are now coming back."

When the Chips Are Down

OpenVMS/Alpha systems are commonly used by financial services, health care, manufacturing and aerospace companies, as well as utilities and state lotteries and other government agencies. HP says that 50% of major telecommunications providers and 80% of chip manufacturers use OpenVMS. Users say that they've stuck with OpenVMS because the operating system has provided all of the features they've needed, along with tested stability.

"We chose VMS due to reliability, availability, solid performance, the fact that it's mature and proven, and the stability of both the hardware and software," says Joseph Stenz, senior systems programmer/administrator at Albert Einstein Healthcare Network in Philadelphia. "There were some IBM mainframe and Windows solutions offered, but they didn't justify moving off of Alpha."



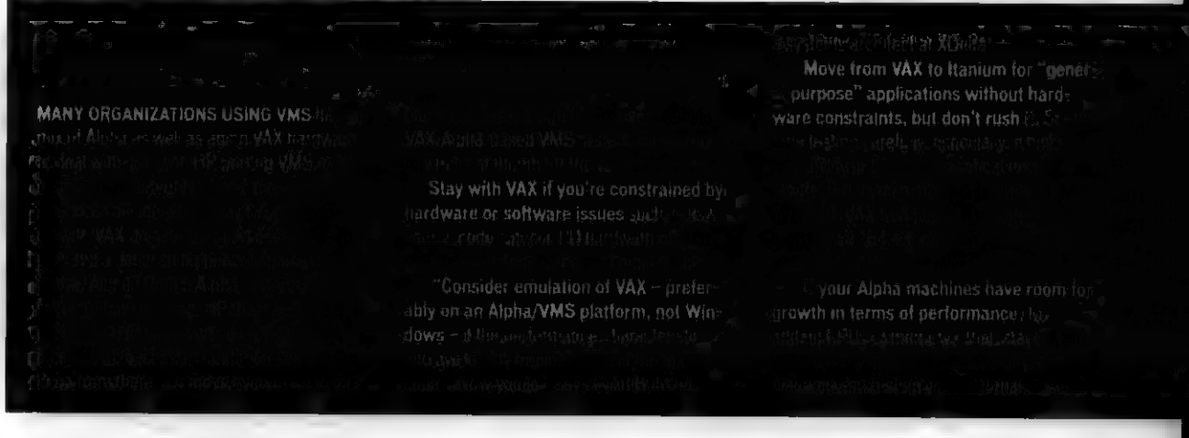
"Our intention is to keep on using VMS until doomsday, as long as it keeps innovating and providing the highest standards in the IT world.

DANIEL BAUCH
IT MANAGER, SONY CORP.'S BARCELONA CENTER FOR DISTRIBUTION

Einstein Healthcare will be installing a new AlphaServer ES47 this fall. It will be the third VMS/Alpha system within the 6,000-employee campus encompassing six major facilities. Einstein Healthcare also has over 100 Windows NT/2000 servers in an enterprise LAN/WAN (frame relay/Asynchronous Transfer Mode) environment.

Einstein Healthcare's Alpha-based systems include an ES47 Model 2 OpenVMS machine with two 1-GHz Alpha EV7 processors with 1.75MB Level 2 cache (four-processor capable) and 4GB of error checking and correcting memory. There's also an HP AlphaServer ES47 Model 2 OpenVMS enterprise server with a memory expansion up to 8GB, and an HP AlphaServer ES47 Model 2 OpenVMS enterprise server with memory expansion up to 8GB and optional RAID memory support.

Einstein hasn't clustered its Alpha environment, which also includes two



HP MSA1000 Fibre Channel storage arrays.

The ES47 supports several applications that demand reliability and high availability: Siemens Document Imaging 23.4 for billing purposes; IDXtend 9.0 for physician billing and scheduling; and McKesson/HBOC Trendstar for decision support and cost accounting.

Einstein Healthcare isn't the only user gravitating toward Alpha. Annual sales of Alpha hardware add up to several hundred million dollars, according to HP.

Rising to the Challenge

A major impetus behind the VMS/Alpha revival appears to be its performance during the Sept. 11 attacks on New York's World Trade Center.

According to David Freund, an analyst at IT research firm Illuminata Inc. in Nashua, N.H., several financial services businesses in the towers and numerous others in the immediate vicinity had OpenVMS disaster-tolerant clusters with backup sites outside the area. Every one of them had their operations running just moments after the catastrophe, says Freund.

Following that awful day, OpenVMS seems to have gained new prominence. In some IT circles, it's now regarded as the crème de la crème in disaster recovery and high availability, according to users and analysts.

"OpenVMS uptimes can be measured in years," says Stenz. "This is certainly preferable to a culture of rebooting and disruption that plagues other platforms due to viruses, Trojans, denial-of-service attacks and endless patching of systems."

OpenVMS Globalization

It isn't just U.S. companies that are remaining on or rediscovering OpenVMS. The operating system has maintained a strong hold overseas, according to Colin Butcher, a systems architect at systems integrator XDelta Ltd. in Bristol, England, who has 20 years' experience on OpenVMS for clients such as HP, Ikea International AS, the U.K.'s air traffic control service and the U.K. National Health Service.

When Sony Corp. opened its Barcelona Center for Distribution (BCD) in Spain 12 years ago, it trusted its business-critical systems to VAX/VMS. The facility is highly automated and runs 24 hours a day, six days a week in order to keep up with tight deadlines for the distribution of Sony and Aiwa products throughout southern Europe.

Daniel Sanchez Reina, BCD's IT manager, lists the usual reasons for choosing the operating system: its robustness, reliability, powerful features, high performance and memory management.

"You get true clustering on VMS as the number of machines becomes transparent to you; they work as a single unit," says Sanchez Reina. "This is made possible by the fast, powerful and clusterwide lock manager."

In 1998, BCD ported VMS from VAX to Alpha. It now runs a three-machine Alpha VMS cluster in conjunction with a customs system and optical archive running on Windows 2000 Server, an HP StorageWorks EVA 5000 storage array and an Oracle Corp. database.

Future Plans

How much longer will OpenVMS remain viable?

"Our intention is to keep on using VMS until doomsday, as long as it keeps innovating and providing the highest standards in the IT world," says Sanchez Reina. "We have no plans to migrate to VMS on Itanium, at least for now."

That seems to be the consensus among IT shops: Stay on Alpha, milk it for all it's worth, and keep a close eye on developments in the VMS/Integrity server space.

Like BCD and many other users, Einstein Healthcare has no immediate plans to migrate. Stenz says he has a four-year lease on Alpha hardware and is unlikely to change during that period.

"We are going to adopt a wait-and-see approach to developments on Itanium and VMS," he says.

Meanwhile, HP has had OpenVMS Version 8.1 in field testing on Itanium for many months. At the recent HP World Conference, it released Version 8.2 for testing. The company expects the first shipments of OpenVMS for Integrity servers either late this year or early next year.

Few anticipate significant problems in the system or in porting applications from Alpha to Itanium.

"The OpenVMS APIs are so correct architecturally that the operating system has not required substantial change since its original design in 1977," says Bob Gezelter, a software consultant in New York who has tested the new system. "OpenVMS on Integrity is a case of seamlessly assimilating a new processor, not using a high-tech shoehorn to force an old architecture into an ill-fitting shoe."

XDelta's Butcher has also tested Itanium VMS. Other than needing some time to figure out the console interface, he says he found that VMS seemed to run and behave just as it always does.

Butcher does, however, express some reservations. "Performance might be an issue at the moment," he says. "The big Alphas probably outperform the larger Itanium boxes, but that will change with time."

Few Alpha users are in a hurry to make the switch.

"After seeing where the market and technology direction is heading, we may adjust our direction after the third year of our lease," says Einstein Healthcare's Stenz. "It's premature to say how things play out or when and if VMS, we could very well [illegible] migration to that architecture or ex[illegible] augment our ES47." **50085**

Why OpenVMS Hasn't Faded Away

Performance
OpenVMS can handle 3,000 simultaneous active users and almost 2 million database transactions per minute on Oracle.

Uptime
It's quite normal for VMS cluster uptimes to be measured in years. User after user has verified this.

Clustering
OpenVMS offers shared-everything clustering, i.e., applications running on 96 servers can simultaneously write to the same files on shared disks. If one server goes down, there's no data loss, and the application stays up. Similarly, two physically separate data centers can be part of a single VMS cluster. This feature kept several Wall Street firms in business on Sept. 11, 2001.

[illegible]
Known as volume shadowing on VMS, this feature mimics disk drives for applications using a set of virtual devices. Synchronously mirrored write operations are transparent to users.

[illegible]
OpenVMS can run a maximum of 96 nodes in one cluster, far more than any Unix or Windows-based systems. That equates to over 3,000 processors.

[illegible]
The maximum distance allowed between disaster recovery sites is 800 kilometers on OpenVMS, compared with 100 kilometers at best on other systems.

[illegible]
Open VMS is "virtually unhackable," says Ken Farmer of OpenVMS.org. Indeed, at the DefCon 9 Hacker Conference a couple of years ago, OpenVMS beat out Windows NT and XP, Solaris, Linux, BSD and others and was graded as unhackable by the best hackers in the business, according to Farmer.

- Drew Robb

If you're about to buy new Alpha hardware, buy with room for growth so that you don't back yourself into a corner [illegible]

Move from Alpha to Itanium-based systems if you gain advantages, such as [illegible] that probably a few years [illegible]

If everything you need is supported on Itanium, then consider using it from Day 1, but be aware that you'll be joining the [illegible] on a production environment. "It's all about assessing risk and striking an appropriate balance between risk and cost," says Butcher.

MORE ONLINE

[illegible] OpenVMS [illegible]

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Error Checking And Correction

DEFINITION

Error checking and correction (ECC) is the process of detecting errors during the transmission or storage of digital data and correcting them automatically. This usually involves sending or storing extra bits of data according to specified algorithms.

BY RUSSELL KAY

WHENEVER we send data — whether it's audio signals over a phone line, a data stream or a legal document — to someone else, we need to know that what arrives on the other end is identical to what we sent. Similarly, whenever we store data on disk or tape, we need assurance when we retrieve it that it hasn't been altered. Accurate data is absolutely essential for computations, record keeping, transaction processing and online commerce.

Unfortunately, storing and transmitting data both involve the actions of physical entities in the real world: electrons, photons, atoms, molecules, wires, contacts and more. This means there's always some degree of uncertainty because background noise is ever present in our physical universe and might alter or corrupt any given data bit.

Error Detection

Early in the computer revolution, some powerful techniques were developed first to detect and later to correct errors in data. The most obvious, and perhaps least efficient, way to find data changes is to repeat each unit of data multiple times and then compare the copies. This method is so inefficient that it's not used for error detection — though the same idea is used in RAID-1 (disk mirroring) for fault tolerance.

QUICK STUDY

The best-known error-detection method is called parity, where a single extra bit is added to each byte of data and assigned a value of 1 or 0, typically according to whether there is an even or odd number of "1" bits. The receiving system calculates what the parity bit should be and, if the result doesn't match, then we know that at least one bit has been changed, but we don't know which bit is wrong. It's also possible that the data is entirely correct and the parity bit is garbled. If two bits have been altered, however, the changes cancel out: the data will be wrong but the parity bit won't signal an error.

Two other established error-detection techniques are checksum (add up all the bits of the entire message, document or program and produce a single sum) and cyclic redundancy check, which operates on groups of bits at a time and uses division, not addition. Checksums and CRCs are calculated before and after transmission or duplication and then compared. However, checksums and CRCs alone can't verify data integrity, since the algorithms are known and it's possible to introduce intentional changes that these methods won't detect. A more secure way would involve cryptographic hash functions, one-way mathematical operations whose use of secret encryption keys precludes making undetectable alterations.

Error Correction

Thus techniques exist that will let us find errors in our data, but then what? One way to get the right stuff is just to ask the sending party or device to resend it. If there are a lot of errors or there is a long communications path, however, such as when we're sending data halfway around this noisy planet, retransmission can dramatically slow down communications.

What's needed is a system that will find any errors and correct them automatically. It turns out that we can create such algorithms (known as error-correcting codes, which is the other phrase that ECC sometimes stands for) at any degree of precision we want, but with a trade-off in efficiency. Most of the time, we settle for codes that can detect and correct errors in one bit and detect but not correct errors in two or more bits. (A simple illustration of how this works with a one-bit error is shown in the box above.)

ECC ADDS multiple parity bits, through calculations are usually applied to complete words (typically 32 or 64 bits), not single bytes. Each ECC bit represents the parity of a different subset of the data bits, and each data bit is normally included in more than one ECC bit. This lets us detect a 1-bit error, identify the offending bit and fix it. It also lets us detect but not correct 2-bit error. (For an example of how ECC detects and corrects a 2-bit error, go to QuickLink 50352 on our Web site.)

To see how ECC works in a very simplified form, let's look at a 7-bit chunk of binary data. To this we add three more bits for ECC data, each calculated as the parity bit for a subset of the seven bits. Figure 1 shows the three subsets, with sample data and the calculated ECC bits:

FIGURE 1

	DATA BITS							ECC BITS		
RECEIVED DATA	0	1	1	0	0	1	0			
Subset 1 bit	■		■	■	■					
Subset 2 bits		■	■			■	■			
Subset 3 bits	■	■		■			■			
Subset 1 value	0	1		0	0			1		
Subset 2 value		1	1	0		1			1	
Subset 3 value	0		1	0			0			1

To simulate an error, let's alter the third bit from 1 to 0. Now the received data looks like Figure 2, with differences in red:

FIGURE 2

	DATA BITS							ECC BITS		
RECEIVED DATA	0	1	0	0	0	1	0			
Subset 1 bit	■		■	■	■					
Subset 2 bits		■	■			■	■			
Subset 3 bits	■	■		■			■			
Subset 1 value	0	1		0	0			1		
Subset 2 value		1	0	0		1			1	
Subset 3 value	0		0	0			0			1

We can see that the first calculated ECC bit doesn't match, so we know there's an error. Because ECC 1 is the mismatch, this tells us that the error can't be in Bits 1, 2, 4 or 5 (yes, that seems counterintuitive, but parity can be like that). This leaves only Bits 3, 6 and 7. How do we tell which? The three subsets of the data bits used to create the ECC bits in this example were chosen so that changing any single data bit produces a different ECC value than changing any other data bit.

If we assume the error is in Bit 7, we can change it and recalculate the ECC values as 110. Since that doesn't match the received 100, we try Bit 6, which gives us 101, also not a match. This leaves Bit 3; changing its value gives us the correct ECC bits and confirms the correct data.

Today, ECC is used in many different devices, from CD players to computers. Perhaps its best-known use is in special ECC RAM for servers, in which extra bits are designed directly into the dynamic RAM chips.

Looking to the future, ECC could gain increased visibility and adoption in the wireless communications market. That's because the popularity of wireless communications and the availability of wireless products are both predicted to grow considerably, but the bandwidth and throughput of wireless channels will remain considerably lower than those of hard-wired connections. **50127**

Kay is a Computerworld contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.

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Lack of Control Becomes Nightmare

Our security manager discovers that finding out what's really going on in the network is a daunting task. By C.J. Kelly

SECURITY MANAGER'S JOURNAL

I HAD A BAD DREAM the other night. In it, I was sleeping in the back seat of a convertible. I woke up because the air had gotten chilly and the car was swaying. I rubbed my eyes and tried to shake the cobwebs out of my mind as I peered into the front seat. No one was driving. I scrambled over the front seat and took the wheel, only to discover that I had no control over the car. It's not that the car was careening out of control; it had a mind of its own. It was steadily taking me up a steep, winding mountain road with cliffs on either side. The road got narrower and narrower before the car finally came to a stop. I looked around and suddenly became very afraid. Then I refused to continue the nightmare and woke up.

We could spend some time interpreting it, but I think it's pretty clear that this dream represents how I feel about managing information security. I'm driving, but I don't have control; we haven't gone off a cliff, and I'm not going to be happy if we do. I have a company's information assets to protect, and I don't want to have to notify our customers that their personal information has been exposed or deliver the news that our network just got "owned." To keep the bad dreams at bay, I'm going to have to make some changes.

For starters, I had it out with my boss the other day and told her that I wanted complete control over all network security operations, including firewall, virtual private network (VPN), router and domain access administration. Those things are currently managed by IT operations, not security operations. I need additional head count. I need tools. And I want an organizational change. I don't care about policy. I don't care about process and procedure (Sarbanes-Oxley be damned). I care about doing what it takes to secure my company's information assets.

What brought me to this point? In my last column, I was fighting the virus war. It's going well. We hired a contractor that does nothing but track down infected systems, scan them for viruses and spyware, and apply operating system patches. You may ask, "Why in the world isn't that automated?" It's a long story, but remember, I inherited this network. I didn't build it.

The enterprise antivirus system is scheduled for an upgrade within the next week or two, and that should allow for tighter controls and less manual effort. The suspicious traffic identified by the outside consultants that I had attributed to viruses and Trojan horses seems to have stopped.

> **I had it out with my boss and told her I wanted complete control over all network security operations.**

IT has a number of projects under way for upgrading the infrastructure at the server and desktop levels. My team has been actively involved in these projects and has provided the security requirements. Until these projects are completed, my job is much tougher. Which brings me to my current frustration.

Clueless

We have no idea what is really going on in the network. (Please, all you security folks out there who have the tools and bodies, no need to respond.) We discovered that our network intrusion-detection system (NIDS) is seeing only 50% of our network traffic. The problem is that we've been relying on port spanning to do the job. The theory behind port spanning is that a copy of every packet that traverses the switch is sent to a monitoring port.

We use a switch port analyzer (span) and remote span to copy the traffic from our various switches to the port where our probe resides. The NIDS passively monitors the traffic and generates alerts based on a rule set of undesirable activity. Trouble arose because of session limits, switches that don't have the capability of carrying the rspan traffic and other technicalities. We also found ourselves in a tug of war with IT over the span ports themselves. When you get an alert from the NIDS that says zero events, you know something's wrong. Did IT just snag our span port? We began to research other methods of "seeing" all the traffic.

What we needed was a way to tap into the network traffic, something that would aggregate full-duplex traffic into a single data stream that our NIDS, based on the freely available Snort program, could take advantage of.

We found some good basic information online at Talisker Security Wizardry *(http://securitywizardry.com/taps.htm)* and selected a product to test in our environment. Net Optics Inc. in Sunnyvale, Calif., has a port aggregator tap that appears to allow full-duplex monitoring with a single network interface card and has a buffering method for handling traffic overload.

Next, we had to decide where to deploy the taps. Certainly, we would initially deploy one at the firewall, one in the demilitarized zone, one to monitor VPN traffic, one to monitor WAN traffic and several on critical LAN segments.

Ah, but how much is this going to cost? Each tap costs about $950. That seems high, but I'd rather pay more for a high-powered, fully functional device than Mickey Mouse with less expensive devices that don't give us what we need. And to think we were going to spend quite a chunk of change on event correlation software because we thought we were seeing all the traffic.

The good news is that we discovered a serious issue and found a way to address it. The timing was perfect because I was able to adjust the budget forecast to include the solution. The bad news is that I still need to find a way to convince my manager that network security is a serious issue. To be effective at protecting the company's information assets, we need complete control over IT security operations. This would require an organizational change at the highest levels of the company. The political implications of such a change are as daunting as the tasks at hand.

WHAT DO YOU THINK?

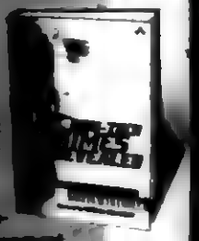
This week's journal is written by a real security manager, "C.J. Kelly," whose name and employer have been disguised for obvious reasons. Contact her at mscjkelly@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

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SECURITY LOG

Security Bookshelf

High-Tech Crimes Revealed: Cybercrime Stories From the Digital Front, by Steven Branigan; Addison-Wesley, 2004.



The author, an internationally recognized computer security expert, has been involved in both private- and public-sector security investigations. Particularly interesting is his description of how law enforcement has progressed in the area of investigating computer and high-tech crimes. While Branigan details a variety of investigations, the chapter on hoax – and how not – to run a high-tech investigation was the most enlightening. Even though it's about 400 pages long, this is an enjoyable read.

–C.J. Kelly

IBM Offers Monthly Security Reports

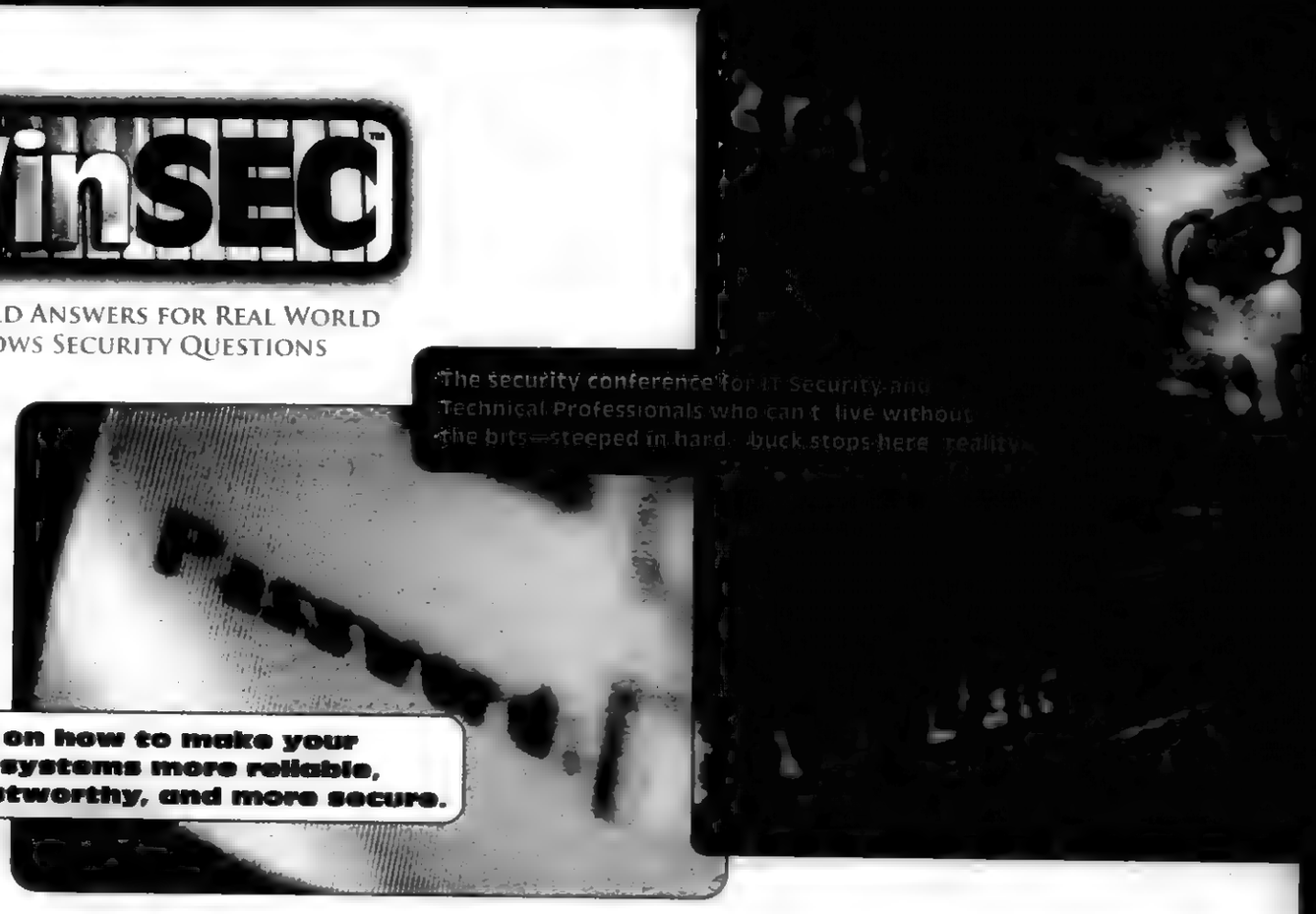
IBM has introduced a security service that offers a monthly report of global network threats. Designed to help organizations measure their security needs from a business perspective, IBM Security Intelligence Services reports can be customized by industry. Subscriptions start at $10,000 to $15,000 a year. Each report is about a page and a half long, with a threat-level score and advice about how to address critical issues.

New Symantec Security Appliance

Symantec Corp. announced a line of security appliances for branch offices. The Symantec Gateway Security Appliance 400 Series database features a firewall, intrusion prevention and detection, antivirus policy management, content filtering and virtual private networking. They can function as remote database LAN servers globally and be centrally managed. Pricing starts at $4400 per appliance.

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BRIEFS

Ascential to Develop New User Interface

■ Data integration application vendor Ascential Software Corp. in Westboro, Mass., last week announced a new self-adapting interface for its Enterprise Integration Suite. The interface will be able to anticipate users' tasks and offer execution guidance, according to the company. It will be in beta in the first quarter of 2005.

Sendmail Offers Content Manager

■ Mailstream Content Manager from e-mail security vendor Sendmail Inc. is available now. The product features e-mail content policy management and antispam and virus protection. It also has a management console that allows business-specific policies to be easily changed or added, according to the Emeryville, Calif., company. The application starts at $16,000 for 500 users, with a one-year antivirus and antispam update subscription.

Microsoft Releases Migration Tool Kit

■ Microsoft Corp. released a free, downloadable migration tool kit for the Virtual Server Migration 2005 software it recently released. The Virtual Server 2005 Migration Toolkit enables users with server hardware running Windows NT 4.0, Server 2000 or Server 2003 to migrate to a virtual machine environment running on Virtual Server 2005. The tool kit is also intended to help users migrate VMware Inc.'s virtual machine software to Microsoft's Virtual Server 2005.

Inovis Certifies Interoperability

■ Inovis Inc. announced that its BizManager 3.0 trading partner connectivity software has been certified for Applicability Statement 2 interoperability. BizManager 3.0 will be generally available in December, the Alpharetta, Ga.-based company said.

BRUCE SCHNEIER

Make Vendors Pay For Security Flaws

INFORMATION INSECURITY is costing us billions. We pay for it in theft — information and financial theft. We pay for it in productivity loss, both when networks stop working and in the dozens of minor security inconveniences we all have to endure. We pay for it when we have to buy security products and services to reduce those other two losses. We pay for security, year after year.

Unfortunately, all the money we're spending isn't fixing the problem. We're paying, but we still end up with insecurities. The problem is insecure software.



It's bad design, poorly implemented features, inadequate testing, and security vulnerabilities from software bugs. The money we spend on security goes toward dealing with the effects of insecure software.

And that's the problem. We're not paying to improve the security of the underlying software. We're paying to deal with the vulnerabilities rather than eliminating them.

The only way to improve the situation is for the vendors to fix their software, and they won't do that until it's in their financial best interest to do so.

Today, the costs of insecure software aren't borne by the vendors that produce it. In economics, this is known as an externality: the cost of a decision that's borne by people other than those who are making the decision.

There are no real consequences to the vendors for having bad security or for having low-quality software. Even worse, the marketplace often rewards low quality. More precisely, it rewards additional features and timely release dates, even if they come at the expense of quality.

If we expect software vendors to reduce the number of features in their products, lengthen development cycles and invest in secure software development processes, it needs to be in their financial best interest to do so. If we expect corporations to spend significant resources on their own network security — especially the security of their customers — it needs to be in their financial best interest to do so.

Liability law is one way to make improving security in the best interests of those organizations.

The risk of liability raises the costs of doing it wrong and therefore increases the amount of money a CEO is willing to spend to do it right. Security is risk management; liability fiddles with the risk equation.

Basically, we have to tweak the risk equation so a vendor's CEO cares about actually fixing the problem. And putting pressure on his balance sheet is the best way to do that.

Clearly, this isn't all or nothing. There are many parties involved in a typical malicious attack. There's the company that sold the software with the vulnerability in the first place. There's the person who wrote the attack tool. There's the attacker himself, who used the tool to break into a network. There's the owner of the network, who was entrusted with defending that network.

One hundred percent of the liability shouldn't fall on the shoulders of the vendor, just as one 100% shouldn't fall on the attacker or the network owner. But today, 100% of the cost falls directly on the network owner, and that simply has to stop.

We will always pay for security. If software vendors have liability costs, they'll pass those on to us. It might not even end up being cheaper than what we're paying today. But as long as we're going to pay, we might as well pay to fix the problem. Forcing the software vendor to pay to fix the problem means that it might actually get fixed.

Currently, there is no reason for a software company not to offer feature after feature after feature. Liability forces software companies to think twice before changing something. It forces them to protect the data they're entrusted with. Liability means that those in the best position to fix a problem are actually responsible for that problem.

Information security isn't a technological problem, it's an economics problem. And the way to improve information technology is to fix the economics problem. Do that, and everything else will follow. 5016!

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BRIEFS

Ascential to Develop New User Interface

■ Data integration application vendor Ascential Software Corp. in Westboro, Mass., last week announced a new self-adapting interface for its Enterprise Integration Suite. The interface will be able to anticipate users' tasks and offer execution guidance, according to the company. It will be in beta in the first quarter of 2005.

Sendmail Offers Content Manager

■ Mailstream Content Manager from e-mail security vendor Sendmail Inc. is available now. The product features e-mail content policy management and anti-spam and virus protection. It also has a management console that allows business-specific policies to be easily changed or added, according to the Emeryville, Calif., company. The application starts at $16,000 for 500 users, with a one-year antivirus and antispam update subscription.

Microsoft Releases Migration Tool Kit

■ Microsoft Corp. released a free, downloadable migration tool kit for the Virtual Server Migration 2005 software it recently released. The Virtual Server 2005 Migration Toolkit enables users with server hardware running Windows NT 4.0, Server 2000 or Server 2003 to migrate to a virtual machine environment running on Virtual Server 2005. The tool kit is also intended to help users migrate VMware Inc.'s virtual machine software to Microsoft's Virtual Server 2005.

Inovis Certifies Interoperability

■ Inovis Inc. announced that its BizManager 3.0 trading partner connectivity software has been certified for Applicability Statement 2 interoperability. BizManager 3.0 will be generally available in December, the Alpharetta, Ga.-based company said.

BRUCE SCHNEIER

Make Vendors Pay For Security Flaws

INFORMATION INSECURITY is costing us billions. We pay for it in theft — information and financial theft. We pay for it in productivity loss, both when networks stop working and in the dozens of minor security inconveniences we all have to endure. We pay for it when we have to buy security products and services to reduce those other two losses. We pay for security, year after year.

Unfortunately, all the money we're spending isn't fixing the problem. We're paying, but we still end up with insecurities. The problem is insecure software.



It's bad design, poorly implemented features, inadequate testing, and security vulnerabilities from software bugs. The money we spend on security goes toward dealing with the effects of insecure software.

And that's the problem. We're not paying to improve the security of the underlying software. We're paying to deal with the vulnerabilities rather than eliminating them.

The only way to improve the situation is for the vendors to fix their software, and they won't do that until it's in their financial best interest to do so.

Today, the costs of insecure software aren't borne by the vendors that produce it. In economics, this is known as an externality: the cost of a decision that's borne by people other than those who are making the decision.

There are no real consequences to the vendors for having bad security or for having low-quality software. Even worse, the marketplace often rewards low quality. More precisely, it rewards additional features and timely release dates, even if they come at the expense of quality.

If we expect software vendors to reduce the number of features in their products, lengthen development cycles and invest in secure software development processes, it needs to be in their financial best interest to do so. If we expect corporations to spend significant resources on their own network security — especially the security of their customers — it needs to be in their financial best interest to do so.

Liability law is one way to make improving security in the best interests of those organizations.

The risk of liability raises the costs of doing it wrong and therefore increases the amount of money a CEO is willing to spend to do it right. Security is risk management; liability fiddles with the risk equation.

Basically, we have to tweak the risk equation so a vendor's CEO cares about actually fixing the problem. And putting pressure on his balance sheet is the best way to do that.

Clearly, this isn't all or nothing. There are many parties involved in a typical malicious attack. There's the company that sold the software with the vulnerability in the first place. There's the person who wrote the attack tool. There's the attacker himself, who used the tool to break into a network. There's the owner of the network, who was entrusted with defending that network.

One hundred percent of the liability shouldn't fall on the shoulders of the vendor, just as one 100% shouldn't fall on the attacker or the network owner. But today, 100% of the cost falls directly on the network owner, and that simply has to stop.

We will always pay for security. If software vendors have liability costs, they'll pass those on to us. It might not even end up being cheaper than what we're paying today. But as long as we're going to pay, we might as well pay to fix the problem. Forcing the software vendor to pay to fix the problem means that it might actually get fixed.

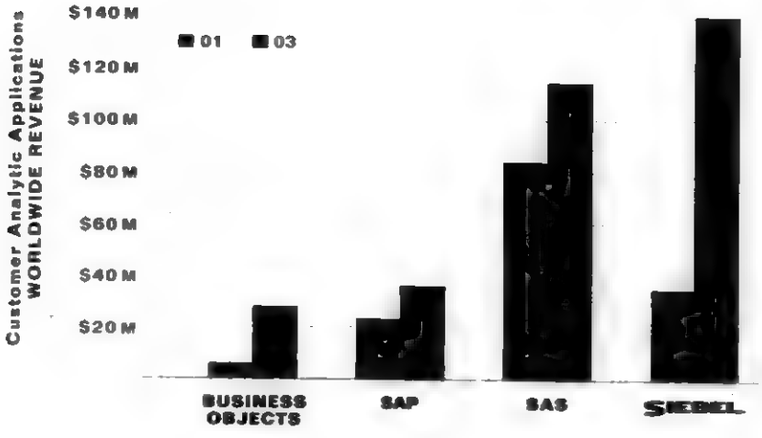
Currently, there is no reason for a software company not to offer feature after feature after feature. Liability forces software companies to think twice before changing something. It forces them to protect the data they're entrusted with. Liability means that those in the best position to fix a problem are actually responsible for that problem.

Information security isn't a technological problem, it's an economics problem. And the way to improve information technology is to fix the economics problem. Do that, and everything else will follow. 50101

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DB2 is middleware, but it is anything but middle-of-the-road. In fact, DB2 is part of an innovative family of information management products that can integrate and actually add insight to your data. That's big.

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DB2 is also middleware with an eye on your resources. All of them. An ITG study showed overall costs for Oracle Database are up to four times higher than DB2.[1] A Solitaire study found that, on average, Oracle Database required 25% more time to manage than DB2.[2] And the Transaction Processing Performance Council showed DB2 as the overall price/performance leader for TPC-C on Linux, UNIX and Windows. Ahead of both Oracle Database and Microsoft® SQL Server.[3]

Then there's this: Oracle will drop the current level of support for Oracle Database 8i at the end of 2004. Meaning limited support, higher cost or a complete migration to current versions. Fortunately, IBM offers ongoing, around-the-clock service and support for DB2.

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Watch Your Weblog
Dangers lurk in corporate weblogs, and sponsoring or creating one is rife with legal liabilities. Here are some precautions you should take. **Page 40**

Think Tank
A deeper dive into Alinean's ROI calculations; an unorthodox examination of the skills the "gamer generation" will bring to the workplace; and a new look at IT buyer intentions. **Page 42**



OPINION
What's the Problem?
Too many people look for a solution when they haven't yet identified the problem, says Paul Glen. In their role as problem solvers, IT leaders need to help their clients eliminate this fuzzy thinking. **Page 44**

OUTSOURCING Tune-up

CHANGING NEEDS CAN MAKE LAST YEAR'S OUTSOURCING STRATEGY OBSOLETE. ASK THESE 10 QUESTIONS TO KEEP IT ON THE MARK. BY MARY BRANDEL



DAVE WHEELER

MANY COMPANIES that sign on for outsourcing services file away the contract and pull it out only when the three-, five- or 10-year term comes to an end. But it's important to regularly review not only whether the original contract is still meeting your needs but also whether last year's outsourcing plan is still relevant to this year's business strategy.

"Outsourcing has become an integral part of our IT governance strategy," says Pavan Nigam, CEO of Cendura Corp., a Mountain View, Calif.-based application management firm. "Once you accept that, you realize it

THE MECHANIC

Tuning up your outsourcing strategy requires a skilled mechanic with "more than the ability to squeeze vendors," say Robert McNeill, Marc Cecere and Adam Brown in "Building the Vendor Management Function," a March 2004 report from Forrester Research Inc.

The person who develops and reviews the outsourcing strategy should report to the CIO, they say. He needs to understand the strategic direction of the organization, how the business is run, how to negotiate with experts and how to form alliances. Here are some other skills they see as key to this position:

- **Strong oral and written communication skills**
- **Contract negotiation skills for complex agreements**
- **The ability to work with executive management**
- **Knowledge or background in metrics and measurement, with particular emphasis on service-level agreements**
- **Experience with various outsourcing and services offerings, and pricing and delivery structures**
- **Understanding of and experience with financial reporting**
- **Knowledge of and experience with enterprise license agreements**

Purchasing personnel aren't good candidates for this role because they lack a strong background in IT, the authors say. Good candidates include IT managers and business unit executives with IT backgrounds.

– *Kathleen Melymuka*

needs to be reviewed not on an annual but on a quarterly basis."

"Too often, [an outsourcing contract] becomes shelfware," says Lorrie Scardino, research director at Stamford, Conn.-based Gartner Inc. "I tell clients they should get into the habit of reviewing [their outsourcing strategy] every six months."

Mergers, acquisitions, divestitures, changes in the trading community or governmental regulations — all of these circumstances should trigger an outsourcing strategy review. With that in mind, here are 10 questions you should ask when updating your company's IT outsourcing strategy.

1 Is the business trying to expand overseas or enhance its global image? If your company has no previous experience overseas, this is a particularly good time to consider partnering with an offshore technology provider. "If you are looking to do business in, say, Asia, you might very well want to outsource to a provider that could help you do business in that part of the world," says Wendell Jones, a senior consultant at Cutter Consortium in Arlington, Mass.

A global company should also consider using a combination of its own staff and offshore resources when trying to polish its global image. But be wary of exceeding a 70-30 ratio of offshore to internal staff for software development projects, he says. Letting more than 75% of the development work go offshore can lead to serious difficulties, since off-site programmers may not be as skilled as on-site staff. Also, off-site workers might not be as sensitive to issues such as integration with existing systems or changing user requirements.

Cost cutting alone is not enough reason to look offshore, warns Nigam, who says Cendura plans to expand into Asia and Europe in the next 12 months. "I've seen so many companies get excited about hiring someone for $25 an hour, but chances are high that they'll need four bodies to complete the work of one of their own workers," he explains. "If you make the investment right, you might get the ratio down to 1.5-to-1, but you'll never get a 1-to-1 ratio."

2 Are new business initiatives likely to overload your IT staff? When new projects threaten to overwhelm the IT staff at J.B. Hunt Transport Inc., a transportation logistics company in Lowell, Ark., CIO Kay Palmer looks for rote work that she can contract to an outsourcing supplier. Typical examples include converting files, expanding fields and translating reports into different languages.

The alternative — outsourcing new projects — doesn't work as well, Palmer says. The last time J.B. Hunt tried to do that, the business side was still working on requirements definitions midway through the project, resulting in scope creep that the outsourcer couldn't manage or control. The development work was brought back in-house within a year. "I've learned that unless requirements are very well defined and there's not a lot of tie-in with existing systems, outsourcing is hard to do," Palmer says.

Also look at the maturity of the project when considering outsourcing, says Nigam, who co-founded Healtheon (now WebMD Inc.). "If you're in the early stages of product development, it requires close collaboration with customers as well as domain expertise," he points out. While Nigam was at Healtheon, two-thirds of outsourced work was Release 3.0 or beyond, he says.

3 Is the company preparing to undertake a critical business objective with a tight deadline? It can make sense to outsource a new project when the work is extremely time-sensitive or critical to gaining new business. At St. Luke's Medical Center in Kansas City, Mo., CIO John Wade decided to outsource the IT component of opening a "digital hospital" by the end of next year.

"It's an enormous workload," Wade says. The project includes implementing three new software products, determining the benefits of those systems and then retrofitting them into five other St. Luke's locations, which would also entail standardizing those hospitals' procedures, he says. "There was no way to do it unless we hired 15 people and trained them, and even then, our risk of not being able to make the date was significant," he adds.

A similar situation occurred at Cendura, when a prospective client requested customized features in a software product. "We figured we couldn't win the deal using our highly leveraged resources in the U.S., but taking it offshore gave us extra flexibility," Nigam says. "If we had to apply very expensive resources, it would have made the deal less feasible for us."

4 Is the company planning to engage in new lines of business? Companies that have existing outsourcing relationships need to review these contracts when starting a line of business, says Brad Smith, vice president of research at Kennedy Information Inc., an information source on professional services in Peterborough, N.H. For example, if a retail bank that outsources call center activities was expanding into brokerage, insurance or other financial services, that would require a whole different set of call center training and activities.

Similarly, if a U.S.-based company was to expand into a new region, such as Asia, calls could begin coming in 24 hours a day as opposed to 12. "Those changes need to be anticipated," Smith says.

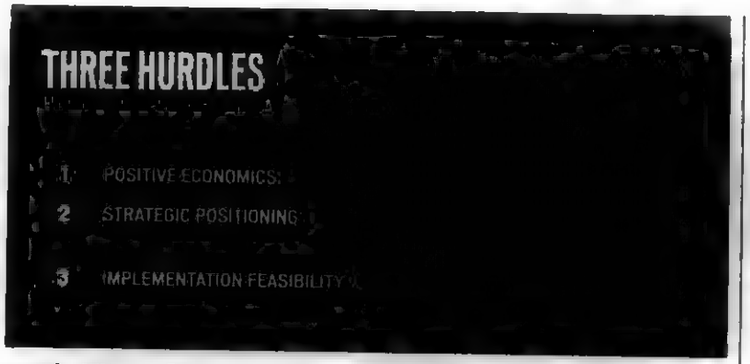
5 Are there areas of IT that don't interact with other departments or customers? J.B. Hunt's Palmer says in-house staffers add great value when they regularly interact with customers. For instance, a database administrator who knows the extent to which the business is affected when a table isn't available may create a workaround to make the data available more quickly. Or the help desk staff may regularly inform the quality assurance team about the problems it's addressing, thereby helping to improve system design.

"In that way, they're of much more value than just answering calls and taking care of problems," Palmer says. "If you have that level of integration, you can justify paying for people locally."

On the other hand, she says, if there are areas where you don't have that relationship, it doesn't make sense to pay a premium to keep it in-house.

6 How efficient are your IT operations? Earlier this year, Wade completed the process of determining whether to outsource part or all of his organization's IT function. He bases such decisions on four sets of metrics: the quality of St. Luke's IT operation, quantity of current IT projects, quantity of IT projects over a five-year time frame and price of delivering IT services to core constituents over five years.

Wade would choose to outsource if an outsourcing vendor could hit the same metrics as St. Luke's internal IT department and reduce operational



costs by 17% over five years. He sets the bar high because in a long-term relationship such as outsourcing, a forecast 17% savings would likely turn into about 8.5% over a five-year period, he says. "That's not an easy job if, on top of that, [the vendor] also has to make a 20% to 30% profit," Wade says. Three years ago, the best offers were a 4.5% overall cost reduction and a 7% cost reduction in labor only. This year, Wade says, no one even responded to his request for proposals.

Still, Wade faithfully conducts this review every three years. "You have a responsibility as CIO to say you're providing the most cost-effective service you can," he says. "If I could outsource the network at a cost-effective level, I would do it because internally, it's a major strain on the IT group."

7 Have outsourcing trends changed? Palmer keeps her eyes and ears open to what her peers and competitors are doing on the outsourcing front. That includes listening for new trends in outsourcing options. "At times, the options that were available a few years ago may have been replaced by something that's more palatable," she says.

For instance, J.B. Hunt looked into call center outsourcing a few years ago but decided that its customers really needed to feel they were talking with a local company representative, local accent and all. This year, after attending a computer conference, Palmer heard about call center outsourcers in rural Arkansas [QuickLink 49795]. After reviewing cost vs. benefits, she determined that it wasn't worth it, but this type of networking may eventually lead to a workable alternative.

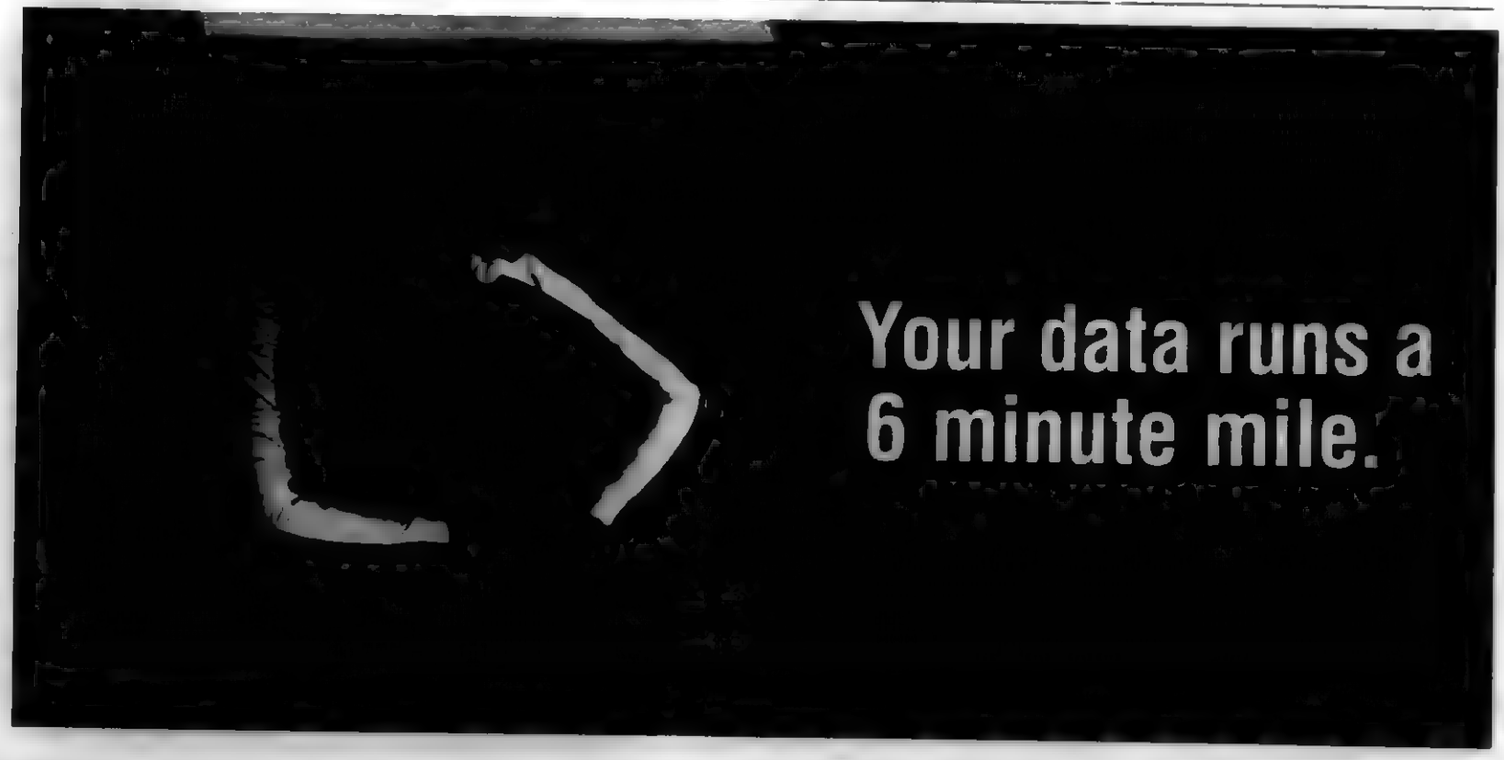
8 Have there been changes in the IT talent market? Even in these tough economic times, it's important to keep an eye on IT labor costs and supply. "Before I would look at outsourcing an entire function, I would expect to be faced with issues such as high cost of hire, escalating people costs that are out of control and high turnover," Palmer says. J.B. Hunt's turnover is only 4%, and salary costs are reasonable, so outsourcing isn't tempting now.

9 Is your current outsourcing vendor meeting its benchmarks and offering competitive pricing? It's not easy to determine if the deal you signed on for is still a good one a couple of years into it. Other outsourcers won't rush to provide you with a competitive bid, knowing that you're still tethered to a deal, says Bob Tevelson, a vice president at A.T. Kearney Inc., a management consulting firm in Chicago.

Start by checking whether the contract requires you to buy more service than you need or to spend more on it than you should. Though your contract may not allow you to bring services back in-house, there should be enough flexibility to change service levels, skill sets or the location of workers. For instance, Tevelson says, "you can work with the provider to selectively shift applications offshore to support the objective of cost reduction."

10 Are your strategic objectives still being met through the arrangement? "You thought it was good deal when you got into it, but the deck chairs shifted on the ship, and now what do you do?" Tevelson asks. It's difficult to prematurely terminate an outsourcing contract, so experts recommend building in terms to the deal that accommodate changing business needs. For instance, what if you outsource your call center function and then divest a particular business unit, leading to a drop in call volumes? "In a productive relationship, the parties will try to renegotiate terms and conditions to make up for the lost volume," Scardino says. After all, it's important that the outsourcing relationship remain mutually beneficial. **50044**

Brandel is a Computerworld *contributing writer in Grand Rapids, Mich. Contact her at mary.brandel@comcast.net.*



THREE HURDLES At a recent outsourcing conference, Peter Allen, managing director of global practices at sourcing consultancy Technology Partners International Inc., and Arnaud Bernaert, European group controller at Baxter International Inc., discussed the three hurdles that any outsourcing relationship must overcome.

- **POSITIVE ECONOMICS.** Assure discounted cash flow and return on investment.
- **STRATEGIC POSITIONING.** Protect operating margins and avoid dependence on third parties.
- **IMPLEMENTATION FEASIBILITY.** Ensure ample management attention and resource commitment as well as availability of suitable service providers.

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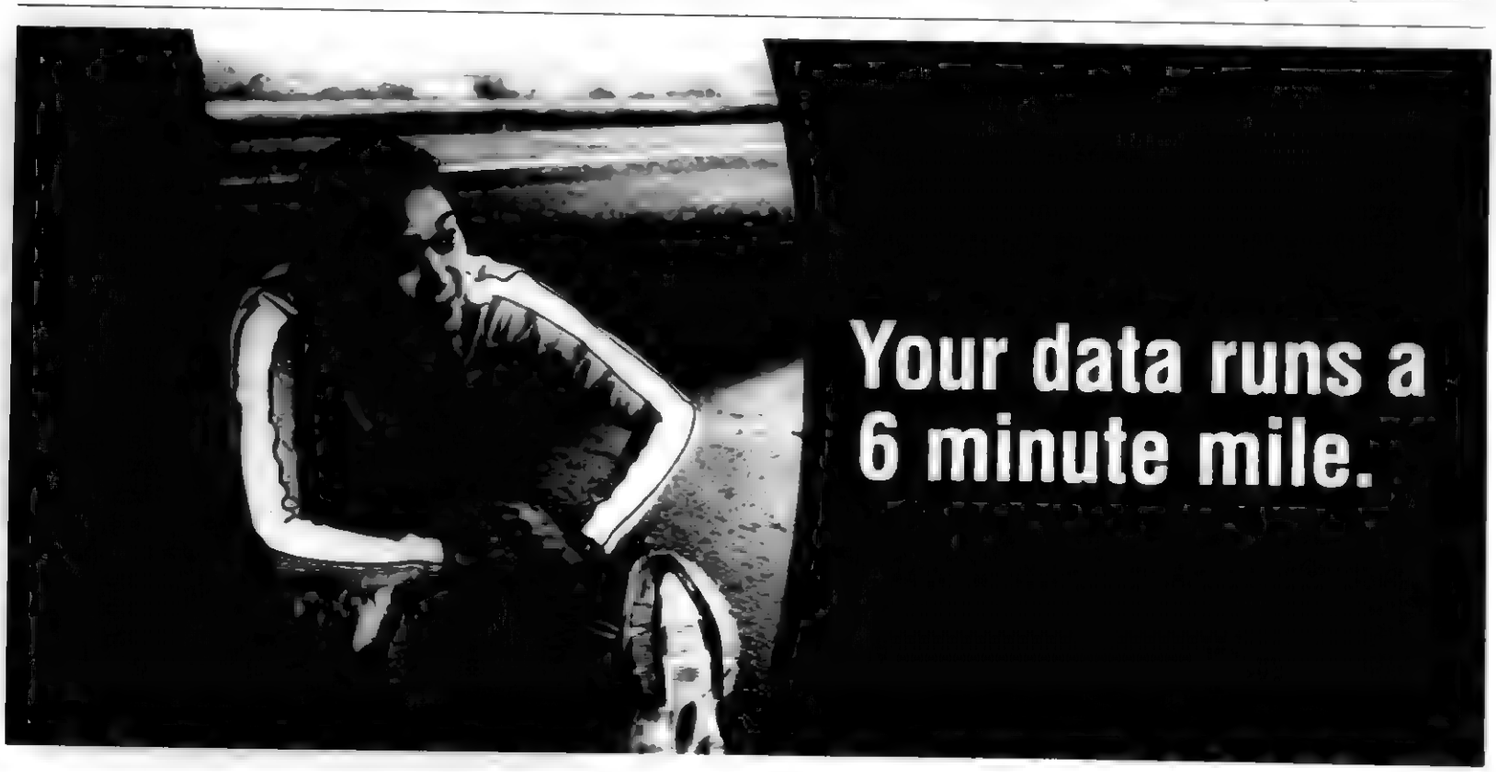
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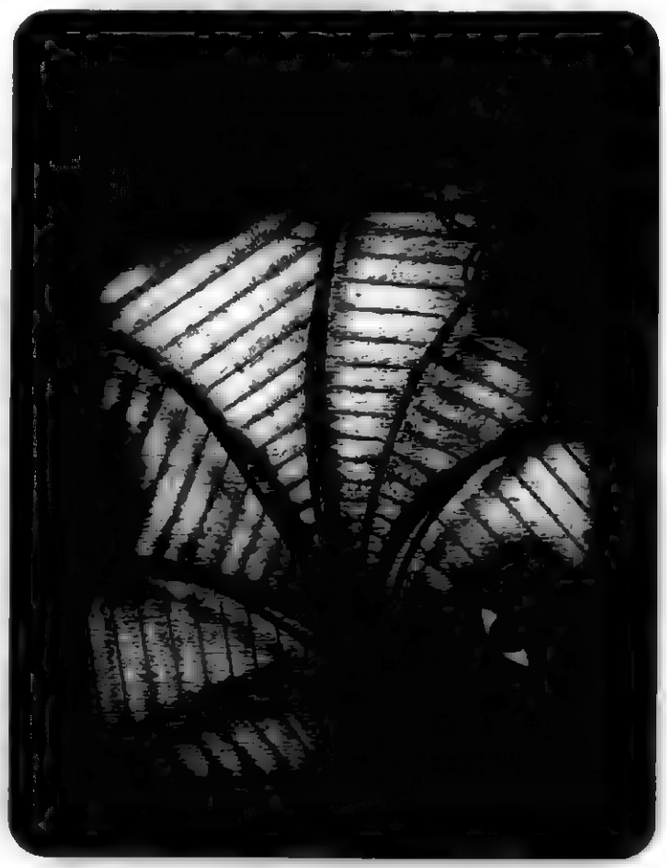
Brandel is a Computerworld contributing writer in Grand Rapids, Mich. Contact her at mary.brandel@comcast.net.



Watch YOUR Weblog

Legal liabilities lurk amid corporate blogs.

BY LINDA ROSENCRANCE



MARIA PENOON

MORE AND MORE PEOPLE are jumping on the corporate weblogging bandwagon. At Microsoft Corp., for example, there are currently more than 1,000 blogs. Like many companies, especially the IT vendor companies where weblogs tend to proliferate, Microsoft encourages the informal sites as a way for its employees to stay close to customers.

But as weblogs have multiplied, a number of legal issues have arisen, and regardless of whether your company sponsors its bloggers, it may be opening itself up to hidden liabilities. Here are some of the dangers of corporate blogging and precautions companies should consider.

DANGER **Libel and trade libel.** Bloggers who write anything negative or defamatory about a corporation or an individual are opening themselves and their companies up to the possibility of libel suits, says David Carr, an attorney and partner at London-based consulting firm Big Blog Co.

PRECAUTION: Do your homework. If the blogger is going to make negative statements about a company's or individual's business activities, Carr says, "he's really got to do his research and make sure what he's saying can be proven to be true and not just believed to be true."

DANGER **Disclosure of trade secrets or confidential information.** Employees who blog may intentionally or unintentionally share company secrets, says employment attorney Michael Karpeles, a principal at Chicago-based law firm Goldberg, Kohn, Bell, Black, Rosenbloom & Moritz Ltd. Information such as the finances or marketing and business strategies of the employer can cause damage to the company if it gets into the wrong hands. And a blogger who lets slip personal information about other employees may be opening the organization to prosecution for privacy infringements.

PRECAUTION: Have employees sign a confidentiality agreement that states they will not disclose company confidential information, Karpeles says. "Even if they haven't signed an agreement, most states have a trade-secrets protection law that would prohibit individuals from misappropriating trade secrets," he says. But better to caution them upfront than prosecute them later.

DANGER **Careless statements about the business that can be used during litigation.** Anyone, from the CEO to the receptionist, can have a blog, whether it's related to the company's Web site or not, so organizations don't know what information is out there that could hurt them, says Gregory Rutchik, founding partner of The Arts and Technology Group, a litigation and transactional law practice in San Francisco. "But the reality is, if you allow your employees to blog, the likelihood that things are going to come back to hurt you is huge," he says.

Attorney Diana McKenzie agrees. "If the company is encouraging blogging, the first thing I would worry about is discovery," she says, referring to the compulsory disclosure of pertinent facts or documents to the opposing party in a civil action.

"Blogging is one of the most fertile grounds in discovery for supporting any position, because you have a bunch of people never conscious of how this could be used against a company," says McKenzie, who chairs the information technology group at law firm Neal, Gerber & Eisenberg LLP in Chicago.

PRECAUTION: Companies that have their own blogs should consider how they fit into the business plan, and they should craft policies to let employees know what they can and can't write, says Rutchik.

Karpeles says an employer should create policies and guidelines about what can be included on an employer-sponsored weblog. Those guidelines should describe and define the scope of the blog. They should also point out issues that shouldn't be discussed and materials, including company documents, that shouldn't be posted to the blog without prior authorization. An employer can also have policies or confidentiality agreements for employees who blog on their own, says Karpeles.

Groove Networks Inc. in Beverly, Mass., has such a policy in place, says Jeff Seul, the company's general counsel. Though Groove doesn't sponsor a corporate weblog, employees could still



Blog: (noun) a contraction of *Web log*, an online journal of chronologically displayed information such as ideas, observations and opinions, presented in an informative but informal and accessible style. Maintaining a Web log is described as *blogging*, and the person contributing and administering such a Web site is called a *blogger*. Blogs are public and searchable on the Internet.

SOURCE: WHATISBLOG.COM

discuss company business on personal blogs, he says. So he has crafted guidelines for employees to follow if they do. Seul says that if a Groove employee chooses to talk about the company's technology on a personal blog, that employee is advised to post a notice in a prominent place making it clear to readers that his views don't necessarily represent those of the company.

Seul also reminds employees not to disclose confidential or proprietary company information or similar information disclosed to Groove by any third parties. He instructs them not to publish company documents without authorization, and he asks bloggers to be respectful of the company, its employees, partners, affiliates and competitors.

DANGER **Loose-cannon bloggers.** Imagine that your company changes strategy. There may be a bunch of blogs about the previous strategy, but all the employees will dutifully update them. But what if one of those blogs is from someone who is no longer an employee and doesn't want to take it down or amend it? "It may be awfully hard to cause that to happen," says McKenzie.

PRECAUTION: Employers should set up rules for what happens to the blog of a former employee and get all employees to accept them. ⊙ 50037

Big Bloggers

Some companies sponsor corporate blogs. Others allow employees to blog informally. A small but growing number of U.S. organizations have blogs written by their top executives. Here are a few corner-office bloggers:

- **Mark Cuban, CEO, Dallas Mavericks**
- **Ray Ozzie, CEO, Groove Networks**
- **Alan Meckler, CEO, Jupitermedia Corp.**
- **Michael Powell, chairman, Federal Communications Commission**
- **Jonathan Schwartz, chief operating officer, Sun Microsystems Inc.**

Blog Rules

Staying out of legal trouble is paramount, but it won't ensure a good corporate blog. These recommendations from Robert Scoble at Microsoft, Nick Wreden at the American Marketing Association, Rick Ottem at eStrategyOne and other bloggers will help you write a corporate blog worth reading:

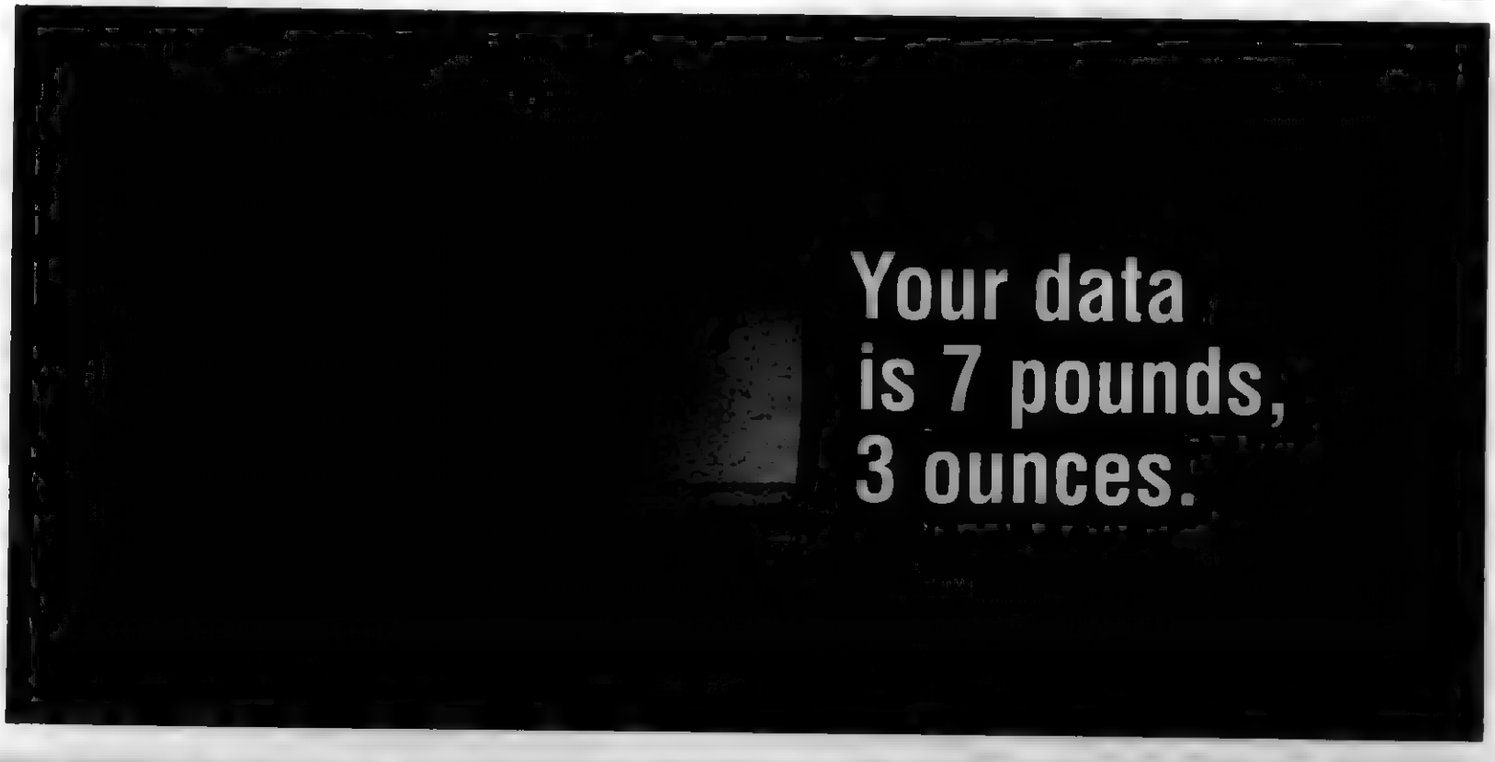
- **Be original**
- **Be authentic**
- **Have a human voice**
- **Avoid jargon**
- **Tell the truth**
- **Don't guess**
- **Acknowledge mistakes**
- **Post good news fast**
- **Post bad news faster**
- **Stay relevant**
- **Use a spell checker**
- **Update frequently**
- **Once you start, don't stop**
- **Never change your URL**

Contrarian View

Not all companies take this advice to heart. Microsoft encourages employees to stay connected to customers through weblogs, but it doesn't have a corporate policy on blogging. "We see blogging as a great opportunity for direct and deep two-way conversations with the online community," says Microsoft spokesman Adam Sohn. "We get important, real-time feedback on our products, and customers get greater insight to what is going on with key technologies inside the company, which helps them plan their business and continue to be successful."

Today, there are more than 1,000 bloggers at Microsoft, and that number keeps growing, Sohn says. But there appears to be little effort to categorize, control or even counsel them. "These [bloggers] are, by and large, the domain experts in their areas," he says, "and as a company full of people passionate about technology, the overall belief is that people will do the right thing."

– *Linda Rosencrance*



ThinkTank

BRAIN FOOD FOR IT EXECUTIVES

Drilling Down Into ROI Numbers

WHEN IT CONSULTANCY Alinean LLC came out with corporate rankings based on its new IT benchmarking metric, the top companies were Fannie Mae and Pioneer Natural Resources Co. But Wal-Mart Stores Inc., often considered a huge IT success story, was nowhere near the top.

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GETTY IMAGES

It's not that Wal-Mart has lackluster IT investments, Johnston says. Wal-Mart scored lower because, as the biggest company in the world, its revenue growth has slowed and it isn't as profitable as it could be because it passes on its savings to consumers. But "IT is what got Wal-Mart to where it is today," Johnston says. "It's still an IT success story."

ROIT is just a snapshot, he adds. For example, Lowe's Companies Inc. currently has a higher ROIT (84%) than rival Home Depot Inc. (62%). But Johnston says Home Depot is making big IT investments to catch up after years of IT neglect, and he predicts that Home Depot will see dividends from those investments and a higher ROIT in the next few years.

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The most useful parts of recent business and IT management books

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Conventional wisdom holds that gamers – those who grew up playing video games – have overdeveloped thumbs, underdeveloped minds and zero social skills. This book takes a fresh look and finds that gamers (now 90 million strong) actually have skills that could be quite useful in business: bold but measured risk-taking, an amazing ability to multitask and unexpected leadership skills.

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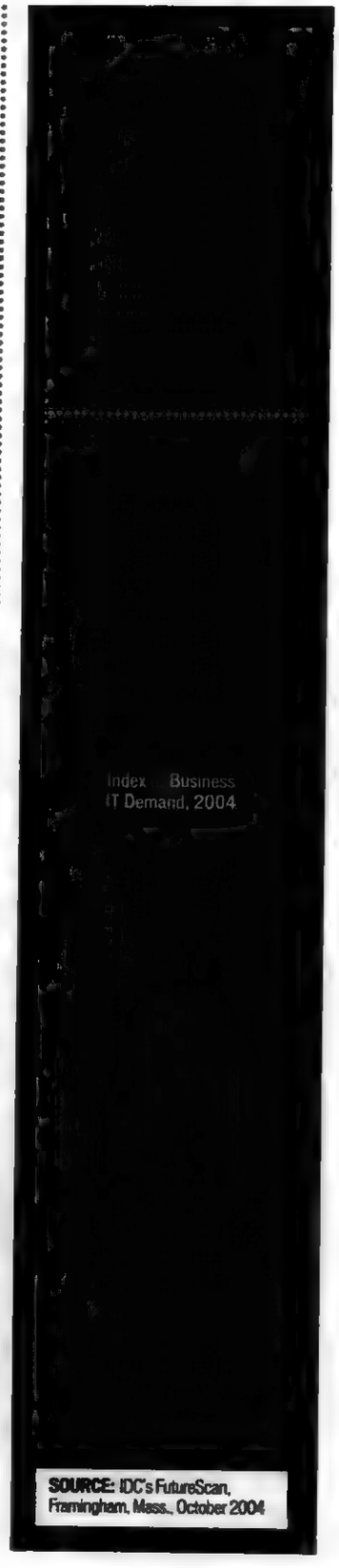
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SOURCE: SAGE RESEARCH INC., NATICK, MASS., AUGUST 2004

GOT ANY BRIGHT IDEAS? *Send them to pitches@computerworld.com.*



SOURCE: IDC's FutureScan, Framingham, Mass., October 2004

Career Watch

Hard Times Continue

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- **work for companies that have outsourced IT jobs.**
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Graduates Gain

at least compared with the class of 2003, according to a survey by the National Association of Colleges and Employers. This is the first year since 2001 that

According to NACE, information sciences and systems grads are earning an average salary of from last year. Computer science graduates are making

Job Tracker

U.S. IT Staffing Is Up . . .

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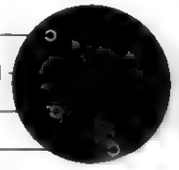
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– Kathleen Melymuka

Companies Plan For Growth

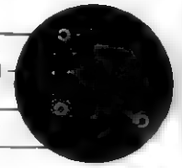
Overall focus of the company . . .

12 months ago:



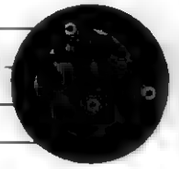
- **26% Primarily growth**
- **41%** Primarily cost control
- **25%** About evenly split
- 5% Not sure

Today:



- **27% Primarily growth**
- **32%** Primarily cost control
- **34%** About evenly split
- 7% Not sure

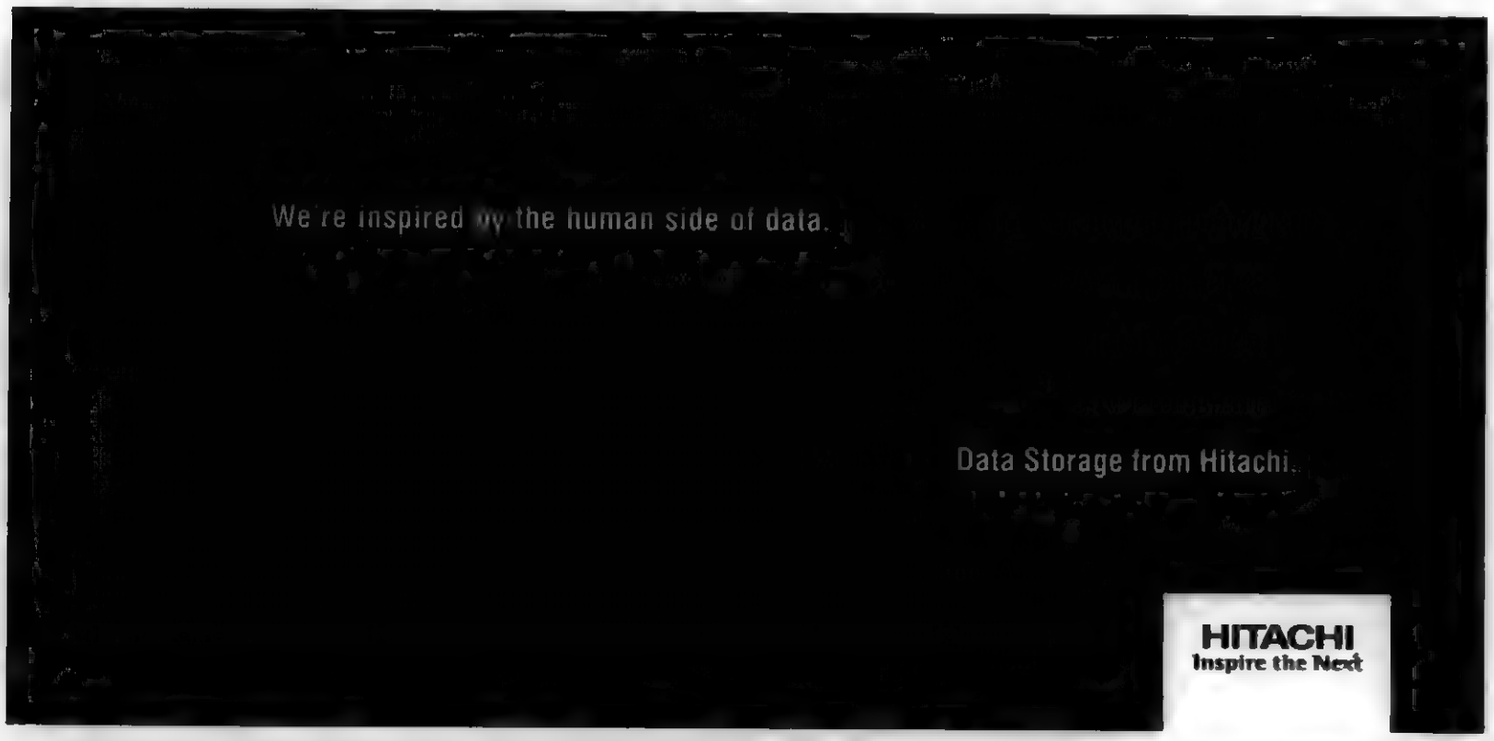
12 months from now:



- **42% Primarily growth**
- **18%** Primarily cost control
- **32%** About evenly split
- 8% Not sure

Base: 244 executives in six countries

SOURCE "ACCENTURE HIGH PERFORMANCE WORKFORCE STUDY 2004"



ThinkTank

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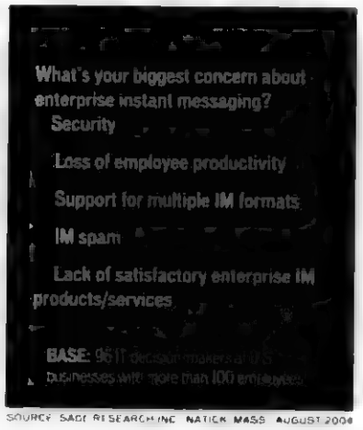
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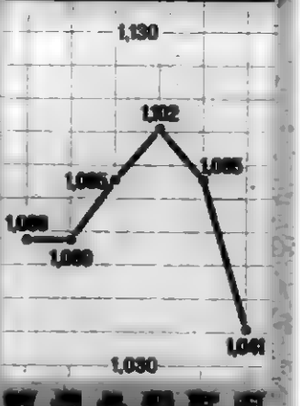
The IT Economy

It's well known that online sales account for only 2% of all U.S. retail sales. But a new study says that nearly 15% of U.S. retail spending is currently influenced by the research that shoppers do on the Internet. The Dieringer Research Group Inc. in Milwaukee surveyed 3,000 U.S. adults and found that consumer research on the Internet led to $180.7 billion in off-line retail sales in the past year, compared with $106.5 billion in direct online consumer spending.

Buying Intentions

IDC researchers say their index of business IT demand (below) shows that user spending expectations have cooled, although there are signs that the market is improving. For example, IDC says that "revenue forecasts for IT vendors have stopped plummeting and are beginning to climb back up." IT spending is expected to continue growing over the next 12 months, but at a moderate pace of almost 7%, the market research firm says.

Index of Business IT Demand, 2004



The buyer intent index is based on monthly surveys of 400 to 500 U.S. CIOs and business executives, who are asked about their IT spending expectations for the next 12 months. Results are weighted to be representative of the U.S. market. An index of 1,000 means zero growth. Caveat: Buying intentions don't always lead to real spending.

SOURCE: IDC's FutureScan, Framingham, Mass., October 2004

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Hard Times Continue

Tough times are far from over, say 294 IT workers who responded to a recent survey by Amplitude Research Inc. in Birmingham, Mich. Some key findings:

24% work for companies that have outsourced IT jobs.

46% have not received a raise in over a year.

40% say finding a new job would be somewhat difficult.

21% say finding a new job would be very difficult or impossible.

Graduates Gain

The IT class of 2004 is in the money – at least compared with the class of 2003, according to a survey by the National Association of Colleges and Employers. This is the first year since 2001 that IT-related majors have seen an increase in starting pay. According to NACE, information sciences and systems grads are earning an average salary of $42,375, up 10.7% from last year. Computer science graduates are making $49,036, up 4.1%.

Job Tracker

This AFL-CIO database allows you to search by ZIP code, industry or company name to "find out which jobs in your community have been exported or lost due to trade." Try it: www.workingamerica.org/jobtracker/index.cfm

U.S. IT Staffing Is Up . . .

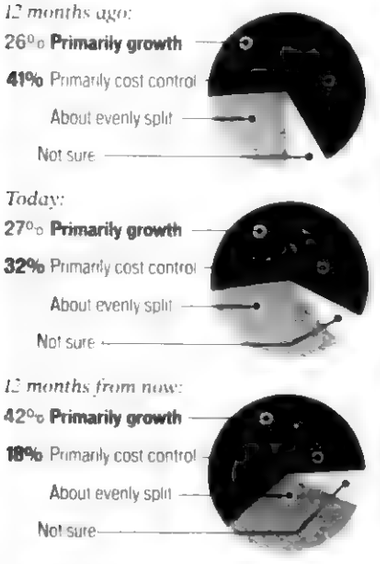
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Companies Plan For Growth

Overall focus of the company



Base: 244 executives [illegible]

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QUICK HITS

Management Attitudes

Is your top management more or less confident in the economy now than earlier this year?



Is Sarbanes-Oxley having an impact on your software spending?



Do you use Linux?



Are you likely to standardize on Linux for a significant part of your computing?



Is your interest in Linux increasing or decreasing overall?



BASE: 75 U.S. and 25 European CIOs
SOURCE: TechStrategy survey, Merrill Lynch & Co., New York, September 2004

PAUL GLEN

What's the Problem?

THOSE OF US IN IT tend to see the world through the lens of problems and solutions. Our entire work lives are devoted to solving problems. One after the other, we knock them down.

This habit tends to start early in life. In school, we are presented with math problems — and we solve them. At home, we are given toys to play with — and we disassemble and improve them. We are given broken computers — and we fix them. We are rewarded for our ingenuity.



These problems and solutions bring with them an emotional boost, too. What can beat the satisfaction of solving a truly challenging problem? Who doesn't love being the great hero saving Aunt Sadie's precious files from oblivion? At the end of a particularly thorny problem, don't you just imagine yourself spiking the code in celebration, as if you'd just caught a game-winning pass?

Problems have wonderful motivating features. They are compact and finite. They start with a challenge — a call to action (or at least to thought) — and elegant solutions signal triumph. We are conquering heroes. We stand on Olympus with the gods. We solve problems.

If you need evidence of how prominent problems are in our thinking, just look at the marketing materials for almost any software package or consulting company. They all bill themselves as your "solution" to something: "eBragidocious, your customer solution." "JJG Solution Providers." "iZap, your e-mail solution." Marketing people don't put that stuff in the brochures by accident. They know exactly where our emotional hot buttons are and how to push them.

But for people so attuned to problems, we tend to be remarkably inarticulate about them. Very smart and accomplished people call me all the time, and the conversation goes something like this:

"Can you help me?" someone asks.

"I don't know. What's the problem?" I reply.

The answer is almost always something like, "Our management team needs a facilitated retreat." Or, "We need a training program on communications." Or, "We need a new project management process."

And then I have a problem.

Why? Because none of those things is a problem. Those are all proposed solutions to some unknown or unarticulated problem. And I have to come up with some polite but probing questions to try to understand what's going on.

Whenever you ask someone, "What's the problem?" and the response is phrased as the absence of some solution, you can be fairly certain that no one really knows what the problem is.

There are good reasons why this happens, none of which is that people are stupid or unobservant. The reasons range from fear to hope.

FEAR: For most people, problems are uncomfortable things. They are dark, mysterious, threatening things. They have all sorts of unwelcome implications: "If I have a problem, there must be something wrong with me." When we sense a problem, the natural reaction is to want to do something about it, to make it go away.

But that often leads to making big leaps, skipping thought and going right to action. It's easy to hop from the symptom of the problem right to a solution without carefully considering the nature of the problem.

"John didn't find out about the late shipment until it was too late to do anything about it, therefore we need to send our managers to communication training." Or, "Sandy, that newly promoted manager, said some really hateful and unproductive things to her staff at that last meeting, so we'd better get her some coaching."

HOPE: At the other end of the spectrum are imagined realities, vague Utopian musings of a better future. These can be driven by truly extraordinary visionary ideas about transformations of organizations and strategies. Sadly, they are too often the result of a brilliantly conceived marketing program for some sort of minor technical gewgaw foisted on overwhelmed managers.

As experts in problem solving, our responsibility is to recognize and expose this sort of fuzzy thinking. As service providers, we help our customers best when we ensure that we are solving real problems rather than filling orders. As leaders, we must remember that work has the most meaning when all concerned know toward what end we strive. Absent solutions are never problems, and as an industry, we must stop acting as if they were. **50051**

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IT Careers: Does this Employer Value Diversity?

Companies covet a reputation for valuing diversity. They advertise, they talk, they count. But for those IT professionals defined as "diverse", how do you know for sure?

It's a question that Annette Merritt Cummings and Martha Ceja spend their careers evaluating. Cummings is vice president/national director of Diversity Services for Bernard Hodes Group. Ceja is a strategist with the group, based in Silicon Valley.

The Diversity Services organization looks at valuing diversity as a process of moving from an initial point through four phases that end with inclusion. Cummings defines inclusion as acceptance of the ideas and talents that all people bring to an organization, a long journey from initial training that helps an organization understand why diversity matters from a business stance.

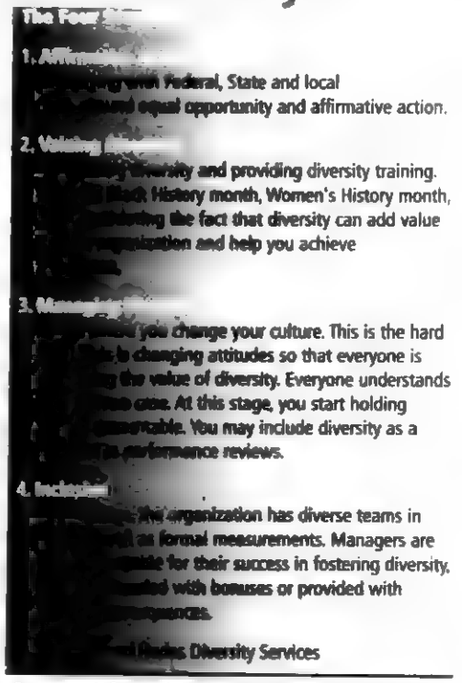
Cummings says there are specific queues as to the progress along that continuum. "The first place you'd go in looking at a company is probably to its website. Do they have affinity groups? Is the site in more than one language, such as Chinese, Spanish or other? How many clicks does it take you to get to some mention of diversity? If it takes six or seven before there's any mention, that tells you this is not one of the company's higher priorities or that the human resources or diversity organizations has lost the battle for (website) real estate."

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Produced by Carole R. Hedden

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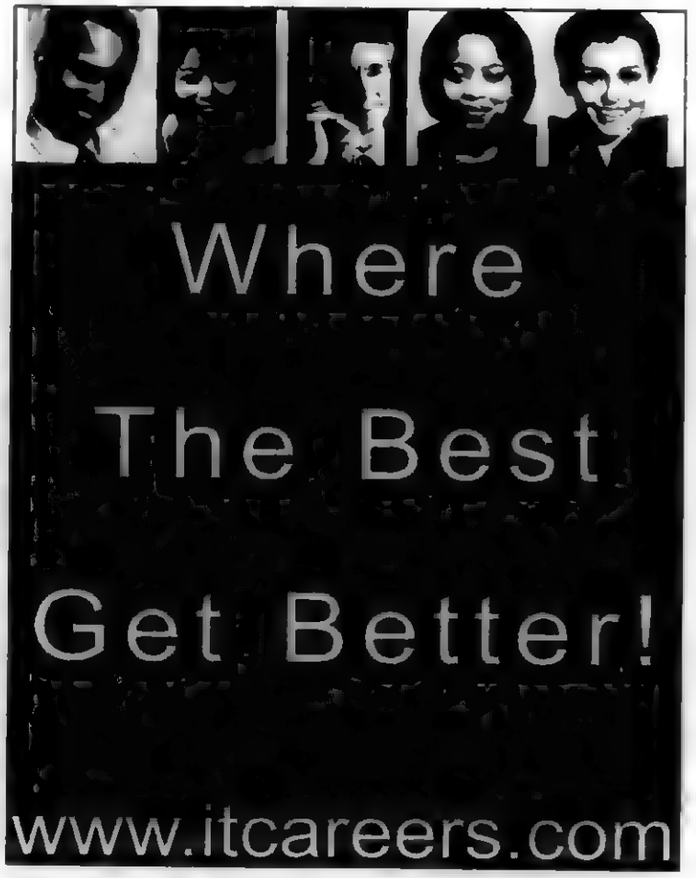
To apply go to USAJOBS at http://jobsearch.usajobs.opm.gov/ and select the Social Security Administration. Must be a United States citizen to apply.

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Ms. Sandy Pruitt
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1050 Crown Pointe Parkway, Suite 500
Atlanta, GA 30338

FT Project Manager. Multiple positions. Responsibilities include: Manage the design, development and implementation of multi-tier client/server multi-user re-engineering applications for insurance companies utilizing Legacy Mainframe Insurance Applications - Vantage-One System, and design tools including SCLM, TWS, ZEKE, ENDEVOR, EOS, DADS, SAVRS, SAR, APC, ParApt, CompareX, QMF, Dispatch and RDS; manage user acceptance tests and user training; manage systems analysts and other professional support personnel. Must be willing to travel to client sites Monday-Friday. Must have a Master's Degree or foreign or educational equivalent in Computer Science, Computer Information Systems, Engineering or a related field and three years of experience as a Systems Analyst or in a related occupation; or a Bachelor's Degree or foreign or educational equivalent in Computer Science, Computer Information Systems, Engineering or a related field and five years of experience as a Systems Analyst or in a related occupation. If interested, submit resume in duplicate to: Ms. Sandy Pruitt, N i i T, 1050 Crown Pointe Parkway, Suite 500, Atlanta GA 30338

SENIOR APPLICATIONS PROGRAMMER-ANALYST (FINANCE DEPARTMENT) Duties include: Under general direction, the Senior Applicaton Programmer/Analyst formulates and defines systems scope and objectives in order to design, develop or modify information systems. Assists Project Leader in the development of detailed system specifications for major system installations. Performs feasibility studies to analyze cost/benefit trade-off of systems solutions. Initiates systems design specifications and prepares flow charts, block diagrams and report layouts using current design techniques or functional program specifications. Codes programs, generates program test data, tests and debugs programs. Provides and maintains program and system documentation. Provides technical guidance to less experienced Programmers. Working knowledge of all processes involved in systems analysis and programming, including design factors, hardware and software requirements, system facilities, and job control procedures required. Min. Req'ts: BS/BA (foreign equivalent accepted) in EE, CS, IT, Math or related field of study PLUS 2 yrs exp. in the job offered or related exp. in programming and or systems analysis. ALSO: Must also possess demonstrated experience and proficiency (1) with the development and implementation of at least one major distributed system installation including maintenance and modification; (2) programming and systems development using Visual C++, VB, PowerBuilder, Sybase, Oracle & MS SQL Server and Access SW databases; and (3) must possess strong background in mathematics to develop and support actuarial applications. Basic pay range is $56,000 - $68,000 per year FT and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2003-00396. Division of Career Services, Labor Certification Unit, 19 Stanford Street, 1st Fl., Boston, MA 02114



Advertising Supplement

IT Careers: Does this Employer Value Diversity?

Companies covet a reputation for valuing diversity. They advertise, they talk, they count. But for those IT professionals defined as "diverse", how do you know for sure?

It's a question that Annette Merritt Cummings and Martha Ceja spend their careers evaluating. Cummings is vice president/national director of Diversity Services for Bernard Hodes Group. Ceja is a strategist with the group, based in Silicon Valley.

The Diversity Services organization looks at valuing diversity as a process of moving from an initial point through four phases that end with inclusion. Cummings defines inclusion as acceptance of the ideas and talents that all people bring to an organization, a long journey from initial training that helps an organization understand why diversity matters from a business stance.

Cummings says there are specific queues as to the progress along that continuum. "The first place you'd go in looking at a company is probably to its website. Do they have affinity groups? Is the site in more than one language, such as Chinese, Spanish or other? How many clicks does it take you to get to some mention of diversity? If it takes six or seven before there's any mention, that tells you this is not one of the company's higher priorities or that the human resources or diversity organizations has lost the battle for (website) real estate."

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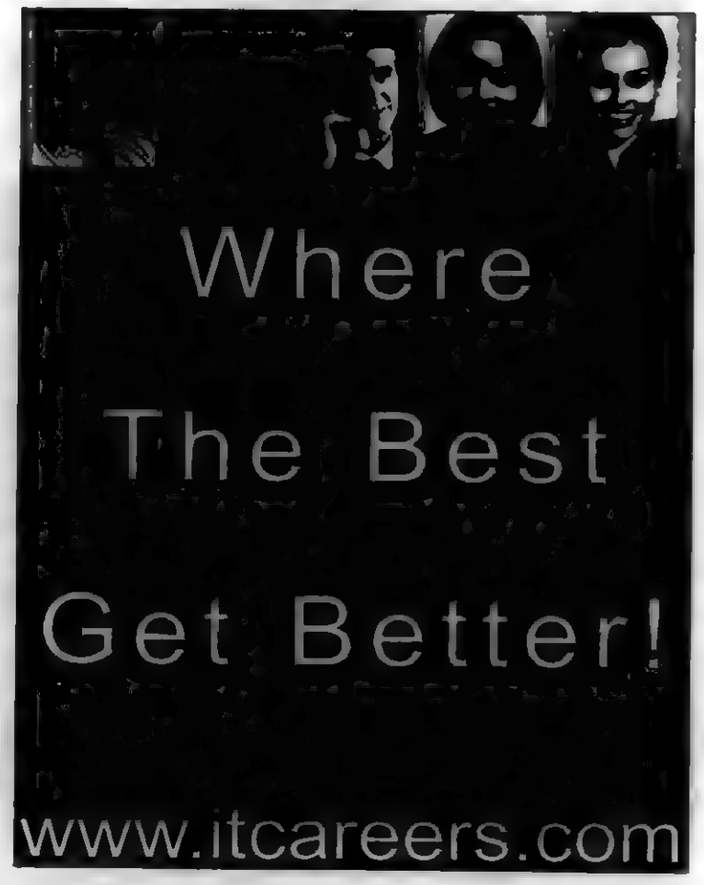
To apply go to USAJOBS at: http://jobsearch.usajobs.com.gov/, and select the Social Security Administration. Must be a United States citizen to apply.

IT Project Manager. Multiple positions. Responsibilities include: Manage the design, development and implementation of multi-tier client/server, MQ Series based systems, ADABAS /NATURAL based systems, CICS and VSAM based systems, multi-user, re-engineering applications for finance companies utilizing Legacy Mainframe Finance Applications, and design tools including C, C++, NATURAL/ADABAS and MQ Series; manage user acceptance tests and user training; and manage systems analysts and other professional support personnel. Must be willing to travel to client sites Monday-Friday. Must have a Master's Degree or foreign or educational equivalent in Computer Science, Engineering or a related field and three years of experience as a Systems Analyst or in a related occupation, or a Bachelor's Degree or foreign or educational equivalent in Computer Science, Engineering or a related field and five years of experience as a Systems Analyst or in a related occupation. If interested, submit resume in duplicate to:

Ms. Sandy Pruitt
NIIT
1950 Crown Pointe Parkway, Suite 900
Atlanta, GA 30338

IT Project Manager. Multiple positions. Responsibilities include: Manage the design, development and implementation of multi-tier client/server, multi-user, re-engineering applications for insurance companies utilizing Legacy Mainframe Insurance Applications - Vantage-One System, and design tools including SCLM, TWS, ZEKE, ENDEVOR, EOS, DADS, SAR, SAR, APC, PenApt, CompareX, QMF, Dispatch and RDS; manage user acceptance tests and user training; manage systems analysts and other professional support personnel. Must be willing to travel to client sites Monday-Friday. Must have a Master's Degree or foreign or educational equivalent in Computer Science, Computer Information Systems, Engineering or a related field and three years of experience as a Systems Analyst or in a related occupation, or a Bachelor's Degree or foreign or educational equivalent in Computer Science, Computer Information Systems, Engineering or a related field and five years of experience as a Systems Analyst or in a related occupation. If interested, submit resume in duplicate to: Ms. Sandy Pruitt, N I I T, 1050 Crown Pointe Parkway, Suite 900, Atlanta, GA 30338.

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Senior Account Manager wanted to source and support new technical business development opportunities. Must have Bachelor's degree in Electrical Engineering, Computer Science or related field and 4 years experience in corporate sales in the software services industry, including 2 years experience with project management and software development. Send resume to Hilary Gosselin, Human Resources Manager, Lionbridge Technologies, Inc., 492 Old Connecticut Path, Framingham, MA 01701.

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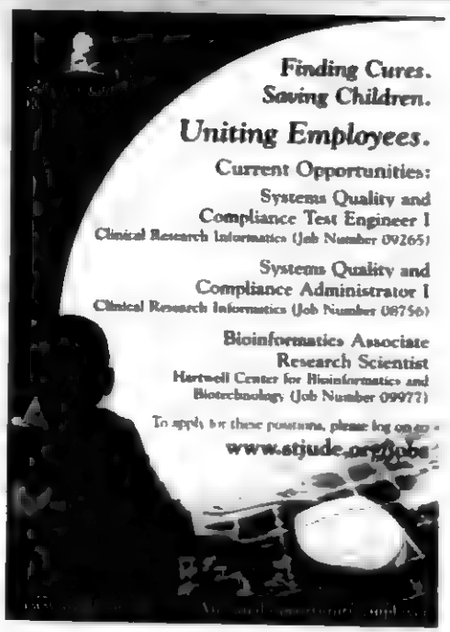
SOFTWARE ENGINEERS: to research, design, develop computer software systems and lead new product development projects to timely completion. Ability to evaluate and design SAP software is required. Needs a Masters in CS/MIS or any related degree combined with 1 + years experience or Bachelors with 5 years experience in designing and developing computer software systems.

SYSTEMS ANALYSTS: to analyze design and develop operational procedures to automate processing and to develop new systems to improve production. Knowledge of SAP, Oracle, and other business related software is essential. Needs Bachelors in Engineering/CS or in any related field combined with 5 years relevant experience in designing and developing computer software systems.

Please send resumes to the respective addresses: Human Resources, 480 Congress Street, 1st floor, Suite #317, Portland, ME 04101.

Software Engineers (Irving Masts Deg w/2yr exp or Bach Deg w/5 yrs exp), & Progmr Analysts w/ exp. for IT Co., Exp. must incl comb's of Java, Custom Portal implementation using Java/J2EE Technologies, Business process re-engineering, ATG architect/manager for custom J2EE based personalization websites/portals, EJB, Servlets, JSP, C++, C, .Net, C#, COM, DCOM, MQSeries, MQSI, Web methods, TIBCO, Seebeyond, EDI, Gentran, Hartenger, TLE, Oracle Clinical, SAS Programming, Cardiff, Smallbase, Reporting services, .Net, ASP.NET, VB.NET, C#, ADO.NET, Web Services, Remoting, Datawarehousing, Business Objects, Informatica, Microstrategy, Actuate, Siebel, Informix, Sybase, Oracle, SQLServer, DB2, MS-Access, Unix, Windows 2000/XP/2003, Netscape Application Server, SAP Basis for SAP R/3 & MySAP Components, BEA Web Logic, Cognos ReportNet on IBM Websphere. We are also looking for Networking Consultants with exp in global office connectivity branch connectivity using BGP routing protocol, design,develop, test & implement network solutions. Must have relevant exp. Reply w/ 2 copies of res:

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650 Main Street Suite #211
South Portland, ME-04106
Fax: 207-253-5407
Email
programs@objectsoftglobal.com



Programmer Analyst w/2 yrs exp to implement, test & deploy applications on Windows & Linux platforms using Visual Basic, Visual C++ and Scripting. Write & test code for Oracle, Mysql & Access databases using Oracle, PL/SQL, Access & SQL. Use HTML, JavaScript, Java, ASP, PHP, C. MVS/TSO platform, FORTRAN, PL/I, SAS & JCL. Mail res: Optima Technology Partners, Inc., 264 South River Rd, Ste 454, Bedford, NH 03110.

Project Managers to lead/manage teams to study, analyze, customize and develop Portal/ intranet billing appls using C, Pro-C, Oracle procedures, triggers, Unix shell scripts etc; lead teams to develop custom GUI tools in VB using portal COM objects; mentor in development of Oracle triggers, packages, procedures, view and pro-C for data retrieval/data migration; evaluate, test, train team members. Require MS (or foreign equiv) in CS/Computer Engg & 1 yr exp in portal intranet billing. F/T. Competitive salary. Travel involved. Resumes to HR, Intercall, Inc., 1211 O.G. Skinner Drive, West Point, GA31833. Please refer Job ICI1104

CPG, Inc a fast Growing software firm is looking for Programmer Analysts. Should have Bachelor's degree in computer science/related field with 2 years experience in any two of the following skills: Design and development of software applications, Java, J2EE, EJB, XML, Struts, VB, .NET, C#, C++, ASP, Surpass, Siebel, peopleSoft, SAS, EDI, Cobol, SunSolaris, Webservices, WMQI, MQSeries, SAP, ABAP, DB2, MS-SQL, Oracle, SQLPlus*, OS/390, Unix, WebLogic, Tuxedo.

We accept foreign education equivalent of the degree, or the degree equivalent in education and experience.

Send resume and covering letter to: CPG, Inc., 250 Regency Court, Suite #101, Brookfield, WI 53045.

Programmer/Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design and develop computer applications and documents for various clients using UML methodologies and design patterns. Develop software using ADO.NET, ODP.NET, COM and ATL. Model databases using Visio Architect. Develop complicated queries and stored procedures on multiple databases. Applicant must have B.S. degree in computer science, engineering, math, or business. Applicant must also have 1 yr. exp. in the job duties listed above or in any computer related occupation which must include the skills listed above. 40hrs/wk, 8:00am-5:00pm. Mon-Fri, $80,000/yr. Send resumes to Job No. 29314, P.O. Box 488, Montpelier, VT 05601-0488.

SENIOR BUSINESS SYSTEMS ARCHITECT (MULTIPLE BUSINESS UNITS) - A Massachusetts-based company involved in the worldwide research, development, manufacture, marketing and sale of audio products and technologies, has an immediate need for a highly skilled Senior Business Systems Architect (Multiple Business Units). This senior-level position will be responsible for the planning, design, deployment and post-implementation enhancement of mission-critical global hardware and business systems software solutions for enterprise-wide and web-based ("e-business") business units. This position is also responsible for mentoring technical personnel in the use of systems and database modeling techniques and the development of monitoring, recovery and incident response strategies and operational support procedures. Minimum education required is a Bachelor's degree in Computer Science, MIS or a Business field relevant to business systems. Minimum experience required is eight (8) years pre- or post-degree experience (a relevant Master's degree may be substituted for 2 of the 8 years required experience) involving business systems software development, at least 3 years of which specifically involved the development of logical data models, and the planning and support of production operations under both SQL Server and Oracle. Specifically required is the demonstrated ability to lead the development and deployment of mission critical e-commerce systems architectures, and to model design and implement component and service based transaction processing systems using UML-based techniques. Also required is the demonstrated ability to develop and maintain infrastructure capacity models, and to co-ordinate the deployment and management of mission-critical load-balanced, highly available, and redundant server configurations to support global operations. Additionally required is the demonstrated ability to translate logical data models into physical SQL Server and Oracle database schemas. Further required is the demonstrated ability to provide technical support to system and database administrators in tuning, optimization, backup, recovery and monitoring of mission-critical e-business systems. Finally required is the demonstrated ability to conduct new technology evaluations and provide project and resource cost estimations to senior financial management for capital budgeting and internal rate of return (IRR) analysis of recommended hardware and software solutions. Starting base salary is $80,000 per year, together with ten (10) days paid vacation, contributory medical and life insurances, and other industry-competitive benefits. Qualified applicants respond with two (2) copies of resume only to: Case #200300358, Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114. An EOE/M/F/H/V.

Programmer Analysts to analyze, design s/w appls using SAP R/3, ABAP/4, C, C++, Java, VB, JSP, JScript, HTML on UNIX/Windows os; gather/document reqs from user community; test/troubleshoot project appl code according to system objectives. Require a B.S. or foreign equiv in CS/Engg (any branch)with 2 yrs exp in IT. Competitive salary, F/T. Travel involved. Resume to HR, Smartsoft International, Inc., 3965 Johns Creek Court, Ste 500, Suwanee, GA 30024.

Maxil Technology Solutions, a computer consulting company, has openings available for Programmer Analysts. Duties will include but not be limited to modifying, developing and testing computer programs, and evaluating user requests for new/modified programs. A degree is required. Will accept foreign equivalent of the required educ. and/or its equiv in educ. and experience. Send resumes to HR Dept., Maxil Technology Solutions, 2625 Butterfield, Suite 316 W, Oakbrook, IL 60523.

COMPUTER SYSTEMS ENGINEER: MEDICAL SYSTEMS INTEGRATION

Designs, develops and maintains computer systems to import data from multiple platforms/sources, and to manage data within private wide area network. Must have B.S. in Electrical Engineering, Computer Science or equivalent, and at least two years experience in the job offered. 50+ hours per week. EOE, Drug Free Workplace. Send resume to: 21st Century Oncology Attn: Joyce White, 2234 Colonial Blvd., Ft. Myers, FL 33907 or fax (239)931-7381.

Programmer/Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design, develop, and implement client server based computer applications for clients. Use .NET framework, VC#.NET, VC++, STL, and COM/ DCOM. Perform work in a Windows environment. Applicant must have B.S. degree in computer science, engineering, math, or business. Applicant must also have 1 yr. exp. in the job duties listed above or in any computer related occupation which must include the skills listed above. 40hrs/wk, 8:00am-5:00pm. Mon-Fri, $80,000/yr. Send resumes to Job No. 29312, P.O. Box 488, Montpelier, VT 05601-0488.

Programmer Analysts/Software Engrs needed. Seeking qual. candidates possessing MS or equiv. &/or rel work exp. Part of req. rel work exp must include 2 yrs working w/ Visual Source Safe & MS SQL Server & 3 yrs. working w/ Visual Basic. Exp. may be simultaneous. Duties include design software, databases & analyze reqs. & business processes. Work w/ MS-SQL Server, Visual Basic, Visual Source Safe, DataDynamics Active Reports, & ODBC on Windows. Fwd resume, ref. & salary req. to ECMD, Inc., Attn: HR, 2 Grandview St, PO Box 130, N. Wilkesboro, NC 28659.

Programmer-Analyst needed to analyze specs, create schema, write code using Corba & test applics using C++/C, Java, SNMP, NMS, HP-UX, Solaris, applic servers, Linux, Informix, Oracle, DB2, GNU, TCP-IP, Socket & Profiler, OOAD. Send resume to: Global Consultants, Attn: Hireme, 8600 Grand Oaks Cir., #100, Tampa, FL 33637.

Senior Enterprise Infrastructure Engineer wanted to participate in arch. designs for the planning, integration & development of J2EE applications. Must have Master's deg. in Comp. Sc. or Eng. & 2 yrs. software development & object oriented analysis & design exper., incl. commercial software eng exper. in EJB, SOAP, Weblogic & WSAD, exper. in Content Mngmnt. or Digital Asset Mngmnt. Systems, & exper. in a tech. leadership role, responsible for design & development of core functional modules of J2EE based application. (A Bach. deg. & 5 yrs. exper. can substitute for a Master's & 2 yrs. exper.) Send resume to Human Resources, Job Code SE89, Content Media, Inc., 1 Providence Washington Plaza, Providence, RI 02903.

Systems Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Assess performance and scalability of client company's Siebel Customer Relationship Management (CRM System) product for the purpose of improving performance. Build scripts using Load Runner to assess and applications performance for large enterprise software systems. Prepare documentation and make recommendation to the client regarding hardware and third party software usage. Work in both UNIX and Windows environments. Applicant must have B.S. degree in computer science, engineering, math, or business. Applicant must also have 2 yrs. exp. in the job duties listed above or in any computer related occupation which must include the skills listed above. 40hrs/wk, 8:00am-5:00pm, Mon-Fri, $80,000/yr. Send resumes to Job No. 29208, P.O. Box 488, Montpelier, VT 05601-0488.

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Computer Professionals (Multiple Openings) Software Engineer/Programmer Analyst/Systems Analyst/Database Administrator/ Network Administrator. Requirements include: US equivalent to a Bachelor or Master Degree; in lieu of a Master's Degree, we are willing to accept a Bachelor Degree with five (5) years of prior progressive professional experience. Must also have experience in some of the following skills: C/C++, Java, Cold Fusion, Microsoft Technologies (Visual Basic, .NET, ASP) CRM (Siebel, Clarify, Ventiva), Middleware Technologies (ORBIX, TIBCO, CORBA, VITRIA), Dataware Housing Tools (Informatica, DataStage, AbInitio, Business Objects, Cognos, Micro Strategy, Brio) ERP (SAP, People Soft, Oracle Apps, Baan) Mainframe (COBOL, CICS, JCL, VSAM), AS400, Ecommerce, Databases (SQL Server, Oracle, DB2, Sybase), Windows (95/98/2000/NT/XP, Exchange), UNIX (Sun Solaris/HP), Linux and QA (Win runner, Load runner, SilK, Quick Pro, Rational Tools, Manual Testing). Extensive Travel and/or relocation. Attractive compensation package. Mail resume to: Human Resource Director, Reasonsoft, Inc., 74 State Road, Ste. 203, Kittery, ME 03904

Unix Administrator required to install, configure, update and maintain UNIX (primarily Sun Solaris) servers in a Windows environment, troubleshooting system problems and failures. Determine and implement the requirements for hardware and software and perform related duties. Bachelor in Computer Science and two year related experience required. Send resume to HR (IT01), Memphis Managed Care Corp., 1407 Union Ave., Suite 200, Memphis, TN 38104.

Sr Software Engineer. Customize & integrate s/w components from 3rd party vendors into wireless products. Bach's deg in Comp Sci, Physics & Elec Engrg reqd + 5 yrs prog exp in specialty field. Snd resume to PMCDU, 1225 Northbrook Pkwy, Suwanee, GA 30024, Attn: D. Greer, RK

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MORE ASSET MANAGEMENT

Barbara Rembiesa of the IAITAM talks about Sarb-Ox and licensing issues

QuickLink 50412
www.computerworld.com

Microsoft LCS Security Features Drive Interest in Corporate IM

Will enable users of popular messaging systems to communicate more safely

BY TODD R. WEISS

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AT A GLANCE

What's happening: Some enterprise software customers said they're receiving letters from software vendors requesting that they conduct self-audits of their software use in order to help the vendors comply with requirements under the Sarbanes-Oxley Act of 2002.

Why it matters: Some IT managers believe the letter campaign is merely a ruse to get customers to increase their software audits.

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Enterprise IM Benefits

Companies choose to buy IM systems instead of using free alternatives in order to get the following features:

- Message logging
- Network security
- Regulatory compliance
- Management control

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Offshore Dot-Bomb

WHY ARE WE OFFSHORING IT? I've puzzled over that question ever since I spent a day last month at a conference for lawyers on IT offshoring. The lawyers, of course, were focused on how to write good outsourcing contracts — struggling to figure out how to deal with foreign laws, privacy, security, due diligence and all the other unfamiliar complications offshoring brings.

But why go to all this effort for something that, for corporate IT at least, is really untried, uncertain terra incognita? And it finally hit me: IT offshoring agreements aren't being done as conventional business deals on the usual business basis.

They're being done on faith. It's like dot-com mania all over again.

Don't laugh. True, there's none of the dot-com hoopla here. These days, most companies won't even talk publicly about their offshoring.

But they're doing it. And as with the rush to Web commerce, there's more faith than fact driving the march to outsource — even though the numbers, the expertise and the experience aren't there to justify that faith.

With the dot-coms, we didn't know whether a Web-based business model would work at all — or if it did, what kinds of businesses it would support. We didn't know how fast business could shift to the Web, or whether dot-coms really could transform retailing. All we knew was that bits cost less than bricks, so we figured everything else must cost less on the Internet, too.

A scrap of data, an untried business model and a lot of faith: That was the dot-com way, and we all chased it.

And offshoring? We know offshore programmers get paid less — they're the bits-cheaper-than-bricks part of the scheme.

But we don't know what kinds of corporate IT projects can be effectively offshored. Or what happens to quality levels as offshoring volume ramps up. Or whether outsourcing will leave us with the flexibility and agility to adjust to rapidly changing business conditions, take advantage of new market opportunities and quickly respond to new user needs.

We don't even know if we'd all be better off leaving offshoring behind in favor of component development, packaged applications and improved management tools.

We just don't have the experience to tell us those things. Or the expertise to choose the right projects to outsource and then successfully manage from half a world away. Or the project results — the hard numbers — to give us confidence in the decision to outsource.

Then why all the IT outsourcing? It's faith, not fact, that drives it: the faith of CEOs, CFOs and CIOs that there has got to be a better way to do IT, and offshoring might be it.

Which explains why, as I learned at that conference, even though roughly half of offshoring projects fail, customers don't bail. Instead, they renegotiate their deals. They have faith, and offshoring gets a second chance.

It explains why cultural and legal quirks get forgiven, complications are accepted and extra overhead — such as the cost of getting and keeping lawyers up to speed on how to write offshore outsourcing contracts — is taken in stride. Sure, these might be permanent problems that will get worse. But they might just be teething pains that will work themselves out.

Most of all, it explains why offshoring seems to march on regardless of logic or practical considerations or early results.

Yes, that bubble of faith in offshoring will burst eventually. When that happens, as with the dot-coms, some offshoring approaches will disappear and some will survive. Experience will let us sort it all out, and the offshoring that survives will seem a lot more sensible in hindsight.

But until then, all we can do is struggle to figure it out — and hope we survive this offshoring act of faith. **50376**



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.

SHARK TANK

Right on Schedule

Every time there's a major change on the mainframe, this user complains that the change has broken one of his programs. "We're told to just fix it, even when we're certain it never ran," says systems programmer pilot fish. Then comes the day when a scheduled change is delayed at the last minute – but the user's broken-program complaint comes in on schedule. "I told our boss with a maniacal snicker," fish says. "Never heard a problem from that user again."

Oops!

School principal sends an urgent message to a power-user pilot fish: "Help! I've got a report to get out, and the dot-matrix printer keeps printing on the same line over and over." Fish arrives and surveys the situation. Who hooked this printer up the first time, when it worked? he asks. "The IT guys," principal says. And who hooked it up the second time, when it didn't? Principal: "I did." Fish: And who placed it directly on top of the stack of banded paper it's supposed to use?

Trust

For the new order-entry system at this paper company, programmer pilot fish is repeatedly told that the company sells rolls as either stock or make-to-order, but sheets only as stock. No make-to-order sheets? fish keeps asking – until the product vice president stands up at a meeting and roars, "We will not make make-to-order sheets!" System goes live. "And the very first order is for make-to-order sheets," sighs fish. "Fortunately, the order processed without problems because we never believed him in the first place."

Foresight

Helpful user brings his old Zip drive, complete with all its cables, to IT manager pilot fish. "I don't have a need for this anymore," user says. "Would you like it?" Sure, says fish, we'll keep it in case someone else needs it. How many Zip disks do you have to go with it? "Several," says user, "but I need to keep them – I have important information saved on them."

Efficiency

When a new application rolls out to all this company's call centers, one site reports problems with it every day at around 4 p.m. Why just this site, and only at 4 p.m.? IT pilot fish wonders. "When the reporting user was contacted, she swore the problem was ongoing and affecting multiple users," says fish. Fish investigates and discovers that this user has been appointed "problem champion" to coordinate reporting of problems. "She was writing down all the individual problems," fish says, "and then reporting them once a day."

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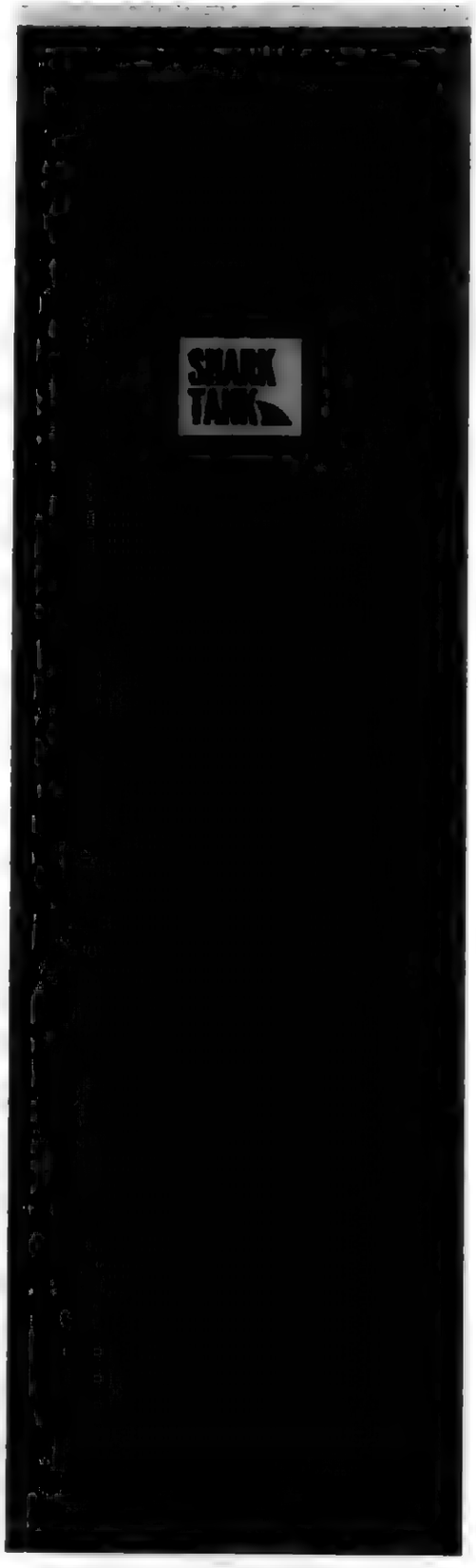
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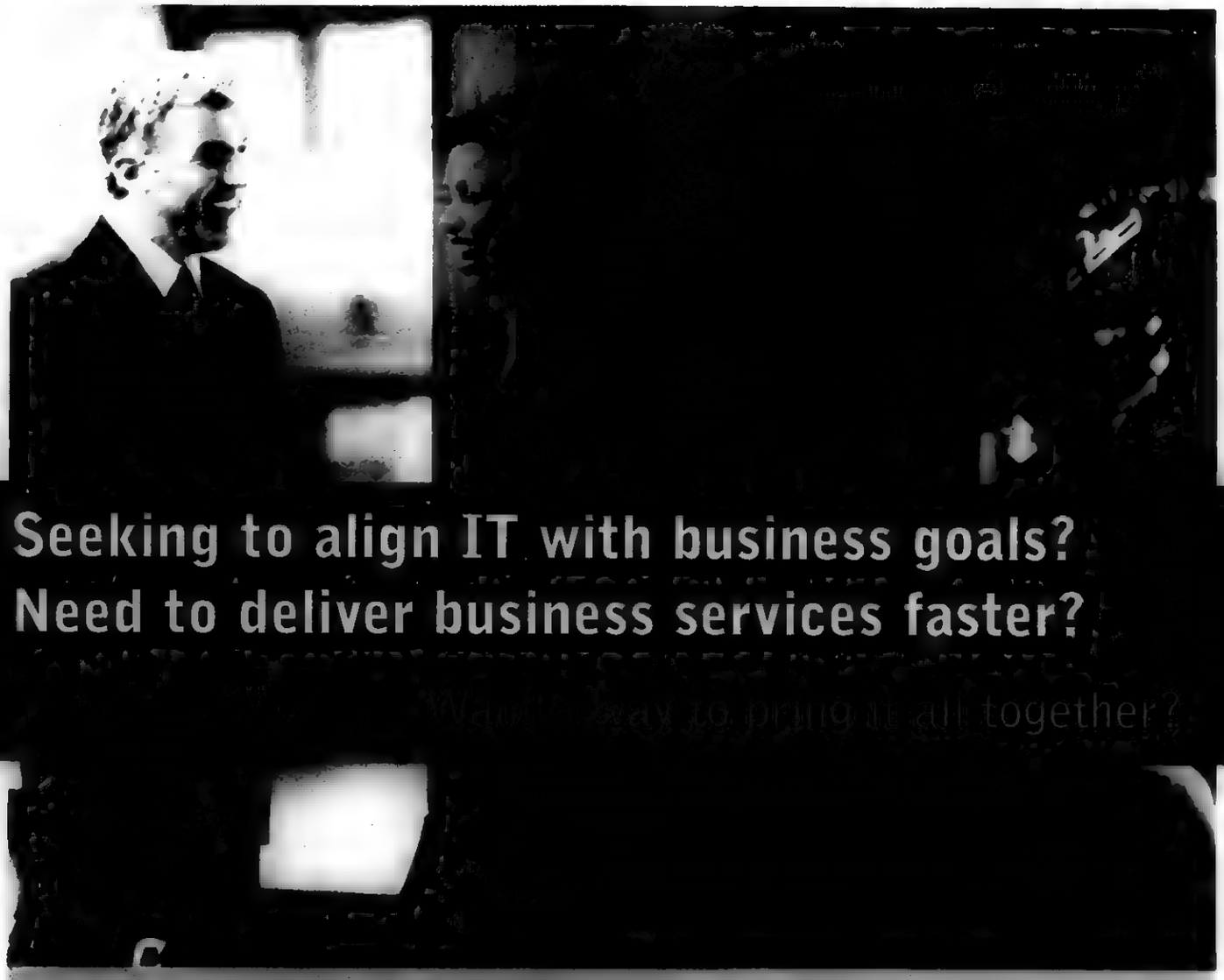
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Electronic Voting Systems Pass Their Big Test – Maybe

Vendors say election validates technology; critics not convinced

BY DAN VERTON AND PATRICK THIBODEAU

Electronic voting systems avoided the virtual meltdown that some people had predicted during last Tuesday's election. But critics said the technology still has significant shortcomings that raise questions about the validity of the results tabulated by the machines.

ONLINE
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Officials in various states said they encountered relatively minor glitches, such as a North Carolina county's inability to account for about 4,500 ballots cast on touch-screen systems. Nonetheless, the apparently largely successful use of the 175,000 or so e-voting systems deployed throughout much of the U.S. led proponents to call the election a validation of the technology.

"Electronic voting machines took an important test on Nov. 2 and passed with flying colors," said Harris Miller,

E-voting, page 16

State Avoids Tax Refund on ERP System

Ruling in Wisconsin may have wider reach

BY MARC L. SONGINI

A judge has refused to order the state of Wisconsin to refund more than $340,000 in sales tax paid on a customized SAP system, which may set a precedent that relieves the state of the need to pay a total of about $300 million to corporate users. Lawyers said the decision could also prove costly to companies with large ERP installations in other states with similar tax laws.

At issue in the legal opinion is a sales tax refund sought by Menasha Corp., a pulp and

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JONATHAN WEINER

GOING Down FAST

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IT MORALE IS BEING SWAMPED BY A COMBINATION OF SLASHED BUDGETS, OVERWORK, FEAR OF OUTSOURCING AND BAD BOSSES, BUT THERE ARE SOME STEPS YOU CAN TAKE TO TURN THE TIDE. BY JULIA KING AND MATT HAMBLEN

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88

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New IT security breaches are embarrassingly familiar for Cisco and Wells Fargo. PAGE 6

BNSF Railway puts an IP network installation on a fast track to improve its signaling capabilities. PAGE 7

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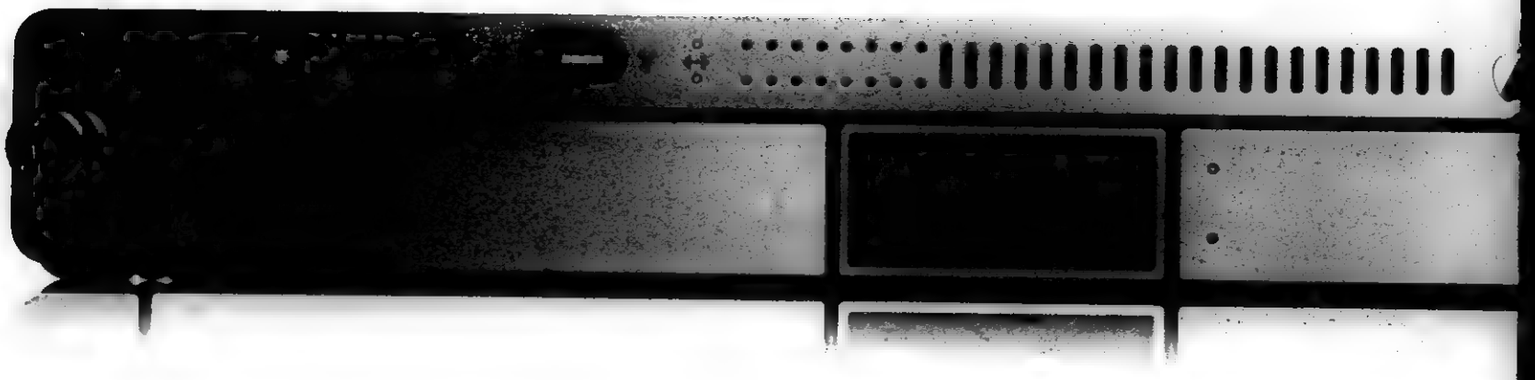
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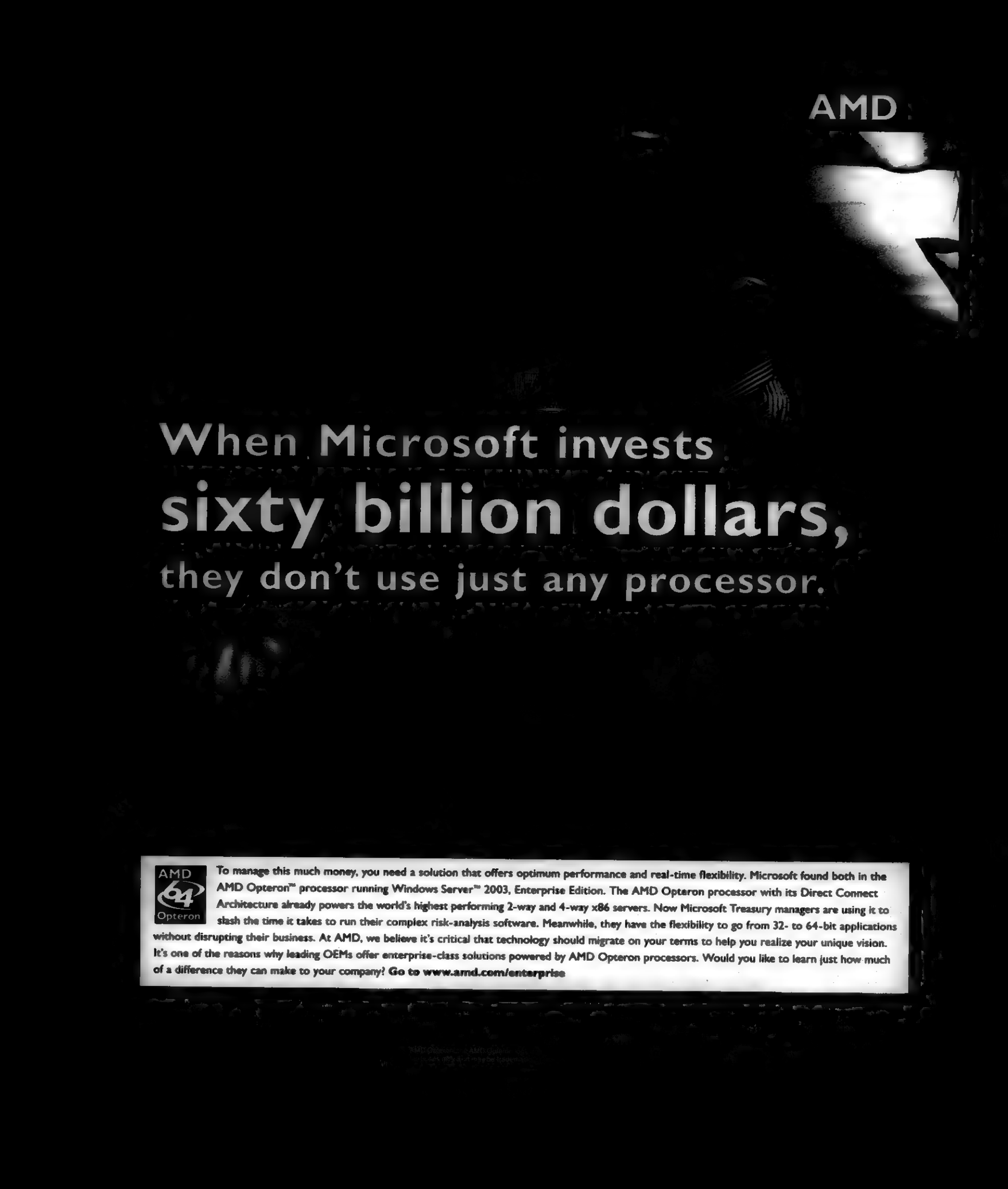
With dual 2GHz 64-bit G5 processors, it achieves blazing speeds of up to 30 gigaflops. It's so powerful, in fact, that the U.S. government is deploying 1,566 Xserve G5 servers to create one of the world's fastest supercomputers, capable of up to 25 trillion calculations per second.

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Avoiding Liability

SECURITY: If your company's computers are infected with a virus that is further spread by your employees, are you liable for damages that result? Douglas Schweitzer examines downstream liability. **QuickLink 50306**

Asking Great Questions

DEVELOPMENT: Columnist Johanna Rothman discusses the art of posing perfect questions that will help you get the information you need, whether you're in a job interview or a vendor meeting. **QuickLink 50631**

Five Steps to WLAN Security

MOBILE/WIRELESS: AirDefense's Anil Khatod explains how to deal with rogue users, set logical policies, install intrusion-detection systems and more. **QuickLink 50617**

Modularized RAID

STORAGE: Intel's Paul Luse explains modular RAID on motherboard, also known as MROMB technology, and when it might make sense. **QuickLink 49481**

News Right to Your In-box

Between issues of *Computerworld*, keep up with all the IT news you need with our free e-mail newsletters. Subscribe on our Web site. **QuickLink a1430**

Sarbanes-Oxley Update

NEWS: With a Nov. 15 deadline fast approaching, is your company ready for the Sarbanes-Oxley Act? Check out our latest coverage. **QuickLink a3250**

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AT DEADLINE

Stone Leaves Novell In a Surprise Move

VICE CHAIRMAN CHRIS STONE left Novell Inc. after helping the company reinvigorate itself over the past year with a strong Linux push that included the acquisition of SUSE Linux AG.

In a statement late last week, Stone said he left Waltham, Mass.-based Novell "to pursue other professional opportunities." Users and analysts expressed surprise at the move. Stone was second in command to Chairman and CEO Jack Messman and oversaw engineering, product management and alliances in his second stint at Novell. Stone couldn't be reached for comment.

Dion Cornett, a financial analyst at Decatur Jones Equity Partners LLC in Chicago, called the departure "a negative for both [Novell] and the industry. We believe that Mr. Stone was instrumental in pushing Novell toward a strategy of capturing value from open-source software, as opposed to giving away Linux to fuel demand for other offerings." According to a government financial filing, Stone got a $2 million severance package. That "suggests that [he] was asked to resign," Cornett said.

"Hopefully, there is a plan and direction" accompanying the departure, said George Raetzke, senior systems programmer at Northern Illinois University in DeKalb, Ill.

John Falsetti, senior vice president of information services at Kids Hope United in Chicago, a nonprofit social services agency that's a heavy user of Novell products, called the move "just more of the same. How many guys have come and gone in the last four years over there?"

Hal Thayer, a Novell spokesman, said the departure doesn't indicate a change in the company's strategic technology direction.

Laura DiDio, an analyst at The Yankee Group in Boston, said Stone's departure indicates "some sort of shakeup . . . since Stone was hired back as the heir apparent in 2002. This spells bad news for Novell, because Stone was obviously well respected and a well-known entity in networking. Another theory is that perhaps SUSE is taking over Novell."

– Todd R. Weiss and Matt Hamblen

Cisco, Wells Fargo Face New Security Breaches

More Cisco code said to be stolen; PC thefts expose Wells Fargo customer data

BY JAIKUMAR VIJAYAN

Two well-known companies — Cisco Systems Inc. and Wells Fargo & Co. — last week found themselves dealing with the aftermath of apparent security breaches that in both cases were embarrassingly similar to incidents both had confronted only months earlier.

For the second time this year, Cisco said it was looking into the possibility that source code may have been stolen.

In May, an 800MB portion of Cisco's Internetworking Operating System code was illegally copied and posted on a foreign Web site.

The latest incident came to light when an anonymous hacker group offered copies of Cisco's PIX 6.3.1 firewall for sale in an online newsgroup early last week.

In a terse note posted on its Web site last week, the networking giant said it is "actively looking into the alleged claims by some Internet groups on the purported sale and general availability" of the source code. A spokeswoman declined to elaborate.

Meanwhile, San Francisco-based Wells Fargo last week said three laptops and one desktop computer containing personal information on thousands of the bank's borrowers were stolen in early October from an Atlanta-based subcontractor.

Wells Fargo was able to "quickly identify" the customers affected by the theft and last week issued letters notifying them of the loss of information and of plans to provide free identity theft protection, said company spokesman Kevin Waetke. "The customers were notified as a precaution only. We have no indication any customer's information has been compromised," he added.

Actual Risk

The actual risk posed to users by the apparent theft of Cisco's PIX firewall source code is minimal, said John Pescatore, an analyst at Stamford, Conn.-based Gartner Inc.

"Unless Cisco was taking shortcuts they were hoping no one would ever see, this should not be a big deal," he said. But this incident, like the previous one, raises questions about how well protected Cisco's source code is, Pescatore added. If somebody could steal the source code from a protected server, they could also compromise it, he said.

The net result of incidents like this is that a lot more source code is becoming available for hackers to go after, said Ken Dunham, a director at iDefense Inc. in Reston, Va.

In Wells Fargo's case, this is the third time since last November that the bank has had to warn customers of potential identity theft. Both previous cases resulted from stolen laptops.

"These incidents continue to be isolated, and each has a different set of circumstances," Waetke said. "We continue to learn from previous thefts of computers and want to ensure that affected customers are protected." **50562**

Trouble Follows Them

This isn't the first time that Cisco and Wells Fargo have had to deal with security breaches in the past year.

NOVEMBER 2003 — **WELLS FARGO:** Laptop containing confidential information is stolen from office of a third-party service provider.

FEBRUARY 2004 — **WELLS FARGO:** Laptop containing customer information is lost when it's left in a car that's stolen from a gas station.

MAY 2004 — **CISCO:** 800MB of Cisco IOS source code is illegally copied and posted on a foreign Web site for several days.

NOVEMBER 2004 — **CISCO:** Anonymous group offers to sell source code for previous-generation Cisco firewall in online newsgroup.

WELLS FARGO: Notifies customers of potential ID theft resulting from loss of PCs containing personal information.

CA Unveils Antispyware Tool for Corporate Market

BY JAIKUMAR VIJAYAN

Although spyware is rapidly emerging as a threat to corporate security, only a handful of enterprise-class tools are available to help companies deal with the problem.

Hoping to fill that gap, Computer Associates International Inc. today will release an updated version of the antispyware software that it acquired with its purchase of PestPatrol Inc. in August.

CA's new eTrust PestPatrol Anti-Spyware r5 release builds on several features designed for corporate needs, said Sam Curry, the Islandia, N.Y.-based company's vice president of product management.

For instance, enhancements to the product's centralized management console, including a new user interface, will make it easier for administrators to deploy, monitor and manage antispyware protection, Curry said. A new, faster scanning engine can more efficiently scan networks for traces of spyware, adware, Trojan horses and denial-of-service attack agents, he said.

The corporate version of the software is integrated with Cisco Systems Inc.'s Network Admission Control technology, which is designed to let companies enforce network access policies on all systems attempting to connect to a corporate network.

Such enhancements are crucial for deploying antispyware protection in enterprises, said Ricky Stewart, computer service manager at Cornell University in Ithaca, N.Y.

Cornell has used PestPatrol software for nearly two years. But only after centralized management support became available was it able to automatically deploy the software to all systems, Stewart said.

CA next needs to integrate its antispyware tool with its antivirus software, said Jarrad Winter, network security manager at the Western United Insurance Co. in Irvine, Calif. "It just so happens that we have CA's antivirus tools as well. It would be great for some sort of integration," he said.

Another vendor touting enterprise spyware tools is Boulder, Colo.-based Webroot Software Inc., which offers Spy Sweeper Enterprise software.

Vendors of antivirus tools such as Symantec Corp. and Trend Micro Inc., both in Cupertino, Calif., have begun offering limited antispyware capabilities as part of their core antivirus suites. **50573**

Railroad Uses IP Net to Control Signals, Switches

BNSF expects $30M project in Seattle to boost network reliability, capacity

BY MATT HAMBLEN
SEATTLE

The Burlington Northern and Santa Fe Railway Co. is nearing the end of the line on the installation of a $30 million IP network along a heavily traveled rail corridor in the Seattle area, a project that's expected to increase the reliability of the technology it uses to control signals and track switches.

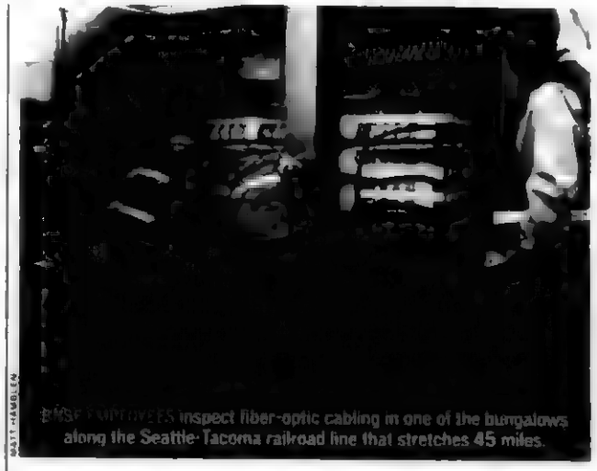
The Sound Transit Telecom project involves the installation of a triple-redundant network of fiber-optic cables and T1 lines that will run for 45 miles between Seattle and Tacoma, Wash., and support combined IP voice, data and video traffic, BNSF officials said during a tour of network sites last week. The installation began two years ago and is due to be completed in 2005.

Fred Gratke, assistant vice president of telecommunications at BNSF, said the IP-based technology is replacing a proprietary wireless radio system that the company has used for decades to relay signal and switch commands between the Seattle tracks and the railway network operations center at its headquarters in Fort Worth, Texas.

The fiber-optic cabling and new network switches and routers are much more reliable than the older system is, Gratke said. The IP-based equipment will also provide greater network capacity, he noted. BNSF is using Ethernet-over-fiber technology that provides 1Gbit/sec. backbone speeds now and is expandable to 10Gbit/sec. throughput.

The IT rollout is part of a $248 million, government-funded initiative that involves adding a third set of tracks as well as expanded signaling and switching capabilities along the Seattle-Tacoma rail corridor, which is used by freight, commuter and interstate passenger trains. BNSF planned the new network, is managing the installation and will maintain the technology. But the bills are being paid by Sound Transit, a regional transportation agency.

"The third track adds more signals and more monitoring points, which presented a lot more points of telemetry along the track," Gratke said. The increased information flow would normally overload BNSF's wireless channel, but the railroad expects to have "nearly infinite capacity with the fiber," he added.



MATT HAMBLEN

BNSF EMPLOYEES inspect fiber-optic cabling in one of the bungalows along the Seattle-Tacoma railroad line that stretches 45 miles.

Nick Marquard, project manager for research and technology at Sound Transit, said the IP network will eventually be expanded to support data transmissions for electronic signs at commuter rail stations as well as IP video surveillance cameras.

Transition On Track

As of last week, BNSF had completed the installation of 32 trackside "bungalows" that house the new networking equipment; 50 bungalows are planned along the route. The buildings contain switches from Nortel Networks Ltd., voice-over-IP phones from NEC Corp. and products from several other vendors (see story at right). Central offices in Seattle, Tacoma and Auburn, Wash., are also on the network, Smith said.

The transition has been a smooth one for BNSF's signaling organization, said James Abbey, the company's manager of railroad signals for the state of Washington. "At the start, everybody in signaling was reluctant to try IP, since it was the first of its kind," Abbey said. But thus far, the new network has been completely reliable, with no delays to trains, he added.

In addition to its greater reliability, the fiber-based network is more secure than the wireless radio system is, said Greg Britz, manager of telecom engineering at BNSF.

Britz said the fiber infrastructure was made triple-redundant in the event of a major train derailment that could both knock out a bungalow and dig up the ground near the tracks deep enough to sever a backup fiber link. If that happened, vital information could still be sent via T1 links between each central office and over the remaining fiber lines, he said. **50547**

MORE NEWS ONLINE

BNSF says the Seattle-area network could be a model for other parts of its rail system.

QuickLink 50546
www.computerworld.com

Sturdy Gear Keeps Network Running

SEATTLE

THE NETWORKING bungalows that BNSF is installing along its railroad tracks in the Seattle area are made with a stainless steel exterior and were designed for durability, according to project manager Thomas R. Smith. But the switching equipment housed inside them isn't specially ruggedized, he said.

BNSF considered how the IP switching gear would handle vibrations from nearby trains, especially since the hardware is primarily designed for use in offices. But extra ruggedization wasn't deemed necessary, Smith said. The company also decided not to include vibration-reduction equipment to protect the bungalows from earthquakes, which are relatively rare in the area.

Thus far, the networking devices that are in place have withstood all environmental hazards. "We have not had problems since the hardware was installed two years ago," Smith said, noting that the bungalows are designed with redundant elements, such as two air-conditioning systems.

Each bungalow and central office in the Seattle area houses several pieces of hardware from Brampton, Ontario-based Nortel, including its Business Policy Switch, ARN and BLN routers, and 8603 fiber-termination switches. BNSF also installed packet switches from Safetran Systems Corp. in Rancho Cucamonga, Calif., in the bungalows and central offices and at its railway operations center in Fort Worth.

NEC supplied about 150 VoIP phones as well as an IP voice switch for BNSF's Auburn central office. Other new technologies include a NetGuardian alarm device from DPS Telecom in Fresno, Calif., for detecting problems with power, building temperatures and fiber connections. BNSF is using IBM's Tivoli NetView 6000 management software to monitor the entire IP network.

– *Matt Hamblen*

Microsoft Offers Early Glimpse of Patches

BY JAIKUMAR VIJAYAN

Microsoft Corp. last week said that it will give users advance notice of its monthly security updates as part of an effort to make it easier for IT managers to install software patches.

Starting this month, the company will post on its Web site brief summaries of the planned security bulletins three days before they're released, said Debbie Fry Wilson, director of marketing at Microsoft's Security Response Center. The summaries will include a brief description of the affected software, the severity rating assigned to each flaw and whether the patches will require systems to be rebooted.

Starting in December, Microsoft will also send the summaries to users who register for e-mail notification on its Web site.

Microsoft has been making this advance information available for some time to corporate users who signed nondisclosure agreements, Wilson said. Now the company will make the summaries available to anyone who wants them, she said.

"This is based on customer feedback," Wilson said. "We heard from our customers that this sort of early feedback would be useful for planning."

But a lot depends on the kind of information that is made available, said Mike Tindor, vice president of network operations at First Internet Inc., an Internet service provider in St. Clairsville, Ohio.

"The only time I would see it as being significant is if an upcoming patch is likely to break some service or software that is currently running on a production machine," Tindor said. "In that case, advance notice is definitely helpful so that we can plan for a work-around or an alternative method of dealing with the possible breakage." **50575**

BRIEFS

EDS Again Delays Q3 Earnings Report

Electronic Data Systems Corp. postponed the release of its third-quarter financial results for the second time and didn't set a new date for finalizing the numbers. EDS had planned to report the results on Oct. 25 but is reviewing the value of IT assets being used for its $8.8 billion intranet contract with the U.S. Navy. EDS also said last week that its audit committee is investigating issues related to its employee bonus plan.

Oracle Raises Its Bid for PeopleSoft

Oracle Corp. increased the price of its hostile takeover bid for PeopleSoft Inc., saying the new offer is its "best and final" one. Oracle raised its all-cash offer to $24 per share, upping the overall value of the proposed deal to $9.2 billion. But it said the offer will be withdrawn if a majority of PeopleSoft's shares aren't tendered by Nov. 19. PeopleSoft said its board plans to review the new offer.

CA Starts to Ship Open-Source DB

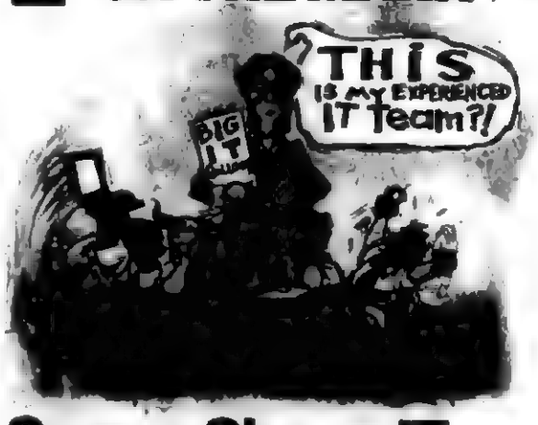
Computer Associates International Inc. released an open-source version of its Ingres database for Linux and Windows systems, keeping to a plan announced last spring [QuickLink 47216]. Registered users can download the Ingres r3 software under the new CA Trusted Open Source License. CA said versions for Unix as well as HP Tru64 and HP OpenVMS are due early next year.

Cisco Faces Lawsuit On Routing Patents

ConnecTel LLC in Miami Beach filed a federal patent-infringement lawsuit against Cisco Systems Inc. Cisco declined to comment, saying it has yet to see the complaint, which involves patents held by ConnecTel on intelligent data-routing technology.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FAULKNER

Survey Shows IT 'Out of Shape . . .

. . . when it comes to major technology implementations," warns John Norcross, vice president of technology at Celerant Consulting Inc. in Lexington, Mass. The U.S. branch of Novell Inc.'s U.K.-based consultancy teamed with newsweekly *The Economist* to poll

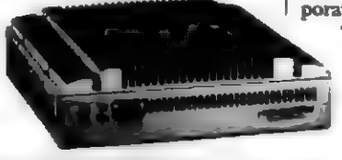


executives at 290 mostly midsize U.S. and Canadian companies on their ability to handle big IT projects. Norcross says the survey results, which will be released this week, revealed that less than half of the respondents have attempted a major technology rollout during the past three years. He worries that the hiatus, combined with the "decimation" of IT departments through cutbacks and outsourcing, will hobble any IT-dependent "transformational change" initiatives demanded by top management as the economy improves. "I don't know whether it's a crisis, but it's approaching one," he contends. Although consultancies might benefit from the situation, Norcross says that without IT expertise inside companies, "all you've got is a bunch of generic consultants with generic knowledge producing a generic solution."

Wireless defenses reinforced with . . .

. . . the release this month of rival offerings AirDefense 6.0 and PredatorWatch Auditor 128. Anil Khatod, CEO of AirDefense Inc. in Alpharetta, Ga., claims that the 6.0 upgrade of the software for the company's wireless network security appliances "can defend wireless devices and/or the wired devices they're connected to." The release adds client-side code that prevents online sessions from being hijacked to bogus Web sites when end users connect their laptops to public hot spots. Users are also now protected from intruders sneaking onto their machines via Bluetooth links. In addition, AirDefense 6.0 features improved network intrusion-detection and automated rogue management features, Khatod says. Pricing starts at $6,995.

PredatorWatch Auditor 128 ↓



According to Gary Miliefsky, CEO of PredatorWatch Inc. in North Chelmsford, Mass., as soon as a PredatorWatch Auditor 128 appliance is connected to a wireless LAN, it builds a database on up to 256 IP-based systems and conducts common vulnerability exposure (CVE) tests that reveal "anything that can be exploited." About the size of a paperback, the Auditor 128 provides information such as recommendations of patches needed for Windows-based systems. The appliance can also block unauthorized network access. It lists for $1,295 plus a monthly subscription fee of $59 for CVE updates.

Secure Web services need more . . .

. . . than well-intended standards, says Joelle Gropper Kaufman, vice president of marketing at Reactivity Inc. in Belmont, Calif. Gropper Kaufman says that standards such as WS-Security "are not implemented identically by vendors." Reactivity Chief Technology Officer John Lilly adds that the existing standards aren't comprehensive. For example, he claims that they don't protect Web services applications against XML denial-of-service attacks. Reactivity says its Gateway 2400 security appliances provide protection from XML DoS attacks and enforce policies for applications using Web services. The devices also offload encryption and decryption of Web services messages from corporate networks.

This week, Reactivity will release XOS 4.1, a software upgrade that supports Gigabit Ethernet speeds and improves performance on processing SOAP message headers. Pricing starts at $65,000, but a developer version costs $5,000.

Don't fret about iPods and MP3 players . . .

. . . as vehicles for stealing your company's data, advises Brian Cincera, vice president of security solutions at Greenwich Technology Partners Inc. in New York. Cincera disagrees with sentiments previously expressed here about such dangers [QuickLink 49095]. "Data leaving in the hands of employees is always an issue," he says. "But I don't think iPods, MP3 players and Bluetooth devices will raise the stakes."

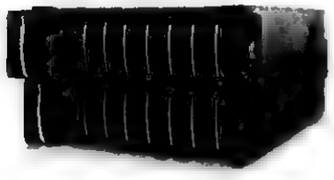


USB memory devices like Sony Corp.'s Memory Stick pose a bigger threat, Cincera says, describing them as "the floppy disk of our generation." But he argues that obsessing about the legions of tiny digital devices hitchhiking in and out of your company won't lead to a more secure environment. "The bigger issue is how companies let people get access to data," he says. "We're haphazard about it." Cincera suggests that a good way to start better managing data security is to let "the information owner control the access and the risk." Trying to centrally control access beyond simple log-on processes is doomed because of the complexity involved, he says. Finer controls, such as policies on copying and sending information, need to rest with business units, in his view. That makes good business sense and takes the monkey off IT's back. **50535**



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Sun, Microsoft to End Silence About Product Integration Work

Initial focus is on support for single sign-on, directories

BY PATRICK THIBODEAU

MICROSOFT CORP. and Sun Microsystems Inc. plan to detail their initial product integration efforts late this month, focusing on directory services and single-sign-on capabilities.

Both sides confirmed the announcement plans last week, but only Sun officials would discuss any of the expected content. And they wouldn't disclose specifics about the directory and single-sign-on initiatives, which Sun previously identified as the most likely candidates for an initial interoperability demonstration.

The announcement will be watched with interest by users such as Lou Michael, director of core networks for the Arlington County, Va., government. Michael is considering replacing his PCs with Sun's Sun Ray thin-client devices. But one of the issues holding him back from moving off of Windows-based systems is his reliance on Microsoft's Active Directory.

Michael, whose network includes about 3,500 desktop and laptop PCs, said he doesn't want to have to support both Active Directory and Sun's Java Access Manager directory. "I'm hopeful that they will work together and integrate it," so either directory can handle both types of systems, Michael said.

He added, though, that he's skeptical about how deeply the two rivals will link their systems to each other's directories. His fear is that Sun and Microsoft may limit themselves to plans that accomplish integration at a high level but still require the use of both directories.

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Microsoft and Sun settled an acrimonious legal dispute last spring and said they planned to integrate their products to make it easier for users to adopt technologies from both companies [QuickLink 45957]. Since then, the two vendors have said little about their progress. They missed a summer target set by Sun CEO Scott McNealy for detailing their initial collaborative work, and an October announcement promised by another Sun executive in September also failed to materialize.

Jim Desler, a Microsoft spokesman, said last week that the companies should be judged on what they accomplish "over the course of the next five to 10 years." Desler added that the seven months since the settlement deal was signed "have been very positive in terms of setting up the relationship in a way that will serve not only the companies but the industry and customers over the course of the long term."

Finding Time

Larry Singer, vice president of Sun's global information systems strategy office, said the two companies have been working on a variety of issues, including interoperability, joint initiatives and standards. "There's a lot going on," Singer said. "The big deal is negotiating dates for announcements."

But users, resellers and analysts said that without a road map, they can't be sure of exactly what the agreement will deliver.

Anthony Martini, founder and chief technology officer at DigiGAN Inc., a Monroe, Conn.-based firm that does network security-related integration work for government agencies, said he wants to see Microsoft improve its support for Java. "But I don't know if the politics are going to get out of the way to allow change," he said.

However, there is also a recognition among observers that it will take time to finalize the interoperability plans because Sun and Microsoft have been at odds for so long.

"You have to wait until all the walls come down and agreements are in place before they can talk and brainstorm about what are all the possibilities between them," said Frances Draper, vice president of the Sun Business Group at GE Access, a General Electric Co. subsidiary that serves as a value-added distributor for about 800 Sun resellers.

50577

Sun, OpenOffice Plan to Make Desktop Apps More Like Office

SUN DOESN'T NEED to wait for any agreements with Microsoft to make its StarOffice desktop applications more compatible with Microsoft Office. And the level of compatibility is expected to increase in a new StarOffice version that's due next year.

The StarOffice code is largely developed by OpenOffice.org, a group that Sun formed in 2000 to create an open-source version of the software suite, which the company had acquired when it bought a German vendor a year earlier. OpenOffice.org plans to release Version 2.0 of its namesake applications in March with improved Office interoperability features, and Sun will quickly follow with a similar release of StarOffice, called Version 8, said officials from the two organizations.

Sun says there is a growing number of StarOffice adopters in Europe and Asia. But in the U.S., use by large commercial enterprises remains limited, said Gartner Inc. analyst Michael Silver. Two years ago, Gartner estimated that StarOffice had a slightly better than 50-50 chance of taking 10% of the office productivity suite market in the U.S. from Microsoft by the end of this year. But Silver last week estimated that StarOffice's market share is still somewhere in the "low single digits."

Silver said users don't want mixed environments running OpenOffice or StarOffice along with Word and other Microsoft applications. A product that can unseat Office isn't going to sell itself on file format compatibility or lower total cost of ownership, he said, adding that what's needed is something "that really takes us to a whole other level of how users get their work done."

The city of Largo, Fla., deployed OpenOffice one year ago to about 500 employees who use thin clients connected to a Linux server that runs a single copy of the software. "OpenOffice will cover just about anything you want to do," said Largo CIO Harold Shoemaker.

He added that the open-source alternative supports the majority of imported Office files except for documents or spreadsheets with Visual Basic macros, which don't operate on Linux. But Visual Basic issues aren't frequent for Largo's end users, Shoemaker said. One other problem he cited is that OpenOffice doesn't read PowerPoint applications well.

In terms of OpenOffice's cost, Shoemaker said the city "didn't have to buy it" but did have to invest in user training. But there would have been training expenses no matter what product Largo officials decided to use, he said.

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While StarOffice shares the same code base with OpenOffice, Sun includes technical support as well as enterprisewide management and security features designed for corporate users, said Manish Punjabi, group marketing manager for the two products.

– Patrick Thibodeau

Planned Features

The OpenOffice and StarOffice upgrades will include these enhancements:

- Improved bulleting, numbering and table compatibility with Word
- More similarities between Office and Impress, the software's PowerPoint equivalent
- Faster application loading
- Support for XML file format standards developed by OASIS

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SCO Reconsiders Lawsuits Web Site

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MCI Reports Loss, Writes Off Assets

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Short Takes

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Grid Storage Vision Appeals to IT Managers

Modular arrays with nondisruptive scalability popular

BY LUCAS MEARIAN

STORAGE VENDORS are taking a cue from the server world of grid computing and building modular array systems that can nondisruptively grow processing power along with capacity.

Next week, Sunnyvale, Calif.-based Network Appliance Inc. plans to come out with upgrades and enhanced features for its Storage Grid architecture, a set of disk arrays and switches that pool processing and storage capacity among network-attached storage (NAS) servers.

Storage suppliers of all sizes are using a variety of technologies and strategies to get grid storage systems into corporate data centers.

IBM is "heavily invested" in grid storage as part of an overall grid computing strategy that uses virtualization technology to knit together disparate storage, network and server systems, said Tom Hawk, general manager of enterprise storage systems at IBM.

Over the next year, Hewlett-Packard Co. said it will build on its StorageWorks grid products, which aggregate CPU and capacity under a single console view, to address file serving, archiving and storage management.

But despite all the work on such systems so far, "no one has proven to me they've completed the invention of core grid architecture," said Robert Gray, an analyst at IDC in Framingham, Mass.

Starting Small

The most popular systems today are smaller grid storage products that use low-cost parallel or Serial ATA disks and can operate at the block or file level and aggregate RAID controllers and capacity. The arrays load-balance among self-contained storage modules, allowing performance to grow in a linear manner, because each new module brings not only additional capacity but additional CPUs as well, vendors and analysts said.

Smaller vendors hawking grid-style systems include 3PARdata Inc. in Fremont, Calif., Cloverleaf Communications Inc. in Southboro, Mass., Xiotech Corp. in Eden Prairie, Minn., ExaGrid Systems Inc. in Westboro, Mass., Tsunami Research Inc. in St. Louis, and Isilon Systems Inc. in Seattle. Most of the smaller suppliers pitch boxes to small and midsize companies that need low-cost storage networks to replace direct-attached storage environments there.

Effective grid storage provides:

- A single management view
- Aggregated storage capacity
- Aggregated controller performance
- Nondisruptive scalability
- Simple setup

"The investment wasn't that huge, and I liked the speed of grid storage," said Phil Jache, deputy director of technology at *Sports Illustrated* magazine in New York, which purchased a NAS server from Isilon this year to consolidate file servers.

Jache said the box, which has a capacity of about 6.5TB, performed flawlessly during this summer's Olympic Games, storing 250,000 photos and delivering them to editors with lightning-fast read/write speeds.

Clustered storage systems from start-up LeftHand Networks Inc. in Boulder, Colo., operate at the block, not file, level by using the iSCSI protocol. By using iSCSI, LeftHand takes advantage of the ubiquitous IP Ethernet networks to back up and restore data to application servers.

Chris Scholik, network services manager at ALSAC/St. Jude Children's Research Hospital in Memphis, said he purchased a 6TB array based on grid computing technology from LeftHand two years ago to consolidate his server infrastructure. He gives the box high marks for ease of use and affordability.

Randy Kerns, an analyst at Evaluator Group Inc. in Greenwood Village, Colo., predicted that grid disk storage will someday meet enterprise requirements.

Other analysts see grids extending beyond the data center and into the WAN, using object-based storage that marries metadata with information that can be instantly retrieved from wherever it's stored.

IDC's Gray said he expects that storage grids will eventually connect heterogeneous arrays across WANs through a single interface. **50569**

Vendors Take Different Paths to Grid Storage

WHILE there are significant differences between various grid storage systems, they all perform one task: aggregating CPU processing power, storage capacity and the ability to grow seamlessly.

Vendors are lumping the terms *virtualization*, *clustering* and *grid* together into one technology marketing pile and calling it grid storage.

And while "any of those terms work" to describe grid computing, said Randy Kerns, an analyst at Evaluator Group, true grid storage must address RAID controller and capacity integration issues.

Close to a dozen smaller vendors, such as LeftHand Networks and 3PARdata, take somewhat different paths to reach the same goal. "The big difference between 3PAR and LeftHand is that [3PAR] has storage controllers clustered together and a pool of storage those controllers can access. LeftHand has nodes that contain the storage," Kerns said.

Larger storage vendors, such as Hewlett-Packard, IBM and Network Appliance, are all knitting together more distributed storage-area network (SAN) environments through open standards, common interfaces and virtualization technology that can link uncommon systems.

Network Appliance's grid storage architecture uses disks, filer heads or engines, switches and its Data Ontap operating system to enable serving mixed SAN and NAS workloads.

"[Start-up vendors' grid systems] are microcosm implementations of what is truly the macrocosm challenge most enterprises face," said Tom Hawk, general manager of enterprise storage systems at IBM. "They're nice, simplistic point solutions, but they have to be integrated into an enterprise infrastructure."

Hawk said most IBM customers are tackling grid storage and grid computing from an architectural standpoint in order to better utilize existing systems as IBM looks at information grids in a larger context – the context of the WAN.

Over the next year, HP will focus on giving its "smart cells" – all-in-one modules with controllers, storage and software –the ability to serve up block-level data from databases, integrated heterogeneous array controllers and grid-based storage management.

– *Lucas Mearian*

BRIEFS

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Vendors Take Different Paths to Grid Storage

WHILE there are significant differences between various grid storage systems, they all perform one basic aggregating CPU processing power, storage capacity and the ability to grow seamlessly.

Vendors are lumping the terms *virtualization*, *clustering* and *grid* together into one technology marketing pile and calling it grid storage.

And while "any of those terms work" to describe grid computing, said Randy Kerns, an analyst at Evaluator Group, true grid storage must address RAID controller and capacity integration issues.

Close to a dozen smaller vendors, such as LeftHand Networks and 3PARdata, take somewhat different paths to reach the same goal. "The big difference between 3PAR and LeftHand is that [3PAR] has storage controllers clustered together and a pool of storage those controllers can access. LeftHand has nodes that contain the storage," Kerns said.

Larger storage vendors, such as Hewlett-Packard, IBM and Network Appliance, are all knitting together more distributed storage-area network (SAN) environments through open standards, common interfaces and virtualization technology that can link uncommon systems.

Network Appliance's grid storage architecture uses disks, filer heads or engines, switches and its Data Ontap operating system to enable serving mixed SAN and NAS workloads.

"[Start-up vendors' grid systems] are microcosm implementations of what is truly the macrocosm challenge most enterprises face," said Tom Hawk, general manager of enterprise storage systems at IBM. "They're nice, simplistic point solutions, but they have to be integrated into an enterprise infrastructure."

Hawk said most IBM customers are tackling grid storage and grid computing from an architectural standpoint in order to better utilize existing systems as IBM looks at information grids in a larger context – the context of the WAN.

Over the next year, HP will focus on giving its "smart cells" – all-in-one modules with controllers, storage and software –the ability to serve up block-level data from databases, integrated heterogeneous array controllers and grid-based storage management.

– *Lucas Mearian*



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IBM Preparing to Bring Out Services Bundle for WebSphere

Package aims to tie business goals to IBM technology investments

BY HEATHER HAVENSTEIN

IBM will soon begin offering bundled services that executives said will help users in vertical sectors like banking and insurance map business processes into service-oriented architectures (SOA) using IBM WebSphere technologies, *Computerworld* has learned.

In the coming weeks, IBM will take the wraps off its Service-Oriented Modeling initiative, described as a package of services that can provide IT managers with an analysis of business processes to identify those that are core to the enterprise. At the same time, the bundled services can be used to create methods that can be folded into an SOA by using IBM's underlying architecture and applications, said Michael Liebow, vice president of Web services for IBM's Global Services unit.

In some cases, users may opt to outsource to IBM Global Services those processes that are not core or unique to the business, he added. "The areas that don't produce any differentiation are the areas that are sucking you dry relative to costs," Liebow said. "What you're trying to do is balance the things that drive value for the organization and those that are common or undifferentiated."

IBM will offer bundled services tailored for several sectors, including banking, insurance, consumer goods, retail and government, he said.

The University of North Carolina at Chapel Hill's Laboratory for Molecular Modeling worked with IBM to develop a reference architecture. That project enabled it to integrate 12 applications that researchers use for drug discovery efforts into an SOA using IBM's WebSphere platform and DB2 database technology.

As a result, researchers now have faster access to molecular data in the databases. In addition, remote scientists can access the system via the WebSphere portal, according to UNC officials.

"They have provided us with an architecture to connect individual programs together and develop a single workflow where input and output of individual programs are connected," said Alex Tropsha, professor of medicinal chemistry and director of the lab. "We have realized that a lot of things that we do will become much more efficient if we organize them in a workflow. Help from IBM in this area was critical."

IBM's new initiative comes on the heels of BEA Systems Inc.'s unveiling last week of bundled services that executives there said will help BEA WebLogic users build SOAs for tackling common enterprise pain points like customer service.

Infrastructure companies like IBM and BEA increasingly are finding that to entice users to buy their products, they must provide these bundled services to link their technology to concrete business value, said Eric Austvold, an analyst at AMR Research Inc. in Boston.

"It's easier for the business professionals that approve IT expenditures to understand why the infrastructure software is necessary and how it aligns with their corporate business strategy," he said. "Gone are the days when an IT organization's budget was based on an assumed fixed percentage of revenue. Today, it's a zero-sum game. . . . Every project needs business justification." **50587**

Service-Oriented Modeling Initiative

WILL TARGET banking, insurance, consumer packaged goods, retail, government and other sectors.

DESIGNED TO PROVIDE bundled services to help enterprises identify business processes core to the business and determine how they can be folded into an SOA.

WILL BUILD off the success of IBM's Service Provider Delivery Environment, a 2-year-old technology framework being used by 22 of the largest 23 telecommunications companies to streamline service development.

Top Execs Slow to See Need to Manage IT Assets

To get support, start small and show results, experts say

BY THOMAS HOFFMAN

Mounting regulatory requirements such as the Sarbanes-Oxley Act of 2002 have helped convince some corporate executives to at least pay attention to the need for IT asset management practices. Nevertheless, several attendees at a recent IT asset management conference said that attaining executive buy-in and funding for asset management programs remains a big challenge.

"We have not even attempted to sell senior management as of yet. Senior management does not even have a good idea as to what IT asset management means," said Steve Whelan, manager of asset management at PG&E Corp. in San Francisco, parent of Pacific Gas and Electric Co.

Before Roger Gray recently stepped down as CIO for the utility, said Whelan, "he was beginning to understand" the importance of IT asset management. "But to my knowledge, he had not carried the message any higher" into PG&E's executive ranks, Whelan added.

Whelan surmised that the next CIO — PG&E is still going through the recruiting process — will have some background in IT asset management but that the education process "will begin where Roger left off."

That maps with what many other IT asset managers are encountering. "Executive buy-in on asset management is a big issue," said Barbara Rembiesa, president of International Association of Information Technology Asset Managers Inc., a for-profit user association in Akron, Ohio, that held its annual conference for asset managers two weeks ago.

To help raise executive awareness of IT asset management and its benefits, the user association is planning to conduct a series of executive briefings and "webinars" in 2005, Rembiesa said.

Attendees at the conference said it can be difficult for IT managers to convince senior management that an upfront investment in personnel and software tools to track hardware and software assets can yield both immediate and long-term cost savings.

According to Frances O'Brien, an analyst at Gartner Inc., companies that systematically manage the life cycles of their IT assets can reduce the cost per asset by as much as 30% in the first year and 5% to 10% annually over the next five years.

"The people at the top have to buy into what you're suggesting to them," said Mark Rosenbaum, customer service and quality assurance division manager for the IT services group at the Arizona Superior Court, a division of the Pima County Government in Tucson. "You have to convince them of the need to change the culture" and adopt sound IT asset management practices, he said.

That also means getting senior management to practice what you preach as an asset manager, said Rosenbaum. He recommends taking steps to ensure that senior executives themselves are in full compliance with software usage. If they aren't, Rosenbaum said, "you need to find a tactful way to say, 'Dude, you have to clean up your act.'"

IT asset managers also must enforce software license compliance throughout the ranks, added Rosenbaum. Compliance requirements that lack teeth, he said, lead to wasted time and effort. **50550**

TIPS

Selling Asset Management to Executives

- **Put together a well-conceived business plan** that includes the costs of dedicating personnel and software to IT asset management as well as the estimated return on investment.
- **Cite case studies of other organizations** – especially competitors – that have achieved success with IT asset management programs.
- **If senior management isn't willing to fund an extensive asset management program, start with a small project,** such as tracking desktops within a particular department, and present the results and savings afterward.

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Continued from page 1

E-voting

president of the Information Technology Association of America, an IT industry lobbying group in Arlington, Va.

Britt Kauffman, president and CEO of Austin-based Hart InterCivic Inc., whose e-Slate touch-screen systems were used in nine states, said all the reports he has seen point to a "relatively smooth Election Day" for the millions of voters who cast electronic ballots.

But voter monitoring groups posted accounts of incidents that they said show the need for nationwide technical and procedural e-voting standards.

The lack of standards and the inability to verify vote tabulations has created a potentially flawed election process, some critics claimed.

"We need some way of assessing what has happened after the fact," said Peter Neumann, principal scientist at SRI International's Computer Science Laboratory in Menlo Park, Calif., and chairman of the National Committee for Voting Integrity (NCVI), a Washington-based advocacy group. "It is extremely difficult to determine what happened because there is an absence of accountability and auditing in those machines."

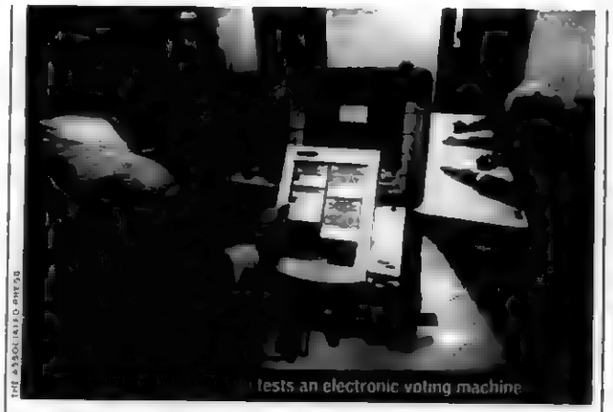
Doug Jones, an NCVI member and an associate professor of computer science at the University of Iowa in Iowa City, said voting "went remarkably smoothly, considering that we had record turnout and considering that it was scrutinized with more intensity then I can remember." But he said little is known about what can go wrong when people use e-voting systems.

"All we can do is compare the number of ballots with the number of votes recorded and wonder, 'Why did people come to the polling place to cast a blank ballot?' " Jones said.

The use of e-voting machines that don't produce a paper record of votes "is the most perplexing thing I've ever seen," said Lillie Coney, NCVI coordinator and a senior policy analyst at the Electronic Privacy Information Center in Washington. Part of the problem lies with state and local election officials who aren't savvy IT buyers, Coney contended. "They're relying strictly on what their vendors tell them," she said. "If their vendors tell them it's secure, it's secure."

Avi Rubin, a computer science professor at Johns Hopkins University in Baltimore, volunteered as a poll worker in Timonium, Md., last Tuesday. An NCVI member and a critic of the security controls built into e-voting software, Rubin claimed that Diebold Inc. touch-screen systems at the polling place were left unattended overnight on the eve of the election and were configured by two election officials from the same political party.

Rubin said there currently is no way to know if someone has tampered with e-voting ballots. "If you drive without a seat belt, as we did in this election, and you don't crash, that doesn't mean you should conclude that it is safe to drive that way," he said.



tests an electronic voting machine

Michigan plans to install optical scanning equipment in all 5,300 of its precincts by 2006, said Ken Silfven, a spokesman for the secretary of state's office. Voting on touch-screen systems went smoothly at 23 precincts in a single county last week, Silfven said. But he added that optical scanning is being adopted statewide to standardize voting equipment and address concerns about the need for a paper trail.

On the other hand, South Carolina officials plan to expand the use of iVotronic touch-screen systems from Election Systems & Software Inc. to all of the state's 46 counties beginning next year, said Marci Andino, executive director of the South Carolina State Election Commission. About 5,000 of the machines, which can store images of all electronic ballots in case recounts are ordered, were used in 15 counties last week.

Voters in a handful of precincts had to switch to paper ballots at the start of voting because of mistakes by poll workers that were quickly resolved, Andino said. "None of the problems were from machine failures," she said, adding that the e-voting systems performed "exceptionally well." **50574**

Todd R. Weiss and Heather Havenstein contributed to this story.

READ MORE ONLINE

Clogged systems: The Verified Voting Foundation had to add Web servers after its online database of incident reports slowed to a crawl. **QuickLink 50511**

Opinion: Without a paper trail, there's no way to verify the accuracy of e-voting systems, writes Sharon Machlis: **QuickLink 50519** www.computerworld.com

E-voting Snafus Limited in Scope, Severity

REPORTS OF E-VOTING system malfunctions began trickling into various independent monitoring organizations almost as soon as the polls opened last Tuesday. But state officials characterized most of the problems as small-scale snafus.

One of the most serious confirmed glitches was the case of 4,532 missing votes at a precinct in Carteret County, N.C. Gary Bartlett, executive director of the North Carolina State Board of Elections, said Friday that officials were still trying to retrieve the ballots from the storage units of touch-screen systems made by UniLect Corp. in Dublin, Calif.

A total of 7,537 people were listed as having voted at the precinct, but the machines recorded only 3,005 votes. Bartlett said that it wasn't clear why the missing votes weren't accounted for and added that state officials have called on UniLect to "use every possible resource to retrieve those ballots."

The candidates in two unresolved statewide races were within several thousand votes of each other late last week. Bartlett said it was too soon to speculate about what state officials would do if the missing votes in Carteret County can't be retrieved. "It's a big question mark," he said.

Several other states reported less-severe problems. For example, Georgia used Diebold AccuVote-TS touch-screen systems in all of its 159 counties. Only two counties reported problems, according to Cara Hodgson, a spokeswoman for the secretary of state's office. She said that election officials in Twigg and Hancock counties had early-morning difficulties programming the correct ballots into some of their systems.

The encoders built into the balky systems "were still encoded for the primaries, and they hadn't been updated," Hodgson said. She added that the two counties issued provisional paper ballots until the system problems were resolved. Otherwise, the state had a "very smooth" day, she said – a change from elections in 2002 and last year, in which some Diebold systems locked up, registered "yes" when people voted "no" on ballot questions and displayed the wrong races.

Officials in Louisiana reported "minimal" problems, said Scott Madere, a spokesman for the secretary of state's Elections Office.

Orleans Parish, which includes New Orleans, used 829 AVC Advantage touch-screen devices from Sequoia Voting Systems Inc., and parish officials placed about 30 machine-related service calls on Tuesday, Madere said.

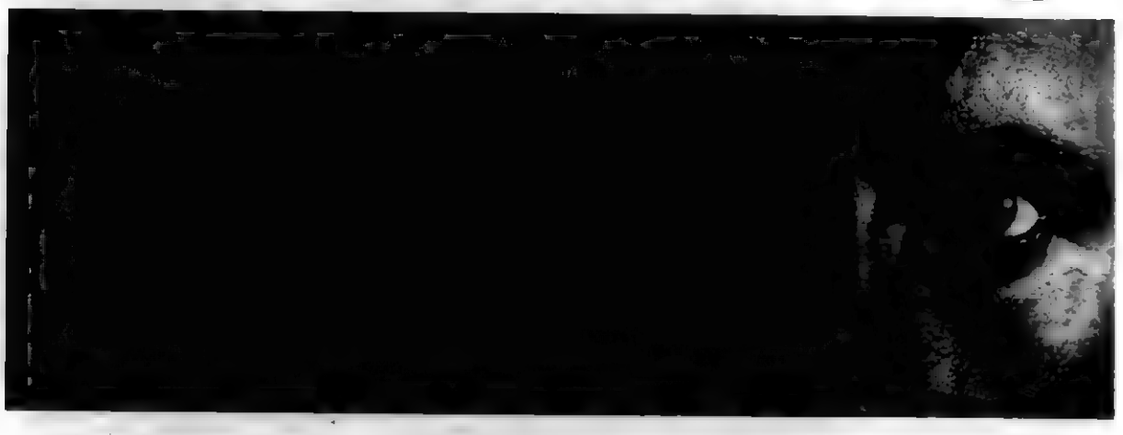
Twenty-four of the calls were for problems that required minor repairs, while the other six led to machines being replaced. But three of the replaced systems were inadvertently turned off by poll workers and couldn't be restarted, Madere said. The other three had technical problems that were "bad enough to pull [them] off-line," he said, but he added that parish officials were able to retrieve all the ballots cast on those systems.

In Ohio, there were no apparent problems in the seven of the state's 88 counties that use touch-screen systems, according to James Lee, a spokesman for the secretary of state's office.

Officials in Pennsylvania, Wyoming, Kentucky and Iowa also said that they hadn't received reports of problems with touch-screen systems or other automated voting machines. However, Dallas County in Iowa opted not to use its e-voting systems out of fear of potential malfunctions, said Anthony Carroll, voter outreach coordinator in the secretary of state's office.

– Matt Hamblen, Heather Havenstein, Linda Rosencrance, Marc L. Songini, Dan Verton and Todd R. Weiss

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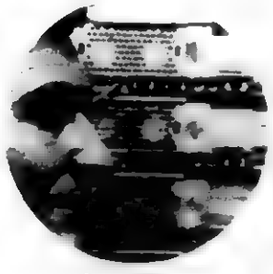
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GLOBAL

An International IT News Digest

Some Suppliers Meet Metro's RFID Deadline

DÜSSELDORF, GERMANY

TWENTY SUPPLIERS have begun shipping products on pallets that are tagged with radio frequency identification chips to more than 270 stores operated by Metro AG, the German retailer said last week.

Metro, the world's fifth-largest retailer, initially planned to have more than 100 suppliers using RFID tags by Nov. 1 but fell short of that goal. "Not everyone is ready yet, but our plan is definitely to have all suppliers convert quickly to RFID technology in the areas of shipping and warehousing," said Metro spokesman Jürgen Homeyer.

Suppliers such as Colgate-Palmolive GmbH, Kraft Foods Deutschland GmbH, Nestlé Deutschland GmbH and Procter & Gamble GmbH met the November deadline.

Beginning early next year, Metro will require suppliers to affix RFID tags to other types of transport packaging, such as cases and crates, Homeyer said. Eventually, the tagging will be extended to individual products, he added.

Metro, which operates more than 2,300 stores, has tested RFID tags for more than a year at its Extra Future Store in Rheinberg, Germany.

■ JOHN BLAU, IDG NEWS SERVICE



Average number of IT services workers that India's Wipro Ltd. adds every month.

Doctors Call for Input On U.K. Health Project

LONDON

THE BRITISH MEDICAL ASSOCIATION (BMA) last week urged leaders of the U.K. National Health Service's IT infrastructure modernization project to consult more with doctors and other health care workers who will use the new technology.

"So far, the level of engagement and consultation with the medical profession has been wholly inadequate," Dr. John Powell, chairman of the BMA's IT committee, said in a speech here. "There is no point investing billions of pounds in systems that do not have the confidence of users."

An NHS spokeswoman said the IT project team consults with thousands of doctors and nurses daily, but she conceded that there's room for improvement in the process. The massive 10-year project includes development of a database that will contain electronic health records for about 50 million patients in England and be accessible by 30,000 doctors.

■ LAURA ROHDE, IDG NEWS SERVICE

Indian Firm Acquires Tyco's Undersea Fiber

BANGALORE, INDIA

VIDESH SANCHAR NIGAM LTD., a Mumbai, India-based network services provider, last week announced that it's acquiring the Tyco Global Network, the world's largest undersea fiber-optic network, from Tyco International Ltd. for $130 million.

The deal, which requires regulatory approval, would give VNSL a network that spans 37,208 miles and three continents. Analysts said VNSL, a sister company of Mumbai-based Tata Consultancy Services Ltd., is trying to move beyond its customer base in India and offer data bandwidth on a global basis to major corporations.

Pembroke, Bermuda-based Tyco put the network up for sale as part of a restructuring. **50522**

■ JOHN RIBEIRO, IDG NEWS SERVICE

Compiled by Mitch Betts.

Briefly Noted

India's government is making it easier to register Internet addresses with the ".in" top-level country domain, in hopes of boosting the country's identity on the Internet. Dayanidhi Maran, minister for information technology and communications, urged India's webmasters to use the .in domain as a gesture of patriotism.

■ JOHN RIBEIRO, IDG NEWS SERVICE

Information Society Index

Denmark displaced Sweden at the top of IDC's annual ranking of countries based on their IT capabilities. Factors include the number of households with PCs, IT spending, Internet usage, broadband and wireless network adoption, education and civil liberties.

1. Denmark	6. Netherlands
2. Sweden	7. Finland
3. U.S.	8. Korea
4. Switzerland	9. Norway
5. Canada	10. U.K.

SOURCE: IDC FRAMINGHAM MASS. NOVEMBER 2004

Open-Source Path Not an Option for Oracle, Exec Says

BY JOHN RIBEIRO
BANGALORE, INDIA

Oracle Corp. has no plans to create an open-source version of its database and file systems technologies, despite recent moves in that direction by competitors. **Robert Shimp**, *Oracle's vice president of technology marketing, discussed these and other issues with the IDG News Service last week at Oracle OpenWorld Mumbai in India.*

Computer Associates started distributing the Ingres database under an open-source license, and Sybase offers its database free to Linux users. Does Oracle need to do something similar for the open-source user? We have no plans to either open-source or make our products available for free.

Does Oracle still believe that the typical open-source user is price-sensitive and therefore can't afford Oracle products? We have extremely competitive pricing on our entry-level products, like the Standard Edition One product, that are at a list price of $149 per user. This price is highly competitive with open-source databases, which charge a great deal more for their support services.

Yet haven't companies like MySQL been cutting into your market share at the low end with open-source databases? MySQL does not claim the same database market as Oracle. Their product is used typically in the middle tier for storing data such as catalogs or Web sites and things like that. In fact, open-source database products are a good thing for Oracle, because they give a lot of users their first exposure to relational databases and give them an opportunity to learn about the technologies.



Why do you think companies like CA are open-sourcing databases? There are more than two dozen different database companies out there. Some are open-sourcing very old technologies in an effort to rejuvenate their business and grow shrinking market share. I don't see that as very viable.

Now that Red Hat has released Sistina Global File System under the GNU General Public License, do you need to continue updating your cluster file system? We believe that by providing the complete technology infrastructure, including the cluster file system, it is easier to install and maintain our products. The cluster file system is an important component of our clustering technology. In order to make it easier and simpler for our customers to install their products and maintain them, we want to provide a complete technology stack.

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Ribeiro is a reporter for the IDG News Service.

GLOBAL

An International IT News Digest

Some Suppliers Meet Metro's RFID Deadline

DÜSSELDORF, GERMANY

TWENTY SUPPLIERS have begun shipping products on pallets that are tagged with radio frequency identification chips to more than 270 stores operated by Metro AG, the German retailer said last week.

Metro, the world's fifth-largest retailer, initially planned to have more than 100 suppliers using RFID tags by Nov. 1 but fell short of that goal. "Not everyone is ready yet, but our plan is definitely to have all suppliers convert quickly to RFID technology in the areas of shipping and warehousing," said Metro spokesman Jürgen Homeyer.

Suppliers such as Colgate-Palmolive GmbH, Kraft Foods Deutschland GmbH, Nestlé Deutschland GmbH and Procter & Gamble GmbH met the November deadline.

Beginning early next year, Metro will require suppliers to affix RFID tags to other types of transport packaging, such as cases and crates, Homeyer said. Eventually, the tagging will be extended to individual products, he added.

Metro, which operates more than 2,300 stores, has tested RFID tags for more than a year at its Extra Future Store in Rheinberg, Germany.

■ JOHN BLAU, IDG NEWS SERVICE



Doctors Call for Input On U.K. Health Project

LONDON

THE BRITISH MEDICAL ASSOCIATION (BMA) last week urged leaders of the U.K. National Health Service's IT infrastructure modernization project to consult more with doctors and other health care workers who will use the new technology.

"So far, the level of engagement and consultation with the medical profession has been wholly inadequate," Dr. John Powell, chairman of the BMA's IT committee, said in a speech here. "There is no point investing billions of pounds in systems that do not have the confidence of users."

An NHS spokeswoman said the IT project team consults with thousands of doctors and nurses daily, but she conceded that there's room for improvement in the process. The massive 10-year project includes development of a database that will contain electronic health records for about 50 million patients in England and be accessible by 30,000 doctors.

■ LAURA ROHDE, IDG NEWS SERVICE

Indian Firm Acquires Tyco's Undersea Fiber

BANGALORE, INDIA

VIDESH SANCHAR NIGAM LTD., a Mumbai, India-based network services provider, last week announced that it's acquiring the Tyco Global Network, the world's largest undersea fiber-optic network, from Tyco International Ltd. for $130 million.

The deal, which requires regulatory approval, would give VNSL a network that spans 37,208 miles and three continents. Analysts said VNSL, a sister company of Mumbai-based Tata Consultancy Services Ltd., is trying to move beyond its customer base in India and offer data bandwidth on a global basis to major corporations.

Pembroke, Bermuda-based Tyco put the network up for sale as part of a restructuring. **50522**

■ JOHN RIBEIRO, IDG NEWS SERVICE

Compiled by Mitch Betts.

Briefly Noted

India's government is making it easier to register Internet addresses with the ".in" top-level country domain, in hopes of boosting the country's identity on the Internet. Dayanidhi Maran, minister for information technology and communications, urged India's webmasters to use the .in domain as a gesture of patriotism.

■ JOHN RIBEIRO, IDG NEWS SERVICE

Information Society Index

Denmark displaced Sweden at the top of IDC's annual ranking of countries based on their IT capabilities. Factors include the number of households with PCs, IT spending, Internet usage, broadband and wireless network adoption, education and civil liberties.

1. Denmark	6. Netherlands
2. Sweden	7. Finland
3. U.S.	8. Korea
4. Switzerland	9. Norway
5. Canada	10. U.K.

SOURCE: IDC, FRAMINGHAM, MASS., NOVEMBER 2004

Open-Source Path Not an Option for Oracle, Exec Says

BY JOHN RIBEIRO
BANGALORE, INDIA

Oracle Corp. has no plans to create an open-source version of its database and file systems technologies, despite recent moves in that direction by competitors. **Robert Shimp,** *Oracle's vice president of technology marketing, discussed these and other issues with the IDG News Service last week at Oracle OpenWorld Mumbai in India.*

Computer Associates started distributing the Ingres database under an open-source license, and Sybase offers its database free to Linux users. Does Oracle need to do something similar for the open-source user? We have no plans to either open-source or make our products available for free.

Does Oracle still believe that the typical open-source user is price-sensitive and therefore can't afford Oracle products? We have extremely competitive pricing on our entry-level products, like the Standard Edition One product, that are at a list price of $149 per user. This price is highly competitive with open-source databases, which charge a great deal more for their support services.

Yet haven't companies like MySQL been cutting into your market share at the low end with open-source databases? MySQL does not claim the same database market as Oracle. Their product is used typically in the middle tier for storing data such as catalogs or Web sites and things like that. In fact, open-source database products are a good thing for Oracle, because they give a lot of users their first exposure to relational databases and give them an opportunity to learn about the technologies.



Why do you think companies like CA are open-sourcing databases? There are more than two dozen different database companies out there. Some are open-sourcing very old technologies in an effort to rejuvenate their business and grow shrinking market share. I don't see that as very viable.

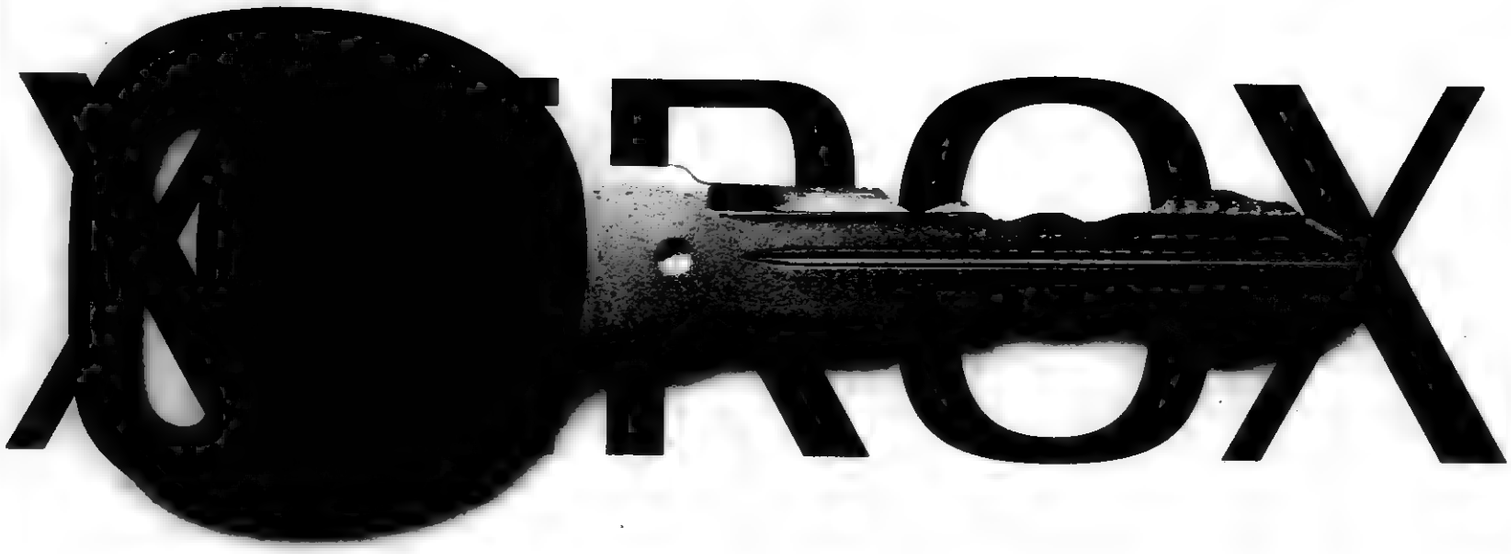
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Mercury Exec Says Measuring Performance of Outsourced Applications Is an IT Challenge

Murphy weighs in on technology complexity and regs compliance

BY THOMAS HOFFMAN

Regulatory compliance, outsourcing and business technology optimization are all top-of-mind issues for IT managers these days. So it's hardly surprising that Mercury Interactive Corp., a Mountain View, Calif.-based provider of software for all three segments, is expecting an attendance boost of close to 50% at its Mercury World 2004 user conference this week in Orlando.

Computerworld *last week caught up with* **David Murphy**, *Mercury's vice president of corporate development, to discuss the key issues faced by its customers.*



What are the top issues your customers are wrestling with these days? There are three things happening that are driving the agendas. One is complexity, meaning the complexity of running IT operationally and the complexity of all of the technology and applications and changes happening in an IT environment. One of the things we hear a lot of is this notion of complexity.

The second one is outsourcing. We're really seeing a lot of companies move to the model of having a whole chain of different third parties helping to manage their operations.

The third one is this whole area of compliance, from a vertical industry level. Industries such as health care are being driven by changes in business compliance that's required.

How do Mercury Interactive's tools and services help customers address these issues? We had *The Economist*'s intelligence unit do a very broad survey of 750 IT execs in 14 countries, a very non-U.S. survey. We also had permission to work with IDC on a survey regarding the business value of IT. [The results of both studies are being released this week at Mercury World.]

The IDC report focuses on three things. In the complexity arena, there is a set of issues that need to be addressed in IT shops to manage the complexity of those applications better. Many applications have poor performance. In many instances, the applications may have been deployed, but as the business evolves, the complexity of upgrading and advancing those applications falls behind.

The second area IDC focused on was that you often don't find very clear performance measurement of the outsourced services being provided. How you make decisions about how things need to change from a change management standpoint tends to be problematic.

In our core product set, we have customers who have outsourced their application development or production environments, and they might be using our Quality Center or Performance Center [products] to help manage these things.

In IT governance [the third IDC report topic], managing change processes from a workflow and procedural standpoint is addressed by our IT Governance Center solution. We announced with [the opening of a Center of Excellence at Wipro Ltd.'s IT services facility in India] a capability around application testing that leverages the IT Governance workflow dashboard.

What else did these studies reveal? The IDC survey pointed out that over 44% of larger companies in North America are having to develop business processes and applications to address compliance requirements. While it's North American data, there's a trend in a lot of geographies now where the role of IT compliance is taking on a very significant part of those responsibilities.

Four out of five respondents in the *Economist* survey said the importance of process improvements and managing from an IT perspective is all tied to the compliance obligations they're having to meet. **50520**

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DON TENNANT

Regaining Relevancy

ONE WEEK FROM TODAY, Sun Microsystems will launch Solaris 10 amid pomp, glitz and circumstance at The Tech Museum of Innovation in San Jose. As the music pounds and the lights flash, the Sun PR machine will likely hail the launch as a turning point in the evolution of operat-

ing systems. Sun users and business partners will likely see it for what it really is: A desperate attempt on Sun's part to retain its relevancy.



Or to *regain* its relevancy, some would argue. The inexplicable paralysis that for so long kept Sun from offering a sensible response to the clamor for low-priced commodity systems has forced it into a game of catch-up that may well be unwinnable. Large enterprises like the Chicago Mercantile Exchange have already developed strategies to wean themselves off of Solaris on Sparc in favor of Linux on Intel [QuickLink 49769]. When the Merc embarked on that course more than a year ago, it really had no choice. "We didn't have a good answer for them," admitted Glenn Weinberg, vice president of Sun's operating platforms group.

Sun has since rushed to deliver systems based on AMD's Opteron processor and Intel's Xeon. And Solaris 10 advances the cause, since it will run on the Opteron in full 64-bit mode. But the odds against Solaris 10 becoming the savior that Sun so intensely wants and needs are high.

The Sun executives on stage next week will almost certainly boast about the near universality of ISV support for Solaris 10. But what you won't hear are some of the stories behind that "support."

The fact is, many ISVs are worried. Sure, they'll release software that supports Solaris 10, but their confidence in Sun is clearly shaken.

TeamQuest, a vendor of IT performance management and capacity planning software, has 60% of its installed base running Solaris, and Sun is a reseller of its products. But Mike Ellis, TeamQuest's executive vice president of worldwide sales and marketing, appears almost distraught when the subject of Sun arises. "Sun is in a bit of a mess internally," Ellis said during a discussion I had with him last month. He said TeamQuest is doing its best to shift resources to partner with IBM and to make its software a complement to Tivoli across all IBM product lines.

And Ellis hasn't seen his customers plan moves to Solaris 10, because it's too complicated. "Trying to reinvent z/OS doesn't make sense to me," he said. But that's what he thinks Sun's upgrade attempts to do. "I don't think anyone is looking for more complexity."

SAS Institute is another Sun ISV that will support Solaris 10. The companies are longstanding partners, and Solaris has historically been the top Unix platform for SAS software. But again, when you listen to what the senior executives are really saying, a different picture emerges. Last month, I spoke with SAS CEO James Goodnight, who left me with the impression that he no longer considers Sun to be the strategic partner it once was.

"I haven't even kept track of the Sparc chip lately," Goodnight said. "The Sun has sort of faded out." He cited high-level infighting at Sun over the issue of Solaris on Intel and suggested that the damage may be irreversible despite Sun's change of heart. "I sort of think it might be too late," he said.

For the sake of user choice, we can all hope Goodnight is wrong. Hey, more miraculous comebacks have happened. And Sun isn't even cursed. **50524**

Don Tennant



THORNTON A. MAY

Looking for Creative IT Leaders

CREATIVITY leadership is the new career differentiator for emerging IT leaders. Longtime denizens of the technology demesne are no strangers to the terms *leadership* and *creativity*. It's rare, however, to see the words used together. This will change, according to research coming out of the IT Leadership Academy in Jacksonville, Fla., as we move deeper into an accelerated, creatively destructive, innovation-based economy.

There are libraries full of books on leadership, but people in IT tend not to be featured in those texts. Best-seller wannabes target IT folk as readers of leadership books, not as exemplars that appear in them. This must change. Business school curricula focusing on leadership don't rely heavily on case studies of IT practitioners; more frequently than not, the IT case is used to demonstrate what *not* to do. That may be why IT has such a bad reputation with number-crunching MBAs.



I'm not the first to comment on the eminently improvable state of leadership skills in the IT industry, and I certainly won't be the last. The leadership skills of CIOs' and CTOs' first-, second- and third-level reports are not, by anyone's calculation, complete.

But more significant than the need to top off IT professionals' leadership skills is the fact that what IT must lead is changing. The scope and scale of the IT mission is undergoing a significant transformation. No longer are the folks in IT seen as sequestered wizard-priests tending giant machines in isolated dungeons. We have moved beyond the old focus on back-office processes, and for many organizations, IT has become the major element of customer-touching activities in the front office. IT is at the base of customer experience, all the way from presales to delivery, deployment and billing. But

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the evolution of our profession doesn't end there. The next step for IT is to become an active and significant contributor to the process of product and service design. This puts IT smack-dab in the center of what Richard Florida has called the "creative class."

This sociologist-cum-demographer has provided a valuable service by tracing the boundaries and behaviors of this group of people. His book *The Rise of the Creative Class* (Basic Books, 2003) insightfully demonstrates that 30% of the nation's workforce (about 40 million people) can be bundled together in this class, which consists of individuals making their living in idea- or innovation-based occupations. His colleagues at Carnegie Mellon University estimate that this group accounts for about half of all U.S. wages and salaries — about $1.7 trillion.

What Florida doesn't say explicitly, though it is implied, is that the creative class isn't well led or provided for by existing institutions, even though it will be a force in shaping the future economy. The potential leadership of the future is up for grabs. Part of the grabbing will involve developing the skills necessary to lead.

The IT conversation isn't just about business. Increasingly, it's about the essence of society — how we live our lives. More and more, IT decisions involve not only dollars and cents but public- and foreign-policy considerations as well, as demonstrated by the prominence of issues such as information security, privacy and outsourcing. A little investment in developing the capacity and reputation for creative leadership will pay big dividends in the future. **50450**

PIMM FOX

Next Time, An Internet Electorate

REGARDLESS of whether you're happy with the results of last week's election, one thing we can agree on is that the voting process was much smoother than it was four years ago.

In one way, it doesn't matter, though; the presidential election of 2008 will be held on the Internet. That's where voters are increasingly getting information, and it's where they will cast their votes in a few years.

More than 40% of Internet users have accessed political material during this election cycle. That's a 50% increase from the 2000 election, according to a new survey by the Pew Internet & American Life Project and the University of Michigan's School of Information.



This year, 78% of voters got most of their information on the campaigns from television, the survey found, and more than half relied mostly on radio and newspapers. But the survey also says that the 64% of Americans with broadband connections at home use the Internet and e-mail to learn about current events.

And those people aren't using the Internet to attack those with whom they disagree or simply as a means of avoiding them. Rather, the report says that "wired Americans hear more points of view about candidates and key issues than other citizens."

Indeed, the fact that voters aren't using the Internet to screen out opposing ideas ought to worry the cadre of cynical campaign strategists who regularly rely on a disinterested and divided electorate to win elections. According to the survey, the way people are using the Internet suggests that they will increasingly have greater exposure to arguments that challenge their views.

Imagine that. Internet users are exposed to more views and have greater interest in what other people have to say. That certainly sounds more hopeful than believing that we're doomed to nothing but more bland, repetitive and generally unfocused political rhetoric from candidates and their parties.

The mainstream news organizations ought to be concerned, though.

While 59% of all Internet users access information from major U.S.-based news sources, 18% of Internet users (and a quarter of home broadband users) have logged onto the Web sites of international news organizations such as the BBC or Al Jazeera. Alternative news sources such as AlterNet.org and NewsMax.com are also getting called up (11% of Internet users have visited such sites), as are more partisan sites such as MoveOn.org and the Christian Coalition.

Several years ago, many people said that consumers wouldn't be willing to trade stocks online and that they wouldn't reveal their credit card numbers or other personal information over the Internet. We now know that to be false. In fact, many people today use the Web to easily research investments, test different market scenarios and make decisions about managing their money, all with levels of privacy and security that consistently elude Florida election officials.

What a bright day for the political process if voters could go online and test candidates' positions on the budget deficit, check their voting records in Congress or see exactly where their campaign contributions came from. And how truly revolutionary if on Election Day they could turn their homes into individual polling booths.

Of course, many with vested interests will warn that giving too much power to the citizens could lead to election chaos, lawsuits and allegations of voter fraud. It can't, for one simple reason: We already have those things.

In an age when major retailers and U.S. government agencies such as the IRS routinely use the Internet to conduct business with the public, there is no reason why we can't point and click our way through ballot initiatives, candidate choices and referendums.

Unless, of course, the current crop of politicians and their allies don't want us to.

Clarification: In my Oct. 25 column, I said that Frank Quattrone had been convicted of obstruction of justice because of a single e-mail that "described his activities related to the practice of 'spinning.' " The e-mail in question was actually Quattrone's endorsement of another CSFB executive's instruction to employees to "clean up" their files, an instruction that prosecutors took to be obstruction of justice, since CSFB was then under investigation for spinning. It was inaccurate to say that Quattrone was convicted of the "lesser charge" of obstruction, since he had never been formally charged in the spinning investigation. He was, however, convicted of obstructing a grand jury, obstructing federal regulators and witness tampering. **50462**

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READERS' LETTERS

Regional Traits Do Vary in U.S., Y'all

HAVING GROWN UP in the Midwest, I enjoyed reading Frank Hayes' column predicting success for the "rural sourcing" of IT jobs to the back country of states like Arkansas ["Farmshore Future," QuickLink 49758]. I hope his vision of improved customer experience proves to be right. But his comment that "cross-cultural confusion" or "time-zone differences" are pretty much nonexistent here in the U.S. surprised me. At our company, we have seen many clashes between the style of Northeast urbanites and our slower, more congenial Southern style here in Virginia. Plus, we have the aggravation of having to wait till noon to talk to those sleepyheads on the West Coast. Worst of all, Northerners never seem to get the obvious difference between "y'all" and "all y'all." If Hayes needs to research cross-cultural confusion, I can let him enjoy a slow chat with my small-town Carolina in-laws, just to see how it compares with a support call to New Delhi.

Mark Holt
IT support manager, Media General Inc., Richmond, Va.

Don't Interfere With Microsoft's Sales

THE ONLY WAY that the price of a product should be controlled is in an agreement between a buyer and a seller ["The Color of Microsoft's Money," QuickLink 49271]. A third party has no business dictating the course of that transaction. Microsoft has every right to get as much money as it can for its products. The Justice Department, the European Union, competitors and everyone else who thinks they are "owed" something from Microsoft wish to control and usurp someone's right to his own property.

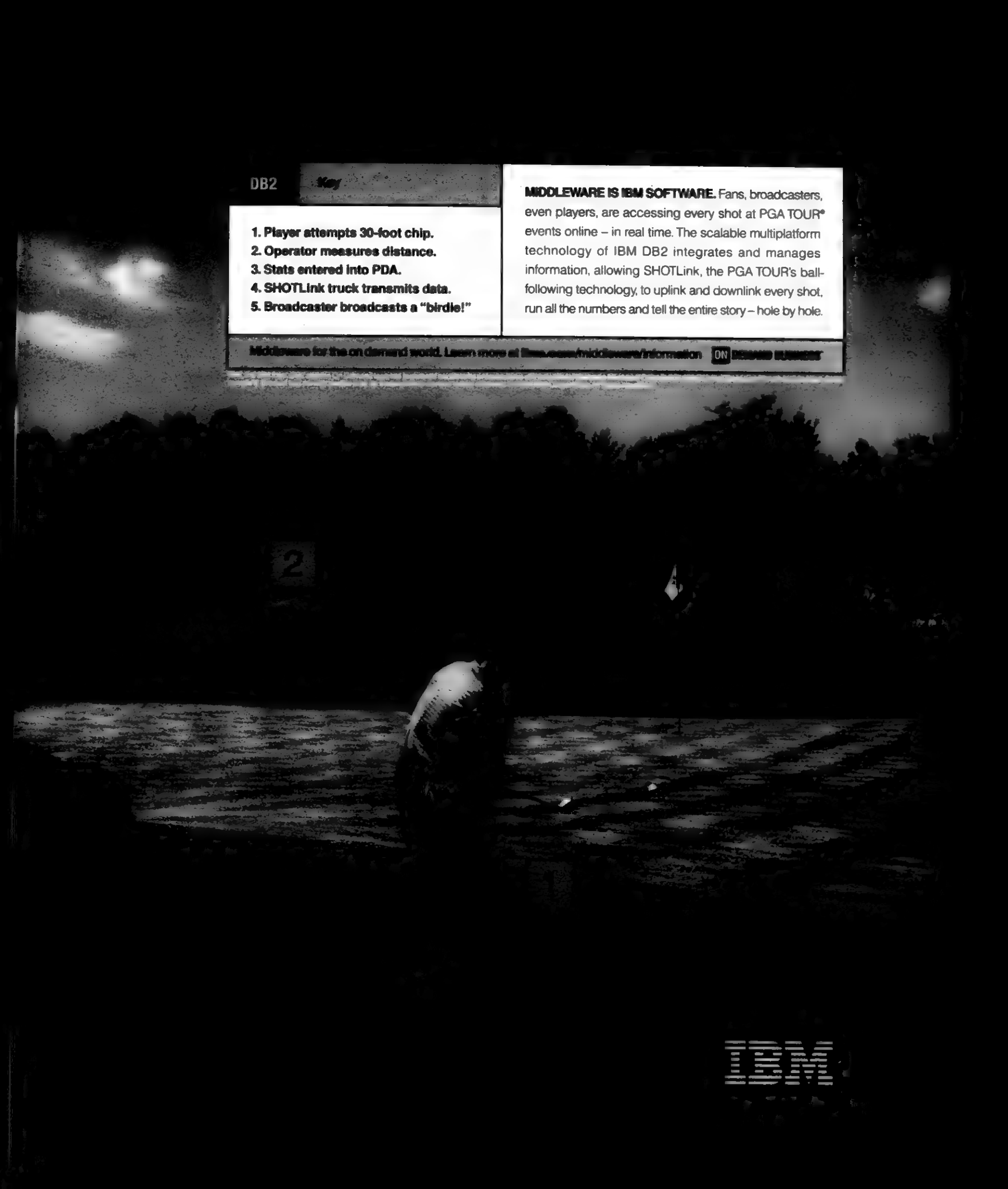
Since bringing Microsoft into any discussion often results in distorted reasoning, let's consider *Computerworld*. Some people get it for free, some don't. Certainly sounds like you get to pick your selling price to each customer. Doesn't Microsoft have the same privilege?

Thys Coetzee
Director of IS, Zinpro Corp., Eden Prairie, Minn., thys@zinpro.com

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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DB2
Key
1. Player attempts 30-foot chip.
2. Operator measures distance.
3. Stats entered into PDA.
4. SHOTLink truck transmits data.
5. Broadcaster broadcasts a "birdie!"
MIDDLEWARE IS IBM SOFTWARE. Fans, broadcasters, even players, are accessing every shot at PGA TOUR® events online – in real time. The scalable multiplatform technology of IBM DB2 integrates and manages information, allowing SHOTLink, the PGA TOUR's ball-following technology, to uplink and downlink every shot, run all the numbers and tell the entire story – hole by hole.
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2
IBM


EMC²
where information lives
Fr: can't afford to
To: can't afford not to
PIZZA
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PIZZA

FUTURE WATCH

Giving Bugs the Boot

Researchers in California are working on a new class of techniques designed not to prevent software flaws, but to recover from them rapidly and transparently. The idea: micro-rebooting on the fly. **Page 40**



Q&A

Crossing Boundaries

Lotus Notes inventor and Groove Networks CEO Ray Ozzie discusses computers as communication tools, and the past and future of collaborative software. **Page 45**

SECURITY MANAGER'S JOURNAL

Taking the Leap to PEAP for Wireless

Mathias Thurman's company still has no formal policies or standards for wireless deployment, but access points seem to double every couple of months. **Page 46**

HANDS ON REVIEWS

BROWSING THE BROWSERS

Microsoft's Internet Explorer is the default Web browser for Windows users, but it may not be the best choice for your organization. **BY RUSSELL KAY**

IT'S SAFE TO say that your browser is probably Microsoft Corp.'s Internet Explorer, since IE installs automatically with Windows or Office. The browser wars of the 1990s are long gone, and Redmond won decisively.

But after the Netscape/IE struggle, a funny thing happened. With no serious competitor, Microsoft stopped development of IE. New versions appear from time to time, but it has been years since IE offered groundbreaking new features. Meanwhile, development of other browsers has continued to the point where many consider them preferable to IE in performance, security, ease of use, added features and even help desk support.

This review looks at IE's principal competitors: Opera from the fjords of Norway and the fraternal twin children of Mozilla. All offer more features, run faster than IE and are available on a variety of operating systems, including Linux, Unix and Mac OS X.

THE MOZILLA TWINS

When Netscape Communications Corp. gave its Communicator code to the public-domain, open-source Mozilla.com project, no one quite knew what to expect. The Mozilla Foundation's developers scrapped the original code and started over to produce efficient, cross-platform software. The Gecko browser and layout engine appeared quickly after the 1998 handover. Since then, several Netscape-labeled browsers have been based on Mozilla code, but these have lagged behind the open-source beta track in features and performance. Mozilla's browser development culminated in the September 2004 release of Version 1.0 of Firefox.

The two major Mozilla products — Netscape Navigator 7.2 and Firefox 1.0. — are mainstream, and the availability of their open-source code can be a real plus for corporate developers.

COMMON CHARACTERISTICS

I really liked the tabbed browsing within Netscape and Firefox; it's easy to open up new tabs, keep numerous pages open simultaneously and switch quickly among them. This is particularly helpful when using a search engine, since you can keep the search results in one tab while looking at pages in a new tab by just right-click-

Continued on page 32



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Continued from page 29

ing on the link. Going back to the search page doesn't require a reload or refresh, as a page-back command would, just a switch in the display window. Also, the ability to open predefined groups of pages with one click can be a real convenience.

Another search aid involves the sidebar, an optional, multifunction panel to the left of the main window that can display bookmarks, history or search results. Just type a word into the sidebar's search box, and links appear below, with the first one opened in a new tab in the main window. You determine which search engine does the fetching. Finally, from any Web page, you can simply highlight a word or phrase, right-click it and select "Web search" from the context menu. It's a fast, smooth operation.

ALIKE AND DIFFERENT

Both Netscape and Firefox automatically import and set up my IE favorites list (a complex tree involving a couple of thousand pages) under the Bookmarks menu. Both browsers include a file manager that lets you download multiple files at once and pause or resume a download. The download managers keep track of all the files you download, with persistent information on date, size and status.

Both browsers offer automatic pop-up blocking, which keeps a lot of annoying ad windows at bay. This feature was available to IE users only in the form of third-party add-ins until the most recent revision of IE 6 (the upgrade inside the 250MB Service Pack 2 update for Windows XP).

The overall design of the browser window is very similar in both. Netscape opts for a rather bland and colorless scheme, while Firefox uses a simpler, cleaner interface with a tad more color. It's easy in both to apply different skins, though I wasn't impressed by any of the skins that are currently available. Netscape's display has more going on, with more options and apparatus inside the sidebar (including the AOL Instant Messenger buddy list). Firefox's slightly simpler sidebar was turned off by default.

One difference could be important: Firefox's menu took me directly to my current e-mail client, Microsoft Outlook, and the menu item even indicated when I had new messages. Under Netscape, clicking on mail opened up Netscape's own mail reader and then asked me to set up an account.

Firefox lets you set up "live bookmarks" with which to view rich site summary news and blog headlines directly in the bookmarks tool bar or bookmarks menu. When a site is enabled for live bookmarks, an orange RSS icon appears on the bottom right corner of the browser (for more on RSS, see QuickLink 46266). To set up the link, click on the icon to bring up a dialogue for adding a new live bookmark.

Both Netscape and Firefox support a variety of extensions — add-in programs for new functionality — but many more are available for Firefox.

Overall, the differences between the two browsers are small. Firefox is more adaptable and less monolithic in its approach to nonbrowser functions, which might make it a better choice for some enterprises. For Windows systems, Firefox 1.0 is a 4.5MB download, while Netscape 7.2 takes 11.8MB for the basic browser setup and 24.8MB for the entire package. Versions of both are available for Linux, Mac OS X, Solaris x86, OS/2, AIX and BeOS. Both browsers are also available in a variety of languages.

OPERA

Opera started out as a research project at Norway-based telecommunications firm Telenor ASA. In 1995, Telenor spun off Opera Software ASA, which released the first public browser a year later. Since 2000, Opera has been a free download for personal use.

Oslo-based Opera began with different priorities. While its competitors became larger and more complex, Opera wanted its offering to be small and quick with a low memory footprint. Although Opera claims to be the fastest browser, I found that Netscape and Firefox both loaded pages slightly faster. All beat IE by a country mile.

Opera introduced the background loading of pages, batch opening of bookmark folders, and fast-forward and rewind functions, which anticipate where you might surf to next and fetch those pages before you request them. Opera adds notes, skinning to change the browser's look and session management that lets you close and restart the browser with all your previous pages automatically restored.

Early versions of Opera opened multiple browser pages inside a single parent window. Since 6.0, single-document and tabbed modes have also been available, plus a mode that integrates Web browsing into fixed presentations.

Opera's mouse gestures feature is interesting. To move back to the previous page, just hold down the right mouse button and move the mouse to the left. If you move right, you go forward a page — a clever system.

I found Opera harder to learn than the other programs. For example, the process of importing IE favorites into the Opera's bookmarks isn't obvious. It's buried three levels deep in the menu structure, and when I did the operation, there was no indication that it had succeeded or failed, nor could I find where the program had put my links. While setting up folders for quick reference, I found Opera's dialogue boxes attractive but often unclear as to what data they needed. The help files were only so-so.

Unlike the Mozilla twins, Opera makes you look at paid advertising banners. They're not obtrusive and don't affect performance, but you can buy an ad-free version for $39. Opera 7.54 is available for Windows, Mac OS, Linux, FreeBSD and Solaris. The basic Windows download is just 3.4MB, though adding Java brings it up to 16.2MB.

RECOMMENDATIONS

IE, the de-facto standard for Web browsers, has served us well for many years. If it suits your company's needs, perhaps there's no reason to change. I started using IE shortly after it first appeared and quickly preferred it to Netscape Navigator. Despite some problems, I was a steadfast IE user and Netscape skeptic for years. I tried out Mozilla betas and Opera, but I always found that they either offered no big improvement over IE or made my heavily loaded Windows systems unstable. Unfortunately, IE has been riddled with security problems, and Microsoft's efforts to secure the browser have been only mildly successful.

About four months ago, I began using Firefox as my primary browser. With the September release of 1.0 (no longer beta), I can recommend Firefox without reservation. Opera is a good choice for many — perhaps the best choice for an older computer that's light on memory or CPU power — but I find Firefox easier to use. **ID 50298**

Kay is a Computerworld contributing writer in Worcester, Mass. You can reach him at russkay@charter.net.

BROWSING, THE BEGINNING

In 1991, Tim Berners-Lee created software that would display and interact with HTML documents. Two years later, another software product, using graphics and multimedia to cruise the then-new World Wide Web, emerged from the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign. That product, NCSA Mosaic, was the most revolutionary software to come along since the Macintosh operating system a decade earlier.

The leader of the Mosaic team, Marc Andreessen, started Mosaic Communications Corp. (which became Netscape) to create the commercial browser that became Netscape Navigator. Netscape was a phenomenon as a concept, a product and a company. It grew big enough fast enough that Microsoft realized it had to compete. Microsoft bought a small browser called Spyglass, which was based on the Mosaic code, then modified it and renamed it Internet Explorer.

That original version of IE appeared in 1995. It had problems, but its price (free) and availability (bundled with Windows and Microsoft application software) made it a quick success. In the first few years, Microsoft improved IE significantly with each new release, until it became better and more reliable than Netscape. IE quickly took over the browser market. Netscape, meanwhile, lost most of its user base and revenue, and the company was acquired by America Online Inc., which later merged with Time Warner Inc. Most users eventually lost interest in the Netscape browser. IE is installed automatically with Windows, which is sufficient for most users.

– Russell Kay

BROWSER STATS

IE had the lion's share of users in October 2004, but other browsers have hung on.

Internet Explorer 6	68.6%
Mozilla	17.2%
Internet Explorer 5	5.7%
Opera 7	2.2%
Netscape Navigator 7	1.3%
Netscape Navigator 8	0.2%
Netscape Navigator 4	0.2%
Other	3.6%

Source: Computerworld



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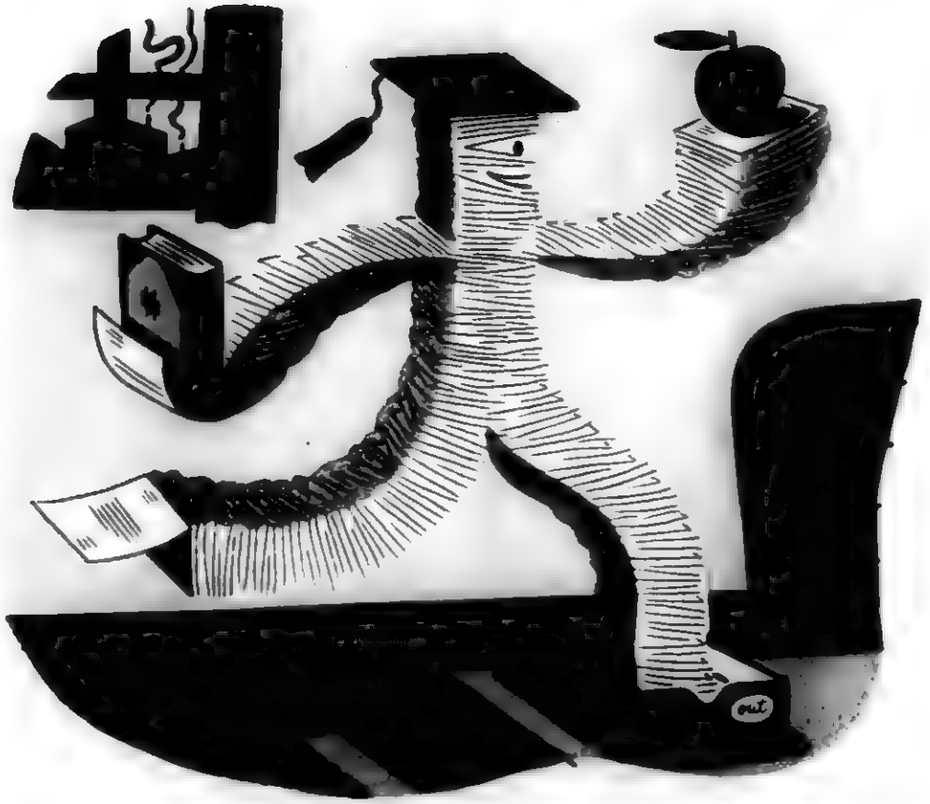
Common Criteria

SHARP

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Get Smart

By combining code and content, XML-enabled documents promise to change the way people interact with key business systems.



MICHAEL KLEIN

DESPITE PAPER'S IMAGE as an outmoded and costly conveyor of information, businesses still love to push it. It's tactile, familiar and, in many cases, represents the primary way that companies interact with employees, partners and customers. Yet the difficulties inherent in tracking, storing and rekeying data and moving paper around take a huge financial toll on businesses. Even those documents that have been converted to an electronic format tend to be largely static. What might it mean to business efficiencies if corporate documents could become active in the processes they front and adapt as needed? What if they could become, well, smart?

If electronic documents aren't yet ready to do all of our work for us, some of them are at least pitching in. Smart documents, alternatively referred to as "intelligent" or "active" documents, are dynamic containers that use embedded, executable code to participate in business processes. Smart documents primarily use XML, which can agnostically represent data types and is highly portable. These documents can streamline processes by launching workflows, moving data to and from back-end databases and updating themselves as business rules dictate.

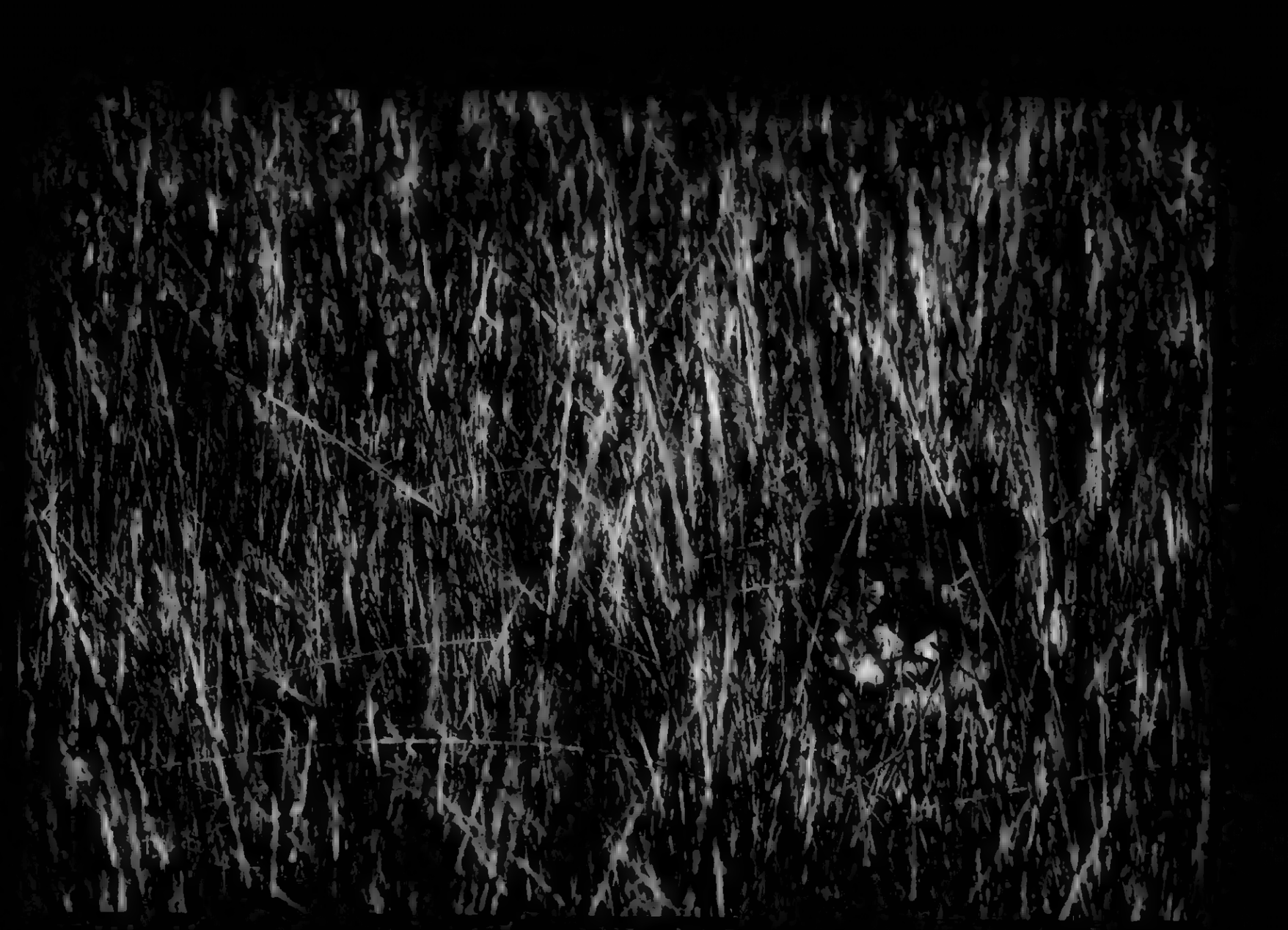
Proponents believe that active documents will change the way businesses control knowledge and how users interact with it — facilitating everything from streamlined operations and enhanced collaboration to improved regulatory compliance. But while some enterprises can realize returns on investment by automating a single, costly process through a smart document interface — insurance benefits enrollment or payroll deduction changes, say — the upfront design effort needed to re-engineer processes, map workflows and define XML schemas for XML repurposing can be complex.

"A smart document is a powerful end result, but the design effort is not for the faint of heart," says Carl Frappaolo, a vice president at Boston-based consultancy Delphi Group. "The challenge is in taking a step back and pulling processes apart. In order to teach a process to a document, you have to decompose it into finite pieces."

This decomposition, he says, requires that business analysts work closely with IT to determine where business intelligence exists, design business rules that trigger document behavior and map the workflows that dictate a document's life cycle.

Though analysts say active documents

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Continued from page 34

will become key components in dynamically updating technical documentation and other frequently changing records, the biggest application of the concept today is in e-forms. Jumping into the market with established providers such as PureEdge Solutions Inc., Verity Inc. and FileNet Corp. are big guns Adobe Systems Inc. and Microsoft Corp.

San Jose-based Adobe's Intelligent Document Platform is a services-oriented architecture that includes forms development and workflow components, as well as its ubiquitous Acrobat Reader client (now called Adobe Reader) and Portable Document Format (PDF). Microsoft, meanwhile, has built extensive support for XML and Web services into its Office 2003 suite and offers InfoPath, an e-forms development and routing product.

"Paper forms are extremely expensive to produce, and they're limited in terms of what they can capture. With a smart form, data callouts and process logic enable it to gather data from and deliver it to back-end applications," says Toby Bell, an analyst at Gartner Inc. in Stamford, Conn. More important, he says, a smart form "knows where it's supposed to go and what it's supposed to do."

Serving Internal Customers

Bright Horizons Family Solutions Inc., a provider of employer-sponsored child care and early-education services, saw opportunity in using e-forms to automate employee status change processes.

With 16,000 employees in more than 500 locations worldwide, Bright Horizons found that paper-based processes for employee changes were extremely time-consuming and error-prone, says Tim Young, vice president of IT. The Watertown, Mass.-based company uses Adobe's Intelligent Document Platform. Bright Horizons is automating employee benefits and payroll form processes, and it plans to do the same for time sheets and capital expenditure forms.

"We wanted to better serve employees and lower operating costs," says Young. "We have all these checkpoints now built in with business intelligence behind the forms, so if authorization is needed, it's built into the workflow."

Bright Horizons has saved costs by prepopulating form fields. It does so by drawing data from a SQL Server database when employees log into its intranet, providing guided assistance through drop-down menus, and using business intelligence that enforces the way fields are filled out. After a form is completed, it's converted to a PDF document and is automatically routed via Adobe's workflow server to appropriate managers and then to the company's payroll system.

Grants.gov, a portal where people can identify grant opportunities available from 26 U.S. federal agencies and apply for them electronically, uses software from Victoria, British Columbia-based PureEdge Solutions. The portal is one of 25 e-government initiatives that the Office of Management and Budget has launched.

As the middleman between granting agencies and applicants, the U.S. Department of Health and Human Services must carefully support the systems used by clients on both sides, says Grants.gov program manager Rebecca Spitzgo. For example, rather than requiring citizens using dial-up connections to stay online while filling out a grant application, the agency deployed PureEdge to make the application packages downloadable.

To view and complete forms, users run a downloadable client, says Spitzgo. Grants.gov uses PureEdge to build edit formats into data fields to ensure that they're filled out correctly the first time, as well as to perform calculations. When users complete a form, they click on a button to submit it.

Grants.gov then converts the received form to an Acrobat PDF file, creates an XML-formatted data file and sends both to the appropriate agency. Grants.gov doesn't dictate what agencies do with the XML data, but the majority use it to avoid rekeying data, Spitzgo says. Grants.gov's staff has designed a global XML schema for pieces such as its grants application face page so that agencies can reuse it.

THREE BASIC VARIATIONS OF ACTIVE DOCUMENTS

ACTIVE FORMS

These interact with users and forms-based processes, such as insurance, payroll and benefits programs. Using business rules, active forms ensure that fields are filled out correctly and that they can populate themselves with user information from back-end systems. After an interaction, they can trigger a workflow that routes them to the appropriate individuals and updates pertinent databases.

ACTIVE DOCUMENTS

Characterized in part by their ability to be paginated, these non-form-related documents might include technical manuals, customized proposals or individualized 401(k) reports that update themselves as back-end data changes and new information is entered on the front end. Technical documentation for an aircraft, for example, might enable a mechanic to click on a link to order parts as a step in a supply chain process, with the document updating itself when new parts are installed.

ACTIVE GRAPHICS

Typically part of larger active documents, these consist of XML-based graphical elements, such as scalable vector graphics, that interact with text and the user. An active graphic might delineate an engine assembly and enable the user to "fly through" the structure, updating itself as the larger document changes.

SOURCE: Joshua Duhl, IDC

XML Marks the Spot

Today, XML is a primary enabler in the creation of smart documents. XML helps define document elements such as pagination, enables content to be separated from presentation and allows it to be reused and retargeted as needed.

Smart documents typically use Web services structures for invoking and receiving data values, says Joshua Duhl, an analyst at IDC in Framingham, Mass. Web services are increasingly wrapped around key enterprise systems, such as accounting, inventory and content management databases, to transport data. "For certain kinds of applications with lots of updates — supply chain applications, health care processes — you'll want an active document," he says.

In a pilot of LiquidOffice e-forms software from Sunnyvale, Calif.-based Verity, the state of North Dakota will use XML to perform validations, do calculations and prefill user data into a variety of forms.

"XML provides some opportunities we've been seeking for a long time, eliminating data entry and rework," says Bill Roach, the state government's CRM enterprise EDMS coordinator. "When we have the information in XML, we can package it up and send it to [back-end] applications automatically. We can have it create an image or a PDF or store it in its native format and just push it into a records-retention system." LiquidOffice is just part of the state's much larger EDMS (electronic document management system) infrastructure, which includes FileNet's Content Manager, Verity's TeleForm and KnowledgeLake Inc.'s workflow products.

John Gartrell, a project analyst at Seattle-based Sound Transit, expects the extensive XML capabilities in Microsoft's InfoPath and Office 2003 suite to ease data sharing with back-end systems such as its PeopleSoft ERP software. The regional transit system used InfoPath to convert a paper-based payroll process that took a month to complete to an e-forms process that takes four to eight hours. Sound Transit isn't using XML yet, Gartrell says, but "we're integrating InfoPath with our SQL Server 2000 database, with InfoPath handling all the XML."

As their role in the enterprise expands, active documents will need to better support newer capabilities such as digital signatures, says Duhl. Because of regulatory compliance requirements such as those in the Sarbanes-Oxley Act, vendors also need to ensure that electronic documents can be rendered exactly as they would be on paper. Adobe's PDFs excel in this area, says Duhl. Meanwhile, businesses must address numerous infrastructure and process issues to exploit the benefits adaptive documents can bring.

"While active documents are a great idea and interface, even at the forms level they affect business processes at a very fundamental level," says Duhl. "It goes far beyond technology to the way people work." **50148**

Gilhooly is a freelance writer in Falmouth, Maine. Contact her at kymg@maine.rr.com.


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BY TODD R. WEISS



MELINDA BECK

IT'S BEEN AN IT MANTRA FOR YEARS: "When all else fails, reboot."

Rebooting often works, but isn't there a better approach to the problem of buggy software that crashes your computer and takes your valuable data with it?

That idea has been the focus of researchers at Stanford University and the University of California, Berkeley, who have been working feverishly to find better ways to bring computers back from the brink of disaster.

FUTURE WATCH

The researchers are seeking a fresh alternative to rebooting. Thinking backward, they reasoned that it might be a good idea to give up on the impossible job of making bug-free software and instead look for ways to recover from failures without losing data or time.

That's the concept behind "recovery-oriented computing," a 180-degree turn from traditional thinking. The idea is that since software can't be created without crash-causing flaws, it should be built to reboot much faster, allowing users to get back to work almost instantly.

"The idea is pretty simple: If availability is the fraction of time that you're up, then recovering fast is more critical than reducing the number of times that crashes happen," says David Patterson, a computer science professor at UC Berkeley.

"In the dawn of computing, people thought software bugs would go away, and they haven't, so now we need ways to co-exist with them," he says. "I think it's a fact to live with rather than a problem to be solved."

One way to do that is through an evolving technique called micro-rebooting, which quickly reboots just enough of the program processes to get the system stabilized and back on track for the user.

A micro-reboot is specific to one problematic area of the software's code and doesn't affect other parts of the application, so data in the processing pipeline is unaffected by the reboot.



"People thought software bugs would go away, and they haven't."

Led by Patterson and Armando Fox, an assistant professor of computer science at Stanford, the project began in late 2000. Patterson, Fox and a team of graduate students had seen evidence that systems dependability could be improved. Some IT systems for use in avionics, spacecraft and health care were ultradependable because they had to be, but they were costly and complex, and that kind of reliability was impractical for typical IT use. Another way had to be found.

Heading Off a Crash

The researchers are experimenting with algorithms that watch over system processes and sense when something has gone awry, and a crash is imminent. The algorithms focus on determining the normal baseline operations of applications, and when they see a deviation from the baseline, the system can quickly do a micro-reboot without the user even knowing that a problem has occurred.



"To make micro-rebooting industrial-strength, obviously there's still more work to be done."

Keys to the research have been isolating the faults and providing redundancy so the system stays alive while the instant recovery takes place. The researchers are exploring techniques that could encourage software and hardware designs that drastically improve the "restartability" of programs and devices.

The problem with the traditional reboot is that the CTRL-ALT-DEL process takes too long. A micro-reboot is several orders of magnitude faster, Fox says. "It's not guaranteed to fix the problem, but it's guaranteed not to make things worse, so there's no reason not to try it," he says.

The researchers have been using the Java 2 Enterprise Edition application server in their studies because it's so widely used and because, as open-source software, it's readily modifiable.

J2EE is also a good starting point for the research because its applications use a modular design structure with clear boundaries between software modules, making it easier to stop and reboot one process within a part of the application.

Trickle-Down Technology

While J2EE-based Internet applications on corporate servers have been the focus of this research so far, Fox says the technology will trickle down. "Desktops have so much performance today, maybe some of that can eventually be traded away for dependability," he says.

But challenges remain. "There's work to be done on other microrecovery methods," explains Fox. "We've identified a way that we can work together with people who use statistical monitoring algorithms," but that has created issues with the algorithms and security, he says.

What the researchers still hope to learn is exactly what's good and what's bad in J2EE that helps to solve the rebooting problems, Fox says.

Also needed is a body of research that will address the same issues in other widely used computing systems in the future.

Micro-rebooting could be built into J2EE application server software within the next two to three years, Fox says. However, "to make micro-rebooting industrial-strength, obviously there's still more work to be done," he says.

It would be more challenging to include micro-rebooting capabilities in large, proprietary applications, because the applications aren't modularized. But researchers could certainly work on that capability for future versions of the software, Fox says.

The ultimate micro-rebooting system would prophylactically go through your PC or server and reboot it frequently in the background, refreshing it without causing you to have any visible failures, Patterson says.

Corporate IT is beginning to accept the idea of fast, automatic rebooting, according to Fox. "Now you don't have to convince people about the desirability of this," he says. "Now they understand why it's important to prevent crashes on their corporate IT systems." **50382**



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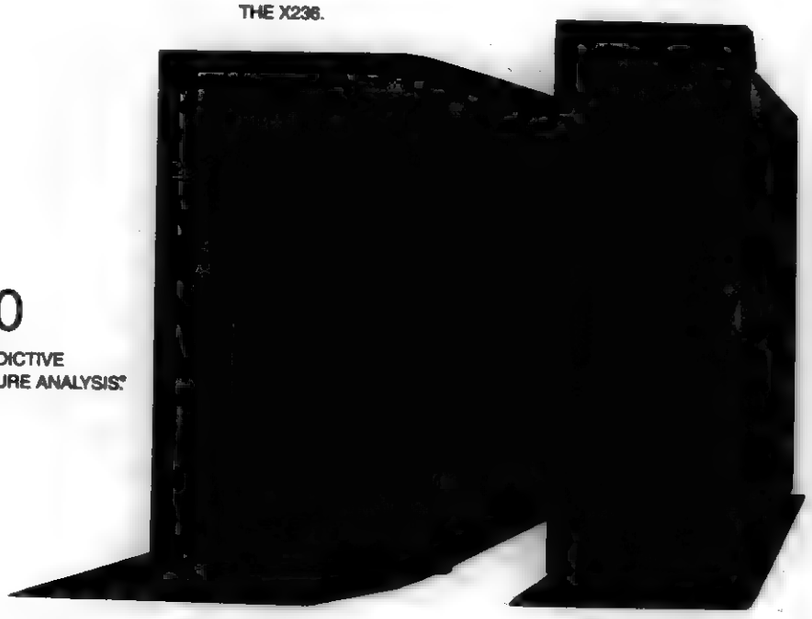
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The IBM eServer™ xSeries® family with Intel Xeon Processor-based Xtended Design Architecture is the next-generation architecture designed, priced and supported for businesses of every size. Giving you unbelievably high performance at an unbelievably low price.

The entry-level x226 is the most affordable xSeries system in the 2-way space. The x236 offers maximum internal scalability in an IBM industry-standard tower. Our x336 gives you new levels of performance density in a 2-way rack-mounted system. And the x346 offers exceptional scalability and flexible growth in a 2U system.

Of course, all of these systems are powered by state-of-the-art 64-bit Intel® Xeon™ Processors.

Now let's talk about storage attachments for your eServer xSeries systems. Let's talk IBM TotalStorage® systems. The entry-level DS300 is for businesses of any size. Rack-ready, it's designed to let you pay as you grow. The very hard to outgrow DS400 is xSeries storage to the max. Fast. Expandable. And it scales up to 5.8 terabytes.[2] Both share reliability and data protection features found in IBM eServer solutions.

Now, what if you're a mid-sized business with little or no IT staff? Enter the IBM Express Portfolio. All of the above xSeries and storage products offer Express models, specifically designed and optimized for mid-sized businesses. IBM Express offerings are easy to configure. Easy to install. Easy to manage. And easy on the checkbook.

IBM EXPRESS PORTFOLIO – BUILT FOR MID-SIZED BUSINESSES.

ON DEMAND BUSINESS™

WHY 64-BIT?
IBM's innovations are ideal complements for 64-bit Intel Xeon Processors: light path diagnostics; Calibrated Vectored Cooling; remote monitoring; 8 DIMM slots. We've got it all.

IBM eServer xSeries systems are cost-effective by almost every measure of TCO. And almost every measure of ROI. They fit in standard racks and are easily scalable.

Our new Xtended Design Architecture works with your 32-bit industry-standard apps. And your new 64-bit industry-standard apps. And those 32-bit and 64-bit apps that are still on the drawing board.

WHY NOW?
This is the future. This is where developers are going. Where the industry standard is forming. Where business is headed.

The transition is well under way. Above all, 64-bit is stable. It's reliable. It's powerful. It's fast. It's here. And we're paving the way.

Every 64-bit-enabled xSeries server is designed to have more memory, which allows you to run more powerful apps. And if you're reticent about making the move to 64-bit, relax. Xtended Design Architecture actually enhances your 32-bit apps, so you can do more with what you already have. Do more now. Do more later. Do more period with 64-bit Intel Xeon Processors and IBM Xtended Design Architecture.

These servers and storage units are designed with one thing in mind – you. It's an exciting story. You need to learn more at **ibm.com**/eserver/64reasons

IBM

[1]IBM web price for the xSeries 226 (2.8 Ghz processor, 512 MB memory, 80 GB SATA HDD), current as of 10/18/04, and is subject to change without notice. Starting price may not include a hard drive, operating system or other features. Price does not include tax or shipping. Reseller prices may vary. See www.pc.ibm.com/us/eserver/xseries. IBM does not warrant non-IBM products. [2]Terabyte equals one trillion bytes when referring to total disk drive capacity. Accessible capacity may be less. IBM, the e-business logo, eServer, the eServer logo, Calibrated Vectored Cooling, ChipKill, IBM Express Portfolio, Predictive Failure Analysis, TotalStorage, xSeries and Xtended Design Architecture are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. Intel, Intel Inside, the Intel Inside logo and Intel Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Linux is a trademark of Linus Torvalds in the United States, other countries, or both. Microsoft and Windows NT are trademarks of Microsoft Corporation in the United States, other countries, or both. Other company, product and service names may be trademarks or service marks of others. ©2004 IBM Corporation. All rights reserved.

Crossing Boundaries

Groove's Ray Ozzie says his mission is to make computers more effective communication tools.



As the creator and chief developer of Lotus Notes, ***Ray Ozzie*** *is responsible for putting groupware/collaboration software on the map, with more than 100 million people around the globe using Notes.*

Ozzie is the founder and CEO of Groove Networks Inc., which makes collaboration software. Prior to his work on Lotus Notes, when he was president of Iris Associates, Ozzie was instrumental in the development of Lotus Symphony and Software Arts' TK Solver and VisiCalc.

In a recent interview with Computerworld's Tommy Peterson, Ozzie talked about what drives his interest in technology-facilitated collaboration and its relationship to the changing nature of business.

You're famous for Lotus Notes, and you describe Groove as a logical extension of your work in collaboration. Why does this particular problem in computing fascinate you? My base personality characteristics are relatively introverted, so the concept of me expending a career doing stuff that helps people communicate more effectively is kind of ironic. In PLATO, a computer-based education system, I was a systems programmer. I was fortunate enough to be exposed to early versions — this was the '70s — of e-mail and online group discussions and interactive chat like IM.

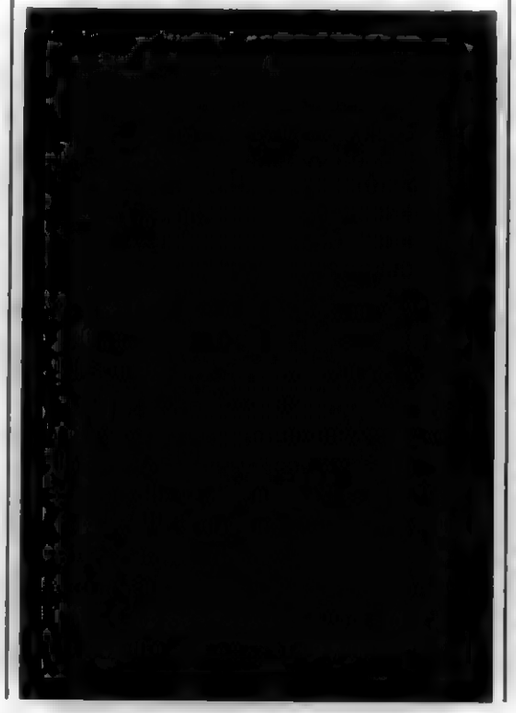
There was one person I communicated with on a software project; he was actually the project lead. I dealt with him in chat a lot, and he was a very, very slow typist. The chat on PLATO was a character at a time — you'd see them typing as opposed seeing a line at a time. It just drove me nuts.

After some number of months, I finally met the guy, and he's a quadriplegic. He was typing with a stick. And if there was a crystallizing moment for me, that was probably it. It became really apparent that really I was working with someone's mind as opposed to anything else about them.

The next step in your career was a job with Data General doing data processing systems. How does that fit in? I went to work at Data General, [and] I was shocked because I had spent years working in this online community environment dealing with people and using the computer as a communication tool.

And then we came out here to "super mini land," or whatever it was at the time, and it was still data processing. At that point in time, I and a number of us who had been exposed to PLATO basically said, "Look, we've got to re-create that environment. We've lived this online community life; we've got to figure out a way to re-create this."

How long did it take you to find a way to do that? Several years went by before I was actually able to start putting the plans together in what actually became Lotus Notes. It was no coincidence that Lotus Notes was called Notes, because the PLATO discussions were called Group Notes, the PLATO e-mail was called personal notes. We were just trying to re-create a feel. I didn't really understand the nature of business or the nature of how things really worked, aside from Data General, but I knew that it was very effective in the environment I was at for development and for other projects that people were doing — why couldn't that translate into a business environment?



As I started to build it — and this was the mid-'80s — I started to connect more with the potential customer for this thing and decided yes, there is need for this. This was the "re-engineering the corporation" era. I think our goal, if there was a goal, was to utilize technology to enable people within an organization to work together effectively across group boundaries.

And now, with Groove, your aim is to move beyond an organization's boundaries? That's exactly right. Notes was significant because of the changing nature of the organization as defined at the time by Michael Hammer and others re-engineering the corporation. When we started Groove in '97, it was largely based on a viewpoint that the nature of business was changing not just the organization, but that business itself was restructuring from big, vertically oriented corporations. It was becoming more of a mesh of companies interacting with one another. This was based on my experience of what people were trying to use Notes for and were having a hard time doing, in terms of deploying Notes across organizational boundaries.

So Groove was based on the fundamentally changing nature of business. Essentially, what we've learned in the past few years of people using Groove is that it's not just the nature of business that's changing; it's the nature of work itself that's changing. You're working with multiple companies, and you're working with people in a geographically distributed manner. You're working at home and in the workplace. The trend of decentralization that Notes started within the corporation is moving between corporations, and now it's touching individuals.

What's the specific pain you're trying to ease for users now? As was the case with Notes, a lot of what we've had to build up with Groove to make it more useful is infrastructural — getting the security, the systems management, a lot of the things in the base infrastructure up to the level they're at has consumed a lot resources. What really makes Groove valuable to businesses is how quickly they can adapt it to their business processes, the way that they work.

The thing that makes it useful to an individual is how much they can integrate it into their work environment — it's true of both businesses and individuals. A lot of what you see us doing is working in the area of our forms package and working on our integration to different back-end systems such as Siebel, SAP and PeopleSoft, Oracle databases — things people have already made investments in. The quicker we can integrate with those business processes, the quicker we can return value to corporations. ● 50940

COLLABORATIVE FUTURE

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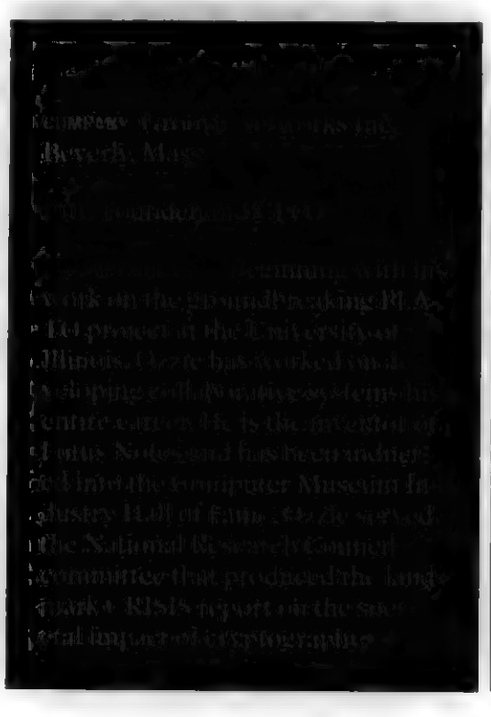
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Taking the Leap to PEAP for Wireless

Access points are proliferating, but there still are no formal policies or standards in place. Someone has to keep an eye on things. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

IT'S STRANGE. Our company has yet to embrace wireless as a global deployment, yet every couple of months, the number of access points seems to double.

The other day, I received a call from one of the lab managers. He wanted to deploy a bar code system for asset tracking. The bar code reader would transmit information via Bluetooth to a Hewlett-Packard iPaq, which has a built-in wireless card. He wanted to deploy several access points so that the iPaq could communicate asset tag data in real time to a back-end database residing on our corporate network.

Another call came from one of our briefing centers, where the manager wanted some access points so that visitors could check their e-mail, make airline reservations, print itineraries or do general Internet browsing. I also found out that upper management has approved the installation of access points for every new facility that comes online. That's a lot of access points, since we're expanding in India, Singapore and China, and we've added offices in Virginia and other locations.

But despite this growth in wireless use, we still have no formal policies for wireless deployment or a project manager to oversee the spread of access points. Instead, network engineering and I are driving the entire process. Last week, we decided to abandon our Cisco LEAP implementation because of perceived vulnerabilities in the way that protocol handles passwords. Unless a strong password is used, hackers can easily compromise the wireless connection and gain access to our network. And having concluded that no matter what we chose there would probably be an exploit or published vulnerability at some point, we decided to deploy two-factor authentication to force people to use an RSA SecurID token before they can associate to an access point. Our hope is that even if a particular protocol becomes compromised, the two-factor authentication process will continue to protect us.

We explored several options and found that the only way to make use of our existing deployment of RSA SecurID tokens while getting two-factor authentication was to deploy PEAP. PEAP, which stands for Protected Extensible Authentication Protocol, was developed jointly by Microsoft, RSA Security and Cisco for transmitting authentication data, including passwords, over wireless nets. What sets PEAP apart from LEAP is that communications between the wireless client and the authentication server (Cisco ACS) are tunneled. With LEAP, the authentication information is passed in clear text. With PEAP, the authentication data is transmitted after the encrypted tunnel is created.

There are still some issues to work out, but I think that at the end of the day, we'll have a working RSA SecurID-protected wireless infrastructure.

Working Things Out

We had a little trouble at first. Our users have Dell laptops that come with built-in wireless cards and client software called Dell TruMobile that's used to control the cards. The client has to generate a digital certificate to facilitate the tunneling, and it has to be compatible with Cisco Compatible Extensions Version 2 so it can interoperate with Cisco's version of PEAP.

The Dell TruMobile client is supposed to be compatible with CCE-2, but the implementation wasn't very straightforward, and documentation was lacking. After a lot of effort, we were able to get the Dell laptops to work with the Cisco access points and prompt us for a SecurID token code.

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One thing that the vendors are still trying to help us resolve is a 60-to-90-second lag before the SecurID dialogue box comes up; that's just too long for employees to wait.

One cool aspect of our deployment is that we'll be using virtual LAN tagging to segregate various levels of access to our wireless infrastructure. This means we don't have to buy and install separate access points for SecurID-protected employees, who need access to our internal network, and for guests, who will be allowed access only to external Internet resources. With VLANs (also called 802.1Q networks), we can configure two separate networks, each with its own wireless Service Set Identifier (a sequence of characters that uniquely identifies a wireless LAN) for associating to the access point.

For example, an employee using an SSID of, say, "emp" will be prompted to provide a SecurID token before being allowed to associate to the access point and gain access to internal corporate resources such as Exchange mail, shared folders, the company intranet and human resources sites. Meanwhile, a guest using an SSID of "guest" won't be prompted for a SecurID token in order to get to the Internet. The employee and the guest are connected to the same access point, but the different SSIDs they use to do so give them different access rights.

Best of all, Cisco will let us use VLAN tagging to create as many as 16 separate VLANs. That gives us a lot of flexibility in the way we provision wireless networks for the enterprise.

To help out that lab manager who wants to do asset tracking, we'll probably create a third VLAN that will be accessible from the asset-tracking HP iPaqs, perhaps with an SSID of "track."

To manage all these access points, SSIDs and VLANs, we'll continue to use the Cisco Wireless LAN Solutions Engine, since we can also use it in our continuing efforts to detect rogue access points. I'll talk more about that in a future installment. ▶

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

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SECURITY LOG

Security Bookshelf

■ ***Wireless Networks First-Step***, by Jim Geier; Cisco Press, 2004.



I'm frequently asked about beginner-level books on wireless technology. Well, if you're new to wireless, this is the book to have on your reference desk. Packed with useful information, *Wireless Networks First-Step* will get you up to speed on the latest and greatest wireless terms and technologies. Each chapter contains easy-to-understand explanations of various aspects of wireless technology, from the difference between TKIP and WPA to how to handle rogue access points. A nice feature is that each chapter has a quiz that lets you test your knowledge. This is a must read for those new in the field.

– *Mathias Thurman*

Sun Warns of Serious Flaw

Sun Microsystems Inc. has warned of a serious security flaw affecting one component of its Java System Web server line of products. The flaw, in the Java System Web Proxy Server, could allow a remote attacker to gain access to a vulnerable system. A buffer overflow vulnerability could then allow the attacker to crash either the Web Proxy Server process or the server's Admin Server process. With the privileges of the affected server process, an attacker could then execute malicious code on the server, Sun said.

There's no reliable way to tell whether the vulnerability has been exploited, Sun said, although the affected processes may crash as a result of a successful exploit.

Copenhagen-based security firm Secunia ranked the flaw as "highly critical," which is its second-highest severity rating.

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Even if everyone knew about the problem, would anyone know the solution?

As every aspect of business migrates to the Web, sensitive information once sheltered is now exposed. Because browser-based applications pass through the entire security perimeter.

If that doesn't wrinkle your brow, in a recent study 70 percent of companies reported security intrusions, with an average of 136 annually.

The only real answer is a solution that knows exactly what your application's traffic should look like, and blocks everything else. A comprehensive solution that gives you complete control over who gets access from where and when, that can actually identify and filter application-level cyber attacks.

It's application traffic management taken to the next level. Something that could only have come from a deep understanding of both the network and the application. Which is why only F5 can offer it. For details on this revolutionary architecture, including our TrafficShield™ Application Firewall and FirePass® SSL VPN, visit www.f5.com/cwdoc or call 800-916-7166.

f5.

BRIEFS

Dell to Offer New PowerEdge Server

Dell Inc. is expected this week to announce the PowerEdge SC1425 server, a 1U (1.75-in. high) device designed for high-performance supercomputing clusters or distributed server-farm environments. Dell will offer the new server in bundles ranging from eight nodes to 256 nodes running Red Hat Enterprise Linux 3. Pricing begins at $33,500 for an eight-node cluster.

Exabyte Announces Tape Autoloader

Exabyte Corp. in Boulder, Colo., this week announced its new Magnum LTO (linear tape open) Autoloader, a 2U rack-mountable system that comes with one LTO-2 drive and seven cartridge slots and provides data transfer speeds of up to 187GB per hour and 1.4TB native capacity. The autoloader is available now and sells for about $4,999 retail.

ScanSoft Releases Voice-to-Text App

ScanSoft Inc. has announced Version 8 of its Dragon NaturallySpeaking voice-recognition software. The new release features improved accuracy in voice-to-text conversions, converts speech into text at a rate of up to 160 words per minute and lets users control PCs using spoken words, according to the Peabody, Mass.-based company. Prices range from $99 to $795.

OpenBSD Unveils v3.6 of Its Free OS

OpenBSD 3.6 can be downloaded for free at www.openbsd.org. The newest version of the Unix-like operating system includes symmetric multiprocessing support for OpenBSD/i386 and OpenBSD/AMD64 hardware and an improved Dynamic Host Configuration Protocol server. OpenBSD 3.6 is also available on three CD-ROMs for $45.

CURT A. MONASH

Playing Catch-up on Analytic Technology

ANALYTIC TECHNOLOGY is on the rise. Business intelligence software expenditures are a growing share of the IT budget. Data collection and storage costs are increasingly driven by analytic uses. DBMS and enterprise application vendors are focusing their product differentiation efforts largely on analytics.



Few organizations, however, are doing a great job of planning for the blossoming of analytic technology. True, many enterprises have a fairly careful design for the underlying data warehousing. But in most shops, departmental BI applications and analytic applications are installed almost willy-nilly.

It's time to take a more serious approach to analytic IT strategic planning, and not just because analytics represent a bigger part of your budget. Analytic technology simply has more parts than it used to, and many more points of integration, both within the analytic sphere and reaching out to transactional systems as well.

Let's examine five areas where analytic technology integration is of particular interest. In future columns, I'll talk about how to tie these and other considerations into a practical analytic IT road map.

Integrated monitoring, evaluation and information delivery. BI technology has historically included a mishmash of information delivery and analysis tools — ad hoc query, ad hoc reporting, enterprise reporting, multidimensional analysis, graphical data visualization and so on. These are getting streamlined and integrated in a new generation of technology, and it's about time.

Over time, classic BI technologies are becoming less important anyway. The user's central monitoring tool will be the portal or dashboard. That format first shows which metrics are outside expected ranges and only afterward (if ever) leads the user to the precise numbers in a report. This is often an improvement over traditional reporting-centric systems, which may spit out a lot of data and then send the user on a "Where's Waldo?" search for anomalies. In cases where time really is money, alerts about the anomalies can be sent straight to a pager or other mobile device.

Monitoring, evaluation and transactional apps. BI technology has historically been read-only, running against a copy of the transactional database. So integrating it with transactional systems might seem technologically unnatural. But let's take a business process view. When a manager notices or is alerted to an anomaly in a metric — then what? The "what" should often be a process leading to an action, perhaps in production or purchasing, but potentially in almost any area of the enterprise.

A whole new generation of hybrid analytic/transactional applications is emerging to support these new processes. You can wait to get them in packaged form, or you can roll your own, perhaps using some process specification tools. But either way, the processes — and hence the applications — are likely to be very important to you.

In-line analytics. A classic job for analytic technology is to figure out exactly what to offer to which customer, so as to make the relationship as profitable as it can possibly be. In certain environments, such as call centers at cell phone service providers, doing this analysis in real time is hugely important. So analytic tools — often statistical ones — need to drive transactional systems in an orderly way. Meanwhile, certain consumer marketing applications are trying to regularize testing and statistical analysis as part of, say, a transactional direct-mailing business process.

Planning and everything else. Almost every organization has a horrific budgeting and planning process. But modern enterprise planning technology has somewhat streamlined the process in thousands of installations. Even so, most enterprises' forecasts are still incredibly naive and poorly supported. As planning technology evolves, transactional applications, monitoring/evaluation, planning itself and sometimes even statistical analysis should be able to combine to create better and more timely forecasts, and more useful project plans.

Integrated analytic data management. There are some hard-core server technology issues to consider, too. Integrating enterprise reporting, ad hoc queries and various kinds of analysis into a single server can be a demanding task that bears close evaluation when you select analytics vendors. But the server-side issues are even broader than that. DBMS vendors are doing important work in data aggregation. BI vendors are doing their own important work to make the DBMS features as unnecessary as possible. Data caching integrates into application servers in interesting ways, and some prominent BI products include their own application servers. And vendors of specialized MOLAP (multidimensional online analytical processing) database servers are ever more frantically trying to find important uses for them as their core benefits are usurped by advances in relational DBMS technology.

That's just a sampling of the tough issues involved in setting your analytic technology plans. Next time, I'll talk about how best to deal with these and other analytic challenges. **50499**

WANT OUR OPINION?

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BRIEFS

Dell to Offer New PowerEdge Server

Dell Inc. is expected this week to announce the PowerEdge SC1425 server, a 1U (1.75-in. high) device designed for high-performance supercomputing clusters or distributed server-farm environments. Dell will offer the new server in bundles ranging from eight nodes to 256 nodes running Red Hat Enterprise Linux 3. Pricing begins at $33,500 for an eight-node cluster.

Exabyte Announces Tape Autoloader

Exabyte Corp. in Boulder, Colo., this week announced its new Magnum LTO (linear tape open) Autoloader, a 2U rack-mountable system that comes with one LTO-2 drive and seven cartridge slots and provides data transfer speeds of up to 187GB per hour and 1.4TB native capacity. The autoloader is available now and sells for about $4,999 retail.

ScanSoft Releases Voice-to-Text App

ScanSoft Inc. has announced Version 8 of its Dragon NaturallySpeaking voice-recognition software. The new release features improved accuracy in voice-to-text conversions, converts speech into text at a rate of up to 160 words per minute and lets users control PCs using spoken words, according to the Peabody, Mass.-based company. Prices range from $99 to $795.

OpenBSD Unveils v3.6 of Its Free OS

OpenBSD 3.6 can be downloaded for free at www.openbsd.org. The newest version of the Unix-like operating system includes symmetric multiprocessing support for OpenBSD/i386 and OpenBSD/AMD64 hardware and an improved Dynamic Host Configuration Protocol server. OpenBSD 3.6 is also available on three CD-ROMs for $45.

CURT A. MONASH

Playing Catch-up on Analytic Technology

ANALYTIC TECHNOLOGY is on the rise. Business intelligence software expenditures are a growing share of the IT budget. Data collection and storage costs are increasingly driven by analytic uses. DBMS and enterprise application vendors are focusing their product differentiation efforts largely on analytics.



Few organizations, however, are doing a great job of planning for the blossoming of analytic technology. True, many enterprises have a fairly careful design for the underlying data warehousing. But in most shops, departmental BI applications and analytic applications are installed almost willy-nilly.

It's time to take a more serious approach to analytic IT strategic planning, and not just because analytics represent a bigger part of your budget. Analytic technology simply has more parts than it used to, and many more points of integration, both within the analytic sphere and reaching out to transactional systems as well.

Let's examine five areas where analytic technology integration is of particular interest. In future columns, I'll talk about how to tie these and other considerations into a practical analytic IT road map.

Integrated monitoring, evaluation and information delivery. BI technology has historically included a mishmash of information delivery and analysis tools — ad hoc query, ad hoc reporting, enterprise reporting, multidimensional analysis, graphical data visualization and so on. These are getting streamlined and integrated in a new generation of technology, and it's about time.

Over time, classic BI technologies are becoming less important anyway. The user's central monitoring tool will be the portal or dashboard. That format first shows which metrics are outside expected ranges and only afterward (if ever) leads the user to the precise numbers in a report. This is often an improvement over traditional reporting-centric systems, which may spit out a lot of data and then send the user on a "Where's Waldo?" search for anomalies. In cases where time really is money, alerts about the anomalies can be sent straight to a pager or other mobile device.

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Nokia for Business

R.O. Ida, The Chief Financial Officer



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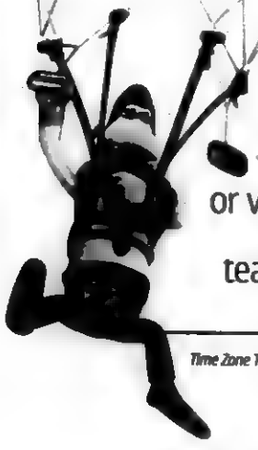
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MANAGEMENT



IT MENTOR

After the Layoff

Outplacement services can be a big waste of time, but when managed well, they can get you back on track fast. Carnival CIO Doug Lewis explains how to take charge. **Page 56**



Q&A

Hiring Nerds

Johanna Rothman, author of a new book on finding and recruiting techies, lays out some practical strategies for companies lucky enough to be staffing up. **Page 58**



OPINION

Outsourcing: First Ask Why

Companies outsource for all sorts of reasons, but Bart Perkins says that identifying and prioritizing your motivations early can help you make better outsourcing decisions later. **Page 60**



JONATHAN WEINER

GOING Down FAST

[BY JULIA KING]

SLASHED RESOURCES AND IMPOSSIBLE DEMANDS HAVE CAUSED IT MORALE TO DISINTEGRATE.

SKEPTICAL, STRESSED, SCARED, SUCKED DRY. This is how IT professionals feel about work these days.

Other telling words that surfaced repeatedly during more than 30 interviews and in 200 written survey responses include *fear*, *loathing*, *disgust* and *dread*.

To be blunt, IT worker morale sucks, and it's getting bleaker by the day.

"It's the worst I've ever seen," says a 22-year IT veteran in the banking industry. "Morale is twice as low this week as it was last week."

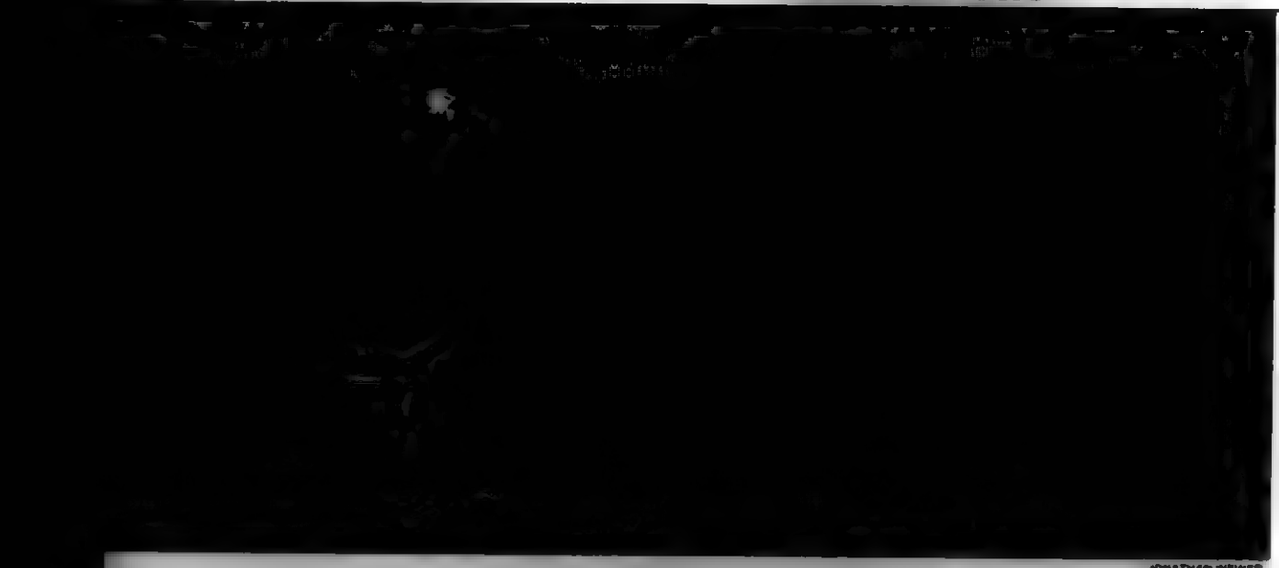
Research backs up that claim. In June, nearly three-fourths of 650 companies surveyed by Meta Group Inc. reported having morale problems among their IT staffs. The year before, two-thirds of executives cited poor worker morale as an issue.

No wonder spirits are plunging. The U.S. technology sector suffered yet another round of widespread layoffs during the third quarter, according to a recent report by Chicago-based recruiting firm Challenger, Gray & Christmas Inc. "High-tech job cuts are on the way up as the end of the year approaches," says CEO John A. Challenger.

Job cuts in technology jumped 60% between July and September to 54,701, compared with 34,213 layoffs in the second quarter, the report said. To make matters worse, the growing number of layoffs is not being countered by any move to hire, Challenger says.

And job insecurity is just one part of the problem.

Boosting morale should be near the top of almost every CIO's strategic agenda. But before management can devise strategies to address the problem, it must truly understand the causes of IT workers' misery. Frequently, it's not about money or challenges. Instead, workers point to slashed resources, unrealistic expectations, willfully blind management and inane policies and procedures as some of



JONATHAN WEINER

AFTER THE Outsourcing

[BY MATT HAMBLEN]

When a company decides to outsource jobs or send them offshore, the morale of the remaining IT workers can nose-dive and pose challenges to managers who need to motivate them.

Outsourcing survivors may react with outrage, fear, "survivor's guilt" or even a heightened work ethic, bordering on manic behavior, say psychologists and workplace consultants.

Although some experts say that IT managers need to proactively address the morale of survivors of outsourcing to prevent loss of productivity, there's little consensus on whether tactics such as spot bonuses, employee recognition or increased training boost morale substantially.

But experts agree that IT managers need to focus on the human aspects of the problem and acknowledge the feelings of survivors.

"People react all over the map to outsourcing and offshoring, and IT managers need to realize that you can't manage the reaction," says Eileen Strider, president of Strider and Cline Inc., organizational effectiveness consultants in Kansas City, Mo. "The best you can do is be aware that people will have a range of reactions from, 'Screw you, I'm outta here,' to a denial reaction that says, 'I'm not important.' "

Amid such a range of strong human reactions, the worst thing an IT manager can do is to adopt the common attitude that "people don't matter; only the software matters," she says. Managers may react that way to protect their own feelings because they're probably hurt by the outsourcing too, but "at the very least," she says, "managers need to acknowledge the feelings of those workers."

Plenty of IT managers have good people skills, says Naomi Karten, but they're not good at managing large-scale change and recognizing it as a psychological or emotional process. Karten, who consults on workplace issues as president of Karten Associates in Randolph, Mass., says an offshoring or similar change provokes a "gut-level reaction, not a head experience."

"Many managers tend to look the other way and say, 'Let's get on with business.' And that can be the wrong thing to do," she says. "In fact, that approach can cause the transition to take longer."

Karten urges managers to get offshoring survivors to talk about how they feel, but to do so without using the word *feelings* to avoid calling attention to it. "Make it OK to vent," she says, and provide reminders of things that haven't changed.

Bear in mind that an outsourcing produces a new IT team, even if just one person was lost or added, Karten says. That means everyone should also spend time figuring out the new roles and reporting relationships.

Timothy Hoffman, a psychotherapist and founding director of Ambrosian Associates in Pastoral Counseling in Spencer, Mass., says the mission of managers overseeing outsourcing survivors is to "give them some semblance of stability."

A high-level executive should clearly communicate that the decision to outsource was beyond his control and important to the company's survival, Hoffman says. And explaining that the strongest workers were retained can help reduce self-doubt.

A dose of reality at such a meeting can be valuable too, Hoffman adds. "This is the business world and not Sunday school," he says. "The jobs of our fathers are gone, with their pensions and other guarantees."

While some companies might provide spot bonuses to survivors, in terms of motivation, "those things are Band-Aids," Hoffman says. "People would much rather have self-esteem and make decisions on their own. They prefer power and respect over money."

In extreme cases, survivor's guilt can produce low-level post-traumatic stress disorder that can be debilitating and lead to high absenteeism, Hoffman says. CIOs need to familiarize themselves with such reactions and employ counselors to help if necessary, he says.

Finally, says Hoffman, try to help survivors realize that those who got booted out can use the experience as a stepping-stone to something better in their careers.

"If you are upfront and honest, people will understand what's going on and the business impact," adds Tom Pettibone, a partner at Transition Partners Co., a consulting firm in Reston, Va. "There may be a morale impact, but the world is changing, and the worst thing you can do is try to hide it." **ID 50236**

their biggest pain points.

These factors engender fear, exhaustion, bitterness and resentment, all of which blunt innovation and productivity. They can also cause long-term harm to workers' overall health, according to some experts.

In a 2004 *Computerworld* survey of 9,854 IT workers, 88% of the respondents said they experienced some kind of stress at work.

"We now know from research that in a work environment where there are a lot of pressure and demands and where people have very little control that substance abuse is two times higher, that heart problems and back pains are three times higher, that there's a greater rate of infections and mental health problems," notes Michael Koscec, president of Toronto-based Entec Corp., which specializes in measuring employee satisfaction and commitment at large companies.

Yet none of these problems is likely to be uncovered by traditional employee surveys, which tend to focus on salary, benefits and training issues. This is why experts advise managers to adopt a multifaceted approach to measuring employee morale and job satisfaction.

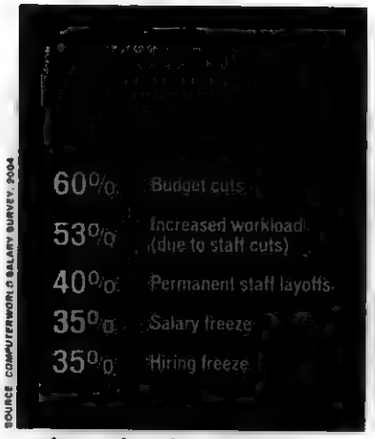
How Employees See It

Despite their unhappiness, IT workers say their greatest fear is losing their jobs as companies continue to cut costs by shifting software development, maintenance and support work to lower-cost domestic contractors and offshore service centers. They've already been made well aware by unemployed colleagues that finding a new job will be difficult, especially since there are more IT workers than jobs in many places. For example, the San Francisco area has suffered a 49% IT job loss between March 2001 and April 2004, according to a study this year by the Center for Urban Economic Development at the University of Illinois at Chicago.

In many cases, workers say the staffing cuts at their companies have been nothing short of brutal, leaving remaining IT professionals overworked and feeling burned out. On average, IT employees are logging 47 hours a week on the job, up from 46 hours a year ago, according to *Computerworld*'s 2004 Salary Survey [QuickLink 49872].

IT workers also are feeling quite cynical toward top management, which they regard as having its head stuck in the sand on key issues ranging from communication to outsourcing.

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SOURCE: COMPUTERWORLD SALARY SURVEY, 2004

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At another company, IT staffers who remained on the job after many IT positions had been outsourced were switched from annual salaries to hourly wages. "Now, you have to get permission to work overtime, but you also have to get your job done. Often this means you have to falsify your time sheets because you don't have that permission," says an IT worker at the company. "It's the worst I've ever seen. It's just really a degrading environment. I used to work with some of the best and the brightest. Now it's all politics and CYA."

Fear of job loss drives other "weird behavior," notes a database expert with 28 years of experience who works at a large manufacturing company in the Midwest. "If you have a health issue, you don't take your sick days because you're afraid when you come back you won't have a job," she says. "If there's a death in the family or a severe illness, people are back to work in the next day or two rather than taking a week. People aren't taking vacation, either. Or if they do, they take a day or two at a time, so people don't really get a rest."

IT, R.I.P.

Underlying workers' complaints about layoffs and burnout is a kind of mourning for what IT used to be — a well-paid profession made up of hands-on problem solvers who were respected for their abilities.

Today, in contrast, "if you want to be someone who is a doer, you pretty much have to be a contract worker," says the database expert. "You can no longer be an employee [because] they're hiring employees to manage and supervise the process, not to do the process. [Management] views the doers as a commodity."

> "The way the job is now, we might as well ask people if they'd like fries with that project."
>
> PROJECT MANAGER, FINANCIAL FIRM

"We're now running more like a sweat shop. We aren't given the little professional-level luxuries that we used to have before," notes an IT worker. "If you order a piece of ergonomic equipment, they'll frown on you. We're not viewed as professionals anymore but as being disposable and replaceable, so you keep your nose to the grindstone."

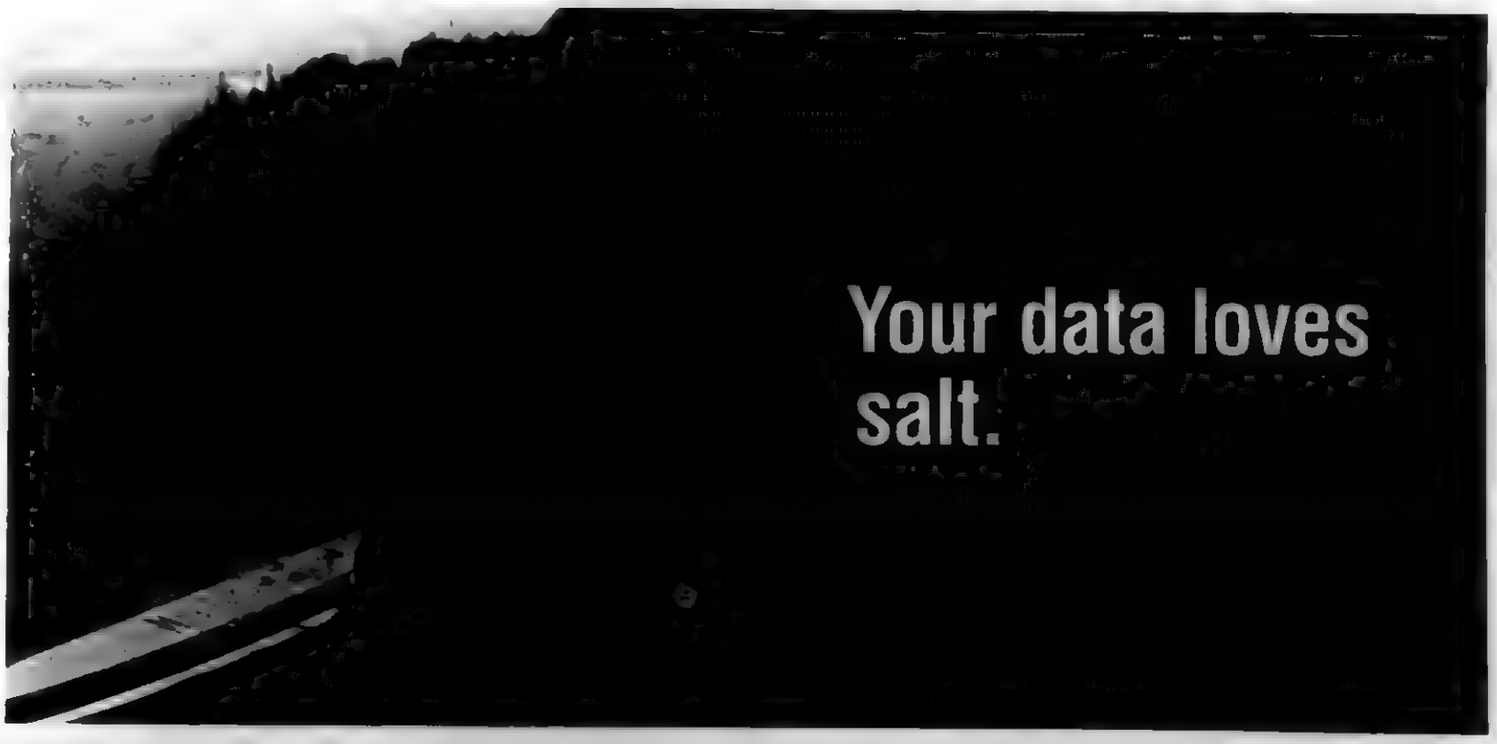
"IT was a career, but now it's a job," says a project manager at a multibillion-dollar financial firm on the West Coast. "The way the job is now, we might as well ask people if they'd like fries with that project."

"IT in general is not the golden boy that it was in the 1990s," says a business intelligence manager at a Texas construction firm who has been in IT since 1984. "We did the 'big wow' projects in the mid to late '90s, and now it's kind of sweeping up. The projects are cool but don't have as much impact." As for mourning the old days in IT, "You get kind of used to being that knight in shining armor who comes in to save the day," he says. "Now we're kind of just humdrums, like we've been married too long."

Expert Advice

Kay Palmer, CIO at J.B. Hunt Transport Services Inc. in Lowell, Ark., says she can understand workers' general dismay over the drastic changes in IT's corporate status. "IT people already employed are seeing less IT investment and less euphoria around IT" than they did in the 1990s, she says. "IT is going from a highly valued, specially treated segment of the company to one viewed with skepticism. That's a tough life to follow."

One tactic Palmer has used to keep IT staffers from feeling marginalized is to publicize the top three IT projects each fiscal quarter. "When people see high-return projects, it helps them see how projects contribute to the overall [business] returns," she says. "It also recognizes the individual people who came up with the idea for the project,"





JONATHAN WEINER

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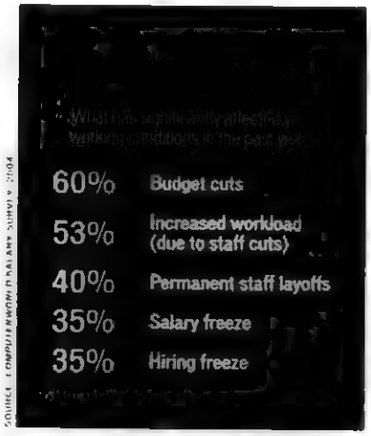
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Fear of job loss drives other "weird behavior," notes a database expert with 28 years of experience who works at a large manufacturing company in the Midwest. "If you have a health issue, you don't take your sick days because you're afraid when you come back you won't have a job," she says. "If there's a death in the family or a severe illness, people are back to work in the next day or two rather than taking a week. People aren't taking vacation, either. Or if they do, they take a day or two at a time, so people don't really get a rest."

IT, R.I.P.

Underlying workers' complaints about layoffs and burnout is a kind of mourning for what IT used to be — a well-paid profession made up of hands-on problem solvers who were respected for their abilities.

Today, in contrast, "if you want to be someone who is a doer, you pretty much have to be a contract worker," says the database expert. "You can no longer be an employee [because] they're hiring employees to manage and supervise the process, not to do the process. [Management] views the doers as a commodity."

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>
> **PROJECT MANAGER, FINANCIAL FIRM**

"We're now running more like a sweat shop. We aren't given the little professional-level luxuries that we used to have before," notes an IT worker. "If you order a piece of ergonomic equipment, they'll frown on you. We're not viewed as professionals anymore but as being disposable and replaceable, so you keep your nose to the grindstone."

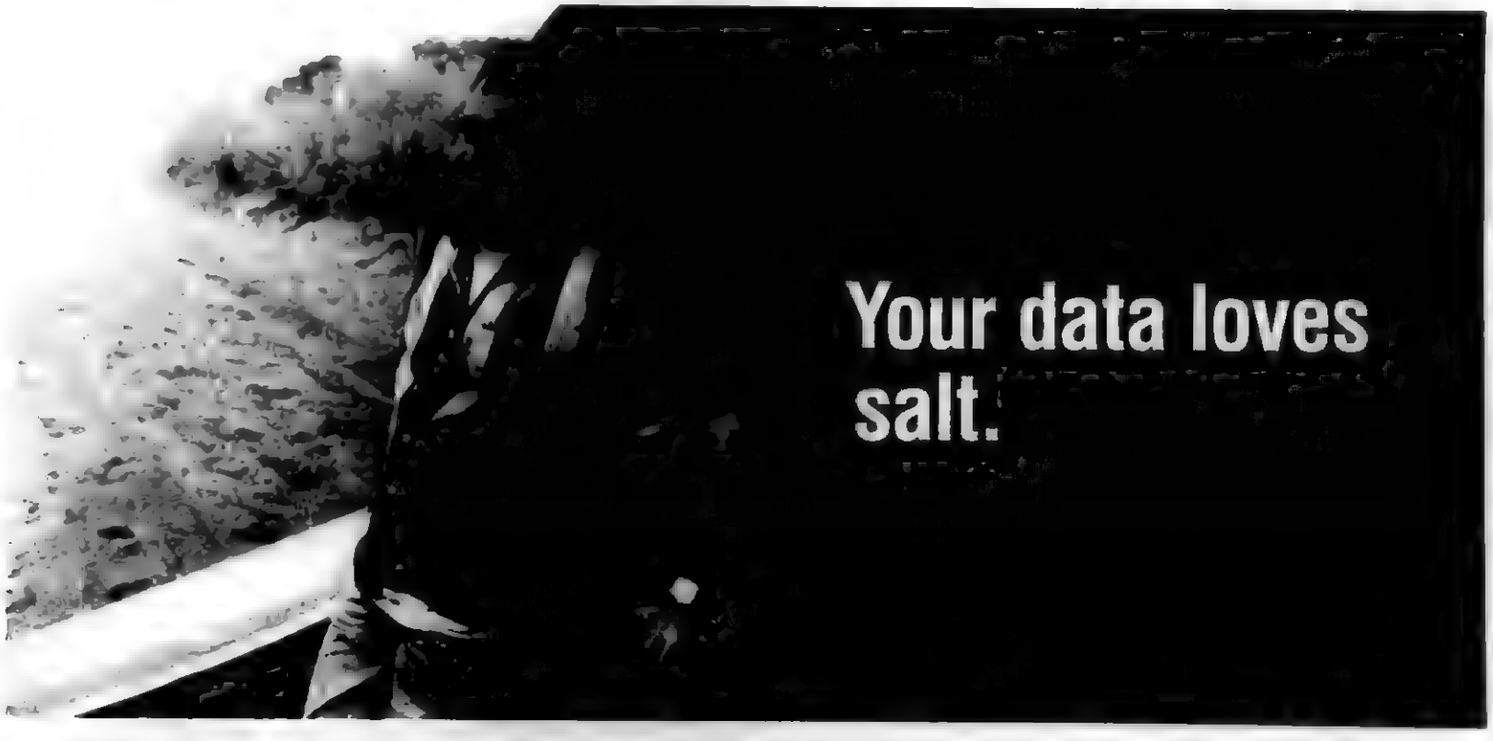
"IT was a career, but now it's a job," says a project manager at a multibillion-dollar financial firm on the West Coast. "The way the job is now, we might as well ask people if they'd like fries with that project."

"IT in general is not the golden boy that it was in the 1990s," says a business intelligence manager at a Texas construction firm who has been in IT since 1984. "We did the 'big wow' projects in the mid to late '90s, and now it's kind of sweeping up. The projects are cool but don't have as much impact." As for mourning the old days in IT, "You get kind of used to being that knight in shining armor who comes in to save the day," he says. "Now we're kind of just humdrums, like we've been married too long."

Expert Advice

Kay Palmer, CIO at J.B. Hunt Transport Services Inc. in Lowell, Ark., says she can understand workers' general dismay over the drastic changes in IT's corporate status. "IT people already employed are seeing less IT investment and less euphoria around IT" than they did in the 1990s, she says. "IT is going from a highly valued, specially treated segment of the company to one viewed with skepticism. That's a tough life to follow."

One tactic Palmer has used to keep IT staffers from feeling marginalized is to publicize the top three IT projects each fiscal quarter. "When people see high-return projects, it helps them see how projects contribute to the overall [business] returns," she says. "It also recognizes the individual people who came up with the idea for the project."



BAD BOSS, Bad Morale

[BY JULIA KING]

Anyone who has ever quit a job will tell you: Good workers leave bad managers, not bad jobs or bad companies.

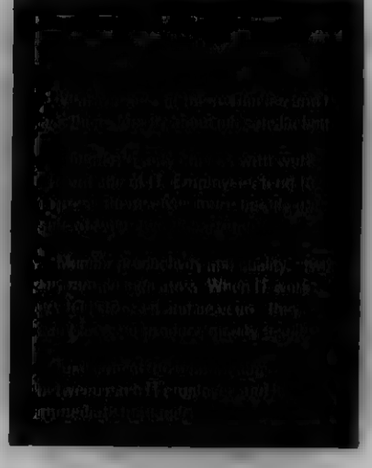
"Direct managers have a huge impact on the morale of an IT employee," says Steve Scott, CIO at Vision Service Plan, an eye care insurer in Rancho Cordova, Calif. At the same time, he acknowledges that by nature, many technology professionals simply aren't natural people managers.

"IT often has this situation where people who are managers are certainly enthused about technology, which makes it easier for them to focus on that rather than on [people] management and leadership skills," Scott says.

That's why Scott has all 23 of his IT managers participate in monthly meetings devoted to management and leadership issues. Also, Scott meets twice monthly with IT staffers as a means of giving them direct and regular access to the company's top IT executive.

"I meet with 15 to 20 employees, and I buy them lunch. I spend about five minutes giving them a high-level overview, and then we open it up to discussion and their questions," Scott says.

But how well does it all work to boost morale and keep employees happy? VSP ranked No. 3 on *Computerworld*'s 2004 Best Places to Work list. But the better measure comes from employees themselves. "There is great emphasis upon keeping employees informed and engaged in all aspects of their jobs and key actions that affect the company," says an IT employee at VSP. "I find that VSP is truly exceptional in this regard." ● 50940





JONATHAN WEINER

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Managers should create a similar kind of transparency around career development plans if they want to minimize IT employees' fears, says K.C. Tomsheck, director of IT at CDW Corp., another Best Place to Work.

To this end, every one of Vernon Hills, Ill.-based CDW's 153 IT workers has an individual development plan, "so they know precisely where they fit in," Tomsheck says. The written document includes technology-specific training plans as well as performance expectations for the year ahead.

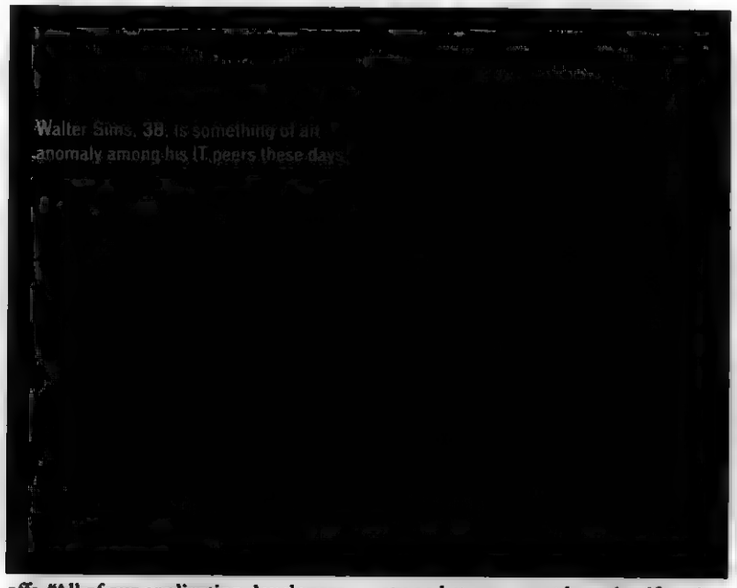
At Miami-based Royal Caribbean Cruises Ltd., each of the company's 325 IT employees has a personal development plan that maps out "where they are now and which competencies they need to develop to get where they want to go," says Greg Martin, manager of integration. "We then use a combination of training, project assignments, mentoring and coaching sessions" for employees to reach their individual goals. "Everyone has a development plan, and we do quarterly and annual reviews of them," Martin notes. This allays employees' fears that they're heading in the wrong direction professionally, he says.

No Fear

Jean Delaney Nelson, vice president and CIO at Minnesota Life Insurance Co., says the best way to avoid fear of layoffs is to avoid layoffs, which she has managed to do by hiring very conservatively. "Unlike airlines, which hire in boom times, we don't do huge staff-ups. If we need to staff downward, we do so through attrition. We've never had a layoff in the IT organization — not because of a no-layoff policy, but due to very careful and prudent staffing to begin with," she says.

St. Paul-based Minnesota Life has also standardized on a single technology set across its lines of business, and this has helped the company avoid lay-

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Last but not least, CIOs at companies with relatively high IT staff morale and satisfaction levels emphasize the critical importance of clear, frequent, honest and euphemism-free communication with IT employees.

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- Visit workers in their cubicles and ask them directly about job satisfaction.
- Conduct reality checks with workers outside IT. Employees tend to express themselves more openly outside of their own departments.
- Monitor productivity and quality – two key morale indicators. When workers feel stressed and insecure, they can't focus or produce quality results.
- Take note of the relationship between each employee and his immediate manager.



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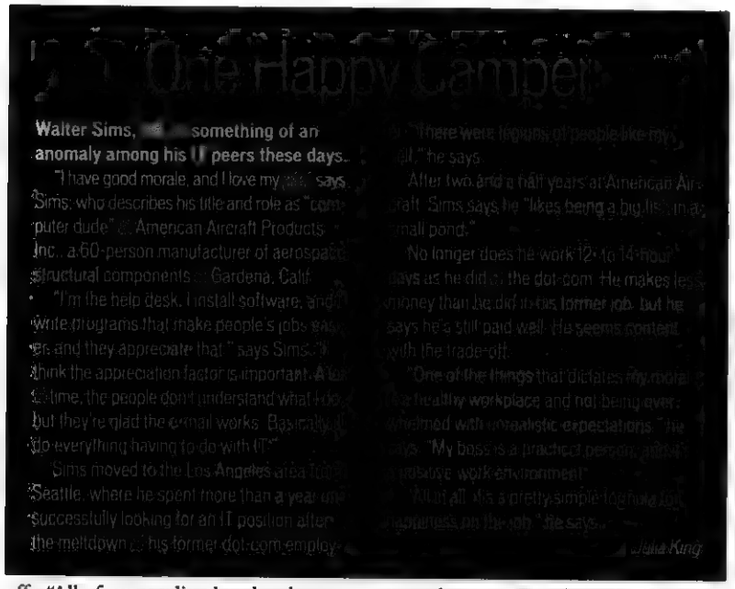
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One Happy Camper

Walter Sims, [illegible] something of an anomaly among his IT peers these days.

"I have good morale, and I love my [illegible]," says Sims, who describes his title and role as "computer dude" at American Aircraft Products Inc., a 60-person manufacturer of aerospace structural components in Gardena, Calif.

"I'm the help desk, I install software, and I write programs that make people's jobs easier, and they appreciate that," says Sims. "I think the appreciation factor is important. A lot of time, the people don't understand what I do, but they're glad the e-mail works. Basically, I do everything having to do with IT."

Sims moved to the Los Angeles area from Seattle, where he spent more than a year unsuccessfully looking for an IT position after the meltdown of his former dot-com employer. "There were legions of people like me," he says.

After two and a half years at American Aircraft, Sims says he "likes being a big fish in a small pond."

No longer does he work 12- to 14-hour days as he did at the dot-com. He makes less money than he did in his former job, but he says he's still paid well. He seems content with the trade-off.

"One of the things that dictates my morale is a healthy workplace and not being overwhelmed with unrealistic expectations," he says. "My boss is a practical person, and it's a positive work environment.

"All in all, it's a pretty simple log from [illegible] happiness on the job," he says.

— Julie King

offs. "All of our application developers support a standard set of tools. If we have a staff reduction in one area, we can easily move them to another," Delaney Nelson explains.

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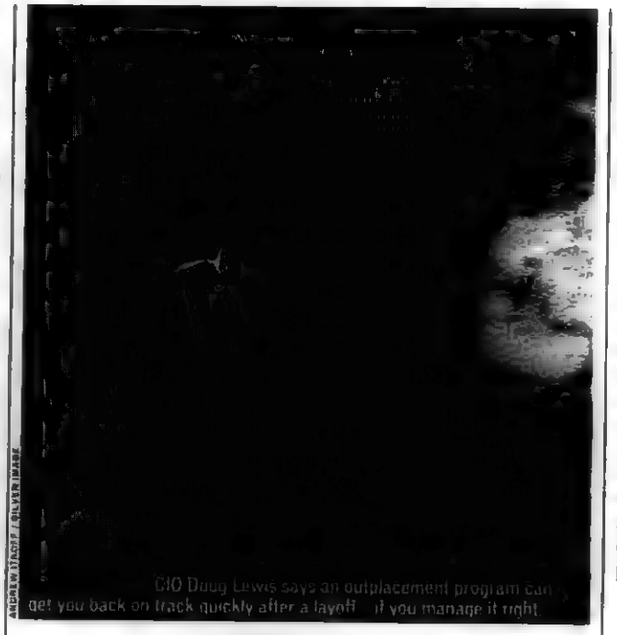
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After THE Layoff

Outplacement services can boost your job search or suck the energy right out of you. It all depends on who takes charge. BY DOUG LEWIS

Lost your IT job, but your company is supplying you with an outplacement service? Watch out! Used incorrectly, outplacement can be an impediment to finding your next position. Used properly, it can fast-track you into an ideal job situation. It's your future, and it's up to you to manage your outplacement service correctly. Here are five steps for managing the process to achieve your career goals.



ANDREW UTGOFF / SILVER IMAGE

CIO Doug Lewis says an outplacement program can get you back on track quickly after a layoff — if you manage it right.

1 TAKE CONTROL OF THE RELATIONSHIP. Ask your former company's HR manager what services you are entitled to and for how long. Ask if an extension is available if you are unable to find a job before your package expires. Many packages offer an optional six-month extension, but if you don't ask, you won't receive it. Make sure the outplacement counselor assigned to your case agrees with HR on the benefits.

Even the best outplacement companies tend to lump clients into groups. If you get pushed into a group of sales, marketing or advertising people, you'll be the outsider and you won't get the intended benefit of lead sharing, résumé polishing and interview coaching. Insist on a group that has other IT people, and try to get grouped with people who have better packages, not lesser ones.

Ask your counselor about his experience placing IT people. If he doesn't have a good IT track record, ask for someone who does. Let your counselor know you will be evaluating his performance, and ask for a different counselor if yours doesn't perform.

2 SET YOUR OWN AGENDA. The outplacement protocol immediately pushes you into a series of tests designed to help you decide what you're best fitted to do. Don't get railroaded into doing the tests before you're ready.

Talk with your spouse, friends and associates first. Be realistic about your abilities and your goals. If you want to get out of the IT field, know the risks, understand the training required and have a backout plan to return to IT if the new career doesn't work out. Ask your counselor to introduce you to people who have successfully gone down the path you want to follow.

Put your goals in writing and share them with your counselor. Then take the tests and look for a good match. If you want to become an independent consultant, for example, be sure your personality and skills fit the profile of a successful "Lone Ranger."

Lay out a plan to achieve your goals, then work with your counselor to match the outplacement services with your plan. If the services and your plan don't match, ask the counselor to modify the package. You may need to give up one service to get another, but most counselors like to work with innovative clients, so be bold.

IT MENTOR

3 WORK YOUR PLAN. Set milestones and metrics, and measure your progress. Be sure your outplacement counselor understands your plan and how he fits into it. Ask for advice, but be wary. He may never have been where you are.

The more senior the job, the more your appearance plays a role in the decision. IT people aren't known for being the sharpest dressers, so dress as you would for an interview and ask your counselor for honest feedback.

Periodically evaluate your plan. If you're missing every milestone, your plan, not you, is probably at fault. Enlist your counselor in evaluating your plan, and revise it.

4 BE WARY OF NETWORKING GROUPS. There are more such groups in IT than in any other field. These groups can make you feel good but waste your time. Attend a meeting if you're invited, but size it up quickly.

Determine the group's "level" by asking members what types of IT jobs they've had in the past and what they're looking for now. If the members are all data center rats and you're looking for a middle management or senior-level IT job, get out. You can't help them, and they can't help you.

The worst groups are pity parties populated by perpetual losers. If it's a loser group, don't go back.

The best groups are those with good track records of "graduates" who have quickly found jobs. Call some of those graduates. Look for the group's connections to hiring managers in the type of companies you want to work for.

Remember: You are emotionally vulnerable, and these groups can make you feel better about your situation because it's shared pain. But you don't need to share your pain; you need to get rid of it by finding a great job.

Respect your time. Spend it with people who can get you into an interview or are likely to hire you, not people who can't find a job.



5 PROTECT YOUR PHYSICAL AND MENTAL HEALTH. Being between jobs is tough. It's easy to let despair creep into your life and eventually take over. You are going to get a lot of turndowns before you hear, "You're hired." Find a way to deal with it.

Your counselor should help you turn rejections into data. Work with him to analyze the reasons for the turndown and adjust your approach accordingly. If you hit an emotional low point, the outplacement company should provide professional help.

IT people aren't always the most outgoing, and it's tempting to retreat into a totally Web-based job search. Don't fall into this trap. People hire people, and the hiring process is far more subjective and empathy-based than many managers would like to admit.

If outplacement services are available, it's up to you to manage them wisely. Make the outplacement company serve your plan. 40490

Lewis is CIO at Carnival Corp. in Miami. Contact him at dlewis@carnival.com.

Career Watch

INCREASING CONFIDENCE *in the job market is awakening the wanderlust among U.S. workers. According to a recent survey of 406 executives, 62% aren't satisfied with their jobs. Among those whose aren't satisfied, 97% plan to change jobs within the next six months.*

The survey was conducted by ExecuNet Inc., an executive job search service in Norwalk, Conn. Computerworld's Thomas Hoffman talked with ExecuNet President **Mark Andersen** *about the job climate for IT executives.*



What's the current market like for CIOs and other senior IT executives? We're increasingly bullish about the IT area for a number of reasons. Recruiters have been telling us for the last nine or 10 months that the employment market for senior executives is increasing by about 16%. We see that for technology executives as well. Since Labor Day, the market has gotten stronger, and companies are extending more executive searches. That's an indication that the market is going to get better and not decline.

What's fueling this? It's really the continued expansion of the economy. In the earlier stages, companies were being cautious, but along about July or August, they started hiring in a stronger fashion.

Are you seeing an increase in demand for short-term or temporary IT executive positions? We don't track anything in particular in that area, but we have seen a lot more full-time consulting positions. That may also have to do with the [economic] expansion as companies are trying to fill those positions first. From the second quarter to the third quarter, demand for IT management positions was up a solid 5%, and CIO hires were up 3%. **ID 58244**

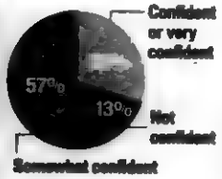
Good Boss, Bad Boss

A recent survey of 1,400 randomly chosen individuals by CareerBuilder.com found that of those with:

RELATIONSHIPS WITH THEIR BOSSES	RELATIONSHIPS WITH THEIR BOSSES
34%	18%
30%	25%
25%	13%

Spirits Up

How confident are you that the job market will improve over the next six months?



BASE: 161 EXECUTIVES
SOURCE: EXECUNET INC.

Charity Pays

All things being equal, would choose to work for a company that supports charitable causes, according to a new survey sponsored by Deloitte & Touche LLP. The response rate climbs to over the age of 18:

92 think companies should support community charities.

87 think companies should offer volunteer opportunities to employees.

67 think workplace volunteer opportunities improve morale.

BASE: 1,328 EMPLOYED AND 841 UNEMPLOYED U.S. ADULTS SOURCE: HARRIS INTERACTIVE INC., ROCHESTER, N.Y., OCTOBER 2004

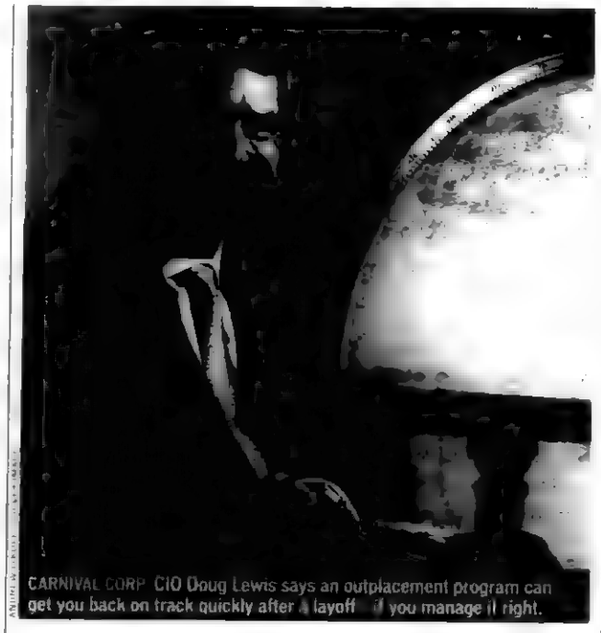
We're inspired by the human side of data. GPS navigation systems provide more than [illegible] offer the freedom to go anywhere the waves are breaking, or find the [illegible] urban jungle. That's why durable Hitachi hard disk drives are the [illegible] choice of [illegible] surfers, and hungry drivers. From the [illegible] largest SAN solution. Data Storage from Hitachi.

HITACHI
Inspire the Next

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Lay out a plan to achieve your goals, then work with your counselor to match the outplacement services with your plan. If the services and your plan don't match, ask the counselor to modify the package. You may need to give up one service to get another, but most counselors like to work with innovative clients, so be bold.

IT MENTOR

3 WORK YOUR PLAN. Set milestones and metrics, and measure your progress. Be sure your outplacement counselor understands your plan and how he fits into it. Ask for advice, but be wary. He may never have been where you are.

The more senior the job, the more your appearance plays a role in the decision. IT people aren't known for being the sharpest dressers, so dress as you would for an interview and ask your counselor for honest feedback.

Periodically evaluate your plan. If you're missing every milestone, your plan, not you, is probably at fault. Enlist your counselor in evaluating your plan, and revise it.

4 BE WARY OF NETWORKING GROUPS. There are more such groups in IT than in any other field. These groups can make you feel good but waste your time. Attend a meeting if you're invited, but size it up quickly.

Determine the group's "level" by asking members what types of IT jobs they've had in the past and what they're looking for now. If the members are all data center rats and you're looking for a middle management or senior-level IT job, get out. You can't help them, and they can't help you.

The worst groups are pity parties populated by perpetual losers. If it's a loser group, don't go back.

The best groups are those with good track records of "graduates" who have quickly found jobs. Call some of those graduates. Look for the group's connections to hiring managers in the type of companies you want to work for.

Remember: You are emotionally vulnerable, and these groups can make you feel better about your situation because it's shared pain. But you don't need to share your pain; you need to get rid of it by finding a great job.

Respect your time. Spend it with people who can get you into an interview or are likely to hire you, not people who can't find a job.

Do
- Know the details of your outplacement program.
- Get placed in an appropriate counseling group.
- Demand an IT-savvy counselor.
- Set realistic goals.
- Measure your progress.
- Revise the plan as needed.
- Learn from rejection.

Don't
- Give up control.
- Get discouraged.
- Use networking groups as a crutch.
- Retreat into Web searches.
- Allow your health to suffer.

5 PROTECT YOUR PHYSICAL AND MENTAL HEALTH. Being between jobs is tough. It's easy to let despair creep into your life and eventually take over. You are going to get a lot of turndowns before you hear, "You're hired." Find a way to deal with it.

Your counselor should help you turn rejections into data. Work with him to analyze the reasons for the turndown and adjust your approach accordingly. If you hit an emotional low point, the outplacement company should provide professional help.

IT people aren't always the most outgoing, and it's tempting to retreat into a totally Web-based job search. Don't fall into this trap. People hire people, and the hiring process is far more subjective and empathy-based than many managers would like to admit.

If outplacement services are available, it's up to you to manage them wisely. Make the outplacement company serve your plan. 49490

Lewis is CIO at Carnival Corp. in Miami. Contact him at dlewis@carnival.com.

Career Watch

INCREASING CONFIDENCE *in the job market is awakening the wanderlust among U.S. workers. According to a recent survey of 406 executives, 62% aren't satisfied with their jobs. Among those whose aren't satisfied, 97% plan to change jobs within the next six months.*

The survey was conducted by ExecuNet Inc., an executive job search service in Norwalk, Conn. Computerworld's Thomas Hoffman talked with ExecuNet President **Mark Anderson** *about the job climate for IT executives.*



What's the current market like for CIOs and other senior IT executives? We're increasingly bullish about the IT area for a number of reasons. Recruiters have been telling us for the last nine or 10 months that the employment market for senior executives is increasing by about 16%. We see that for technology executives as well. Since Labor Day, the market has gotten stronger, and companies are extending more executive searches. That's an indication that the market is going to get better and not decline.

What's fueling this? It's really the continued expansion of the economy. In the earlier stages, companies were being cautious, but along about July or August, they started hiring in a stronger fashion.

Are you seeing an increase in demand for short-term or temporary IT executive positions? We don't track anything in particular in that area, but we have seen a lot more full-time consulting positions. That may also have to do with the [economic] expansion as companies are trying to fill those positions first. From the second quarter to the third quarter, demand for IT management positions was up a solid 5%, and CIO hires were up 3%. **50244**

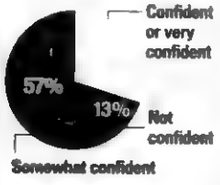
Good Boss, Bad Boss

A recent survey of 1,400 randomly chosen individuals by CareerBuilder.com found that of those with:

GOOD RELATIONSHIPS WITH THEIR BOSSES	BAD RELATIONSHIPS WITH THEIR BOSSES
34% had received raises of 6% or more in 2004.	**19%** had received raises of 6% or more in 2004.
16% thought they had been overlooked for promotions.	**25%** thought they had been overlooked for promotions.
26% saw little opportunity for advancement.	**63%** saw little opportunity for advancement.

Spirits Up

How confident are you that the job market will improve over the next six months?



BASE: 181 EXECUTIVES
SOURCE: EXECUNET INC

Charity Pays

All things being equal, 72% of employed Americans would choose to work for a company that supports charitable causes, according to a new survey sponsored by Deloitte & Touche LLP. The response rate climbs to 87% for employed students over the age of 18.

92% think companies should support community charities.

87% think companies should offer volunteer opportunities to employees.

57% think workplace volunteer opportunities improve morale.

BASE: 1,328 EMPLOYED AND 841 UNEMPLOYED U.S. ADULTS **SOURCE:** HARRIS INTERACTIVE INC., ROCHESTER, N.Y., OCTOBER 2004

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Inspire the Next

Hiring Nerds

Author lays out practical strategies for staffing up IT



A new book will take a lot of the angst out of staffing up for those IT shops lucky enough to be doing so. Hiring the Best Knowledge Workers, Techies & Nerds: The Secrets & Science of Hiring Technical People *(Dorset House, 2004), by* **Johanna Rothman**, *is a highly practical tome about hiring IT folks. Rothman talked with Kathleen Melymuka about strategies and pitfalls in IT hiring.*

What's the biggest mistake IT hiring managers make when they prepare to hire someone? I see mistakes in these areas: 1) Hiring based on a tools checklist — some number of years of Java or WinRunner — as opposed to hiring someone who can adapt his/her knowledge to the products at hand. This is the biggest one I see. 2) Hiring for the future instead of the present. I see this one almost as much. Hiring someone who the manager *thinks* will have the skills to grow into a new or different role in the future. 3) Not considering how a new hire will fit into — or not! — the team. People are not just a collection of technical skills. If they can't get along with the rest of the team, it can be close to impossible to use their technical skills to move the work forward.

Isn't hiring for aptitude the same as hiring for the future? No. I see people saying, "I need someone to be a tech contributor now, but I want him to be a tech lead in six months," so they hire someone with management experience and hope he or she can do the work. I see that a lot in hiring developers. But they're managers, not architects. They're capable of doing the management, but they can't actually do the architectural work. If you need an architect and a manager and you can only have one, decide which you need now and hire that person. Figure out how to deal with the other part later. You can't get both.

How do I read between the lines in a résumé? What do I look for? Look for action verbs to describe what a candidate accomplished. Look for some quantifiable benefit of what the candidate accomplished. See if you can see an ever-increasing range of responsibilities. Make sure that if you see similar jobs over and over again that you ask about that to determine whether the candidate has had the same year of experience several times.

That would indicate a lack of growth? Yes. It's OK to be comfortable on the job, but if you do exactly the same work with no change in skills over several years, you're not increasing your value, and your résumé will show that.

Hiring technical managers gets a separate chapter. What makes that particularly challenging, and what's the key to getting it right? You can't just judge a potential manager by how well he or she performs the functional tasks of the job. But how do we, as a field, normally promote or hire managers? By taking the best technical person and promoting/hiring that person. Wrongo! A manager needs to be able to understand the issues of the roles he or she is managing — but not necessarily to perform that work.

A common problem I see is to ask a manager to manage several functions at too low a level. It's not uncommon to see a manager of test and operations. Anytime you see an "and" in a title, you can tell the company is looking for a superman/woman, and most people cannot make that kind of work succeed. A director level or VP level could manage a title with an "and" in it, because at that level, the manager needs to spend much of his or her time on strategic issues and developing action plans to deal with the issues. But at a first-level management role, the manager deals with primarily tactical issues. If you're managing test and operations, which one do you pay attention to first? You're doomed.

What's the most crucial thing to learn about a candidate during an interview, and how do you learn it? Whether the candidate has actually performed work claimed on his or her résumé. The way you learn this is with a combination of behavior description questions — "Tell me about a time when . . ." — and an audition, to watch the candidate in action and see if the candidate can actually work the way he or she claims.

You include a chapter on sourcing candidates. What are some of the underused sources of good technical people? Professional meetings and conferences. At professional meetings, people who are interested in the field, who are probably willing to learn new things, have taken the time to attend a meeting. Even if those people aren't right for you, they might know someone else.

Conferences are a great way of seeing other people's interests, and maybe a little on how they learn.

What are the red flags that should almost always veto a technical candidate? Lying about previous work. I can't imagine a circumstance in which a hiring manager would want someone who has lied about previous work. And the same year of experience multiple times. A manager may not need the person who can learn anything in no time flat, but anyone who's not willing to take on something new every so often is not a good candidate for a fast-moving field such as IT. **50466**



THE TEAM APPROACH

Author Johanna Rothman suggests using a team approach to evaluate candidates through a series of interviews. Here's why:

- One person can't learn enough about a candidate to understand everything about how he might work in the organization. Other perspectives are necessary.
- The entire interviewing team will gain a deeper insight about the candidate. Questions and answers are richer because each interviewer can focus his time and his questions.
- The entire interviewing team will learn a little about how it might be to work with the new person, easing the integration of that person into the team.
- The hiring manager can't possibly know all of the questions to ask and how to evaluate all the answers. Depending on the rest of the team for help in the interviewing process relieves the manager from having to be omniscient.

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EXEC TRACK

Zierhoffer to Head Northrop IT Group

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Ex-CIO Appointed To Lead Neogent

Neogent Inc. in Austin has appointed Dennis Faggioni as CEO. Faggioni has more than 15 years of experience, including serving as CIO at Scottsdale Insurance Co., Salt River Pima-Maricopa Indian Community, and Insight Enterprises Inc. Faggioni previously worked in various management positions at IBM. Neogent provides content, compliance and secure identity software.

Jacob Takes Post At Energy Solutions

Al Jacob, former CIO of Koch Pipelines Co., has joined Energy Solutions International in Houston as executive vice president of global services. Jacob will focus on providing automation for clients of the company, which makes oil and gas pipeline management software. Before moving to Koch as CIO in 1997, Jacob spent 13 years at Electronic Data Systems Corp.

Taylor Moves Up At Delta Dental

Marland Taylor has been named vice president of systems development at Delta Dental of California and affiliates in 16 states plus the District of Columbia. Taylor will oversee systems development and analysis and software maintenance. A 10-year veteran of the company, Taylor has held the positions of director of information systems and manager of commercial operations at San Francisco-based California Delta.

BART PERKINS

Outsourcing: First Ask Why

MOST COMPANIES initially consider outsourcing in order to reduce costs. While saving money is a valid reason for making that choice, it's usually not the only factor. Many organizations find that their outsourcing decisions are shaped by a variety of motivations, but identifying and prioritizing them early can help you make better decisions later. Here are some possible motives for outsourcing.

To acquire specialized skills. Many projects require technical skills that the company doesn't employ, either because it doesn't need them on a full-time basis or because it has been unable to hire people with the desired skills.



To meet uneven staffing demands. Some companies facing large development projects expect that when those projects are completed, the need for development staff will decrease significantly. They don't want to add new employees, only to lay them off in a year or two. Migration to a new technology base also creates uneven staffing demands, resulting in an increased demand for new skills and a decreased demand for old.

To mitigate risk. Organizations embarking on high-risk projects generally look for outsourcing partners with deep domain expertise. While the buyer should never outsource total responsibility for the project, hiring additional staffers with relevant experience reduces risk.

To change fixed costs to variable. Employees are generally considered a fixed cost. Outsourcing provides the flexibility to increase or decrease staff size easily and quickly as business conditions dictate.

To improve service. Many companies outsource to increase the level or the consistency of their service. For example, it's not uncommon to find that every major location within a large corporation has its own help desk, each with its own service levels. Outsourcing all of the help desks to a single provider will standardize service and guarantee appropriate service levels.

To impose process controls. Outsourcers make money by standardizing processes. Organizations with weak development practices may use the discipline of a Capability Maturity Model Level 5 outsourcer to force their own people to adopt consistent processes. Similarly, some organizations use outsourcing to impose financial discipline across the company.

To focus management time. Outsourcing noncritical items enables management to focus on core competencies and critical projects.

To maintain objectivity. Technical staffers often become loyal to the technology base they support and may not make the best decision if they're lacking an impartial tiebreaker.

For example, a recent merger resulted in equal numbers of Notes and Exchange users. The CIO used an outside technical expert to get the warring parties to make the best architectural decision based on the needs of the business.

Your company should identify and prioritize its motivations, and there needs to be a clear consensus among the management team. While this sounds straightforward, it's not necessarily easy to achieve.

Recently, the chief financial officer of a Fortune 500 client stated that cost cutting was the only important motivation and that all other considerations were "noise-level."

The CIO agreed that cost was important but felt that access to specialized technical skills and the ability to meet demand spikes were equally important. These differences could have turned their outsourcing decisions into a full-scale battle.

Moreover, valuable time and resources would have been wasted in selecting an outsourcer whose performance would have eventually proved unacceptable to one of the executives.

In contrast, clearly defined motivations help you optimize crucial areas of your outsourcing:

Partner selection. Different outsourcers bring different advantages and disadvantages. Well-defined motivations make it much easier to match their strengths to your needs and help eliminate unacceptable candidates.

Contract terms. Motivations are the foundation for successful contract negotiations. They drive your negotiation strategy and help you determine which points to concede and which to insist upon.

Cost/service-level trade-offs. Motivations help you determine the right balance between how much you pay and the level of service you receive. Most outsourcers can provide significantly improved service — for significantly increased fees.

Metrics development and management. Your motivations should drive the metrics against which you and your outsourcer manage your project, since what you measure is ultimately what you get [QuickLink 44278].

Clearly define and prioritize the motivations that drive your outsourcing decisions before you select your outsourcer and begin to negotiate. You'll find that motivations drive many aspects of the outsourcing process, and understanding them will help your outsourcing efforts succeed. **50272**

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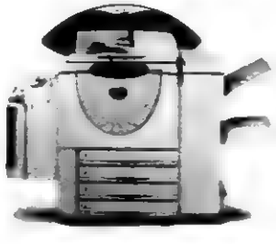
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Advertising Supplement

IT Careers with the National Laboratories

Among the intellectual set, working at one of the country's national laboratories is similar to "going to the big show" for a baseball player. It's the top rung of a technical career, offering opportunity to the best and brightest to be involved in basic research. From the latest in energy research to nanotechnology development, the laboratories are using information technology to create what once was considered science fiction.

In all, the national laboratories hire better than 3,000 people each year in primarily technical slots. While a goodly portion of these jobs requires doctoral studies in highly specific areas, there also are career entry opportunities. And the jobs are spread among the projects and programs in research that are conducted in the labs, as well as in the computer information divisions that keep the labs humming. The most important aspect of applying for a national laboratory position is the need for a security clearance. Whether a director in the top tiers of management or an analyst evaluating systems, you'll need to be able to gain a high ranking Q clearance.

Among the ways of securing the clearance is to take part in internships prior to graduation. However, if you're already a seasoned IT professional, it's crucial to get that clearance to provide a hiring edge.

In general, the laboratories are managed by large corporations such as Battelle or Lockheed Martin, universities such as University of California or University of Chicago, for the Department of Energy. Pay is highly competitive, retention is intentionally high; however, corporate bonus structures follow a federal model rather than corporate models.

Here's an overview of the labs and their missions.

Argonne National Laboratory, Chicago, IL. Argonne is operated by the University of Chicago. The staff conducts research in physical, life, and environmental sciences as well as enhances and advances energy resources and technology. More recently, this Chicago based lab is working to manage and solve environmental problems and contribute technologies to counter terrorism threats.

Brookhaven National Laboratory, Brookhaven, NY. Brookhaven focuses on high energy and nuclear physics. Its technical staff has openings for high-energy physicists who also have expertise in C++, an example of the highly specific talents being sought.

Idaho National Engineering and Environmental Laboratory, Idaho Falls, ID. This facility has more than 6,000 scientists, engineers and employees. The lab undertakes research in environmental, energy, basic science and national defense. Bechtel operates the lab.

Lawrence Livermore National Laboratory, Livermore, CA. Livermore is operated by the University of California. Its mission is to support national security, ensuring that the country's nuclear weapons are safe, secure and reliable. The staff includes an Information Operations and Analysis Division and is among the labs most involved with cyber security issues. Among the system demands being implemented is a secure wireless network for employees.

Los Alamos National Laboratory, Los Alamos, NM. Los Alamos makes headlines for more than security breaches – this is home to space exploration, nuclear research and was founded as the birthplace of the atom bomb. The lab is operated by the University of California. The lab offers career-starting positions in computer science, physics, computer engineering and software, with an emphasis on artificial intelligence, security and large-scale computational sciences.

National Energy Technology Laboratory, Pittsburgh, Tulsa and Morgantown, WV. NETL is the only national lab that is operated and managed by the Department of Energy. Its role is to conduct research that advances fossil energy exploration, supply and end use technology. In addition, it now includes environmental research and technologies.

National Renewable Energy Lab, Golden, CO. Operated by Midwest Research Institute and Battelle, NREL staff members are involved in the study of renewable energy and energy efficiency research. While geologists and PhDs in statistical analysis dominate the staff, there also is a strong information technology organization with openings in senior analysis slots.

Oak Ridge National Laboratory, Oak Ridge, TN. Operated by the University of Tennessee, Knoxville, Oak Ridge is known as the "ultimate scientific community." Opportunities focus on ultrascale computing, large-scale simulations and technical support for the organization's energy-based research

Pacific Northwest National Laboratory, Richland WA (with operations in San Antonio, TX and other sites). PNNL is a center of excellence for the national labs in computational sciences. Cyber security is a major focus for the staff, as is basic scientific research and insertion of new technologies into full-scale operation.

Sandia National Laboratory, Albuquerque, NM. Operated by Lockheed Martin, Sandia has an extensive reach in technologies and research, from fundamental research to projects that support national security, nuclear weapons, nonproliferation and assessment, military technology and energy. Among its newer assignments, the lab is heavily involved with infrastructure assurance and homeland security. Over the past five years, Sandia has hired 400 engineers and technicians annually.

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Produced by Carole R. Hedden

Software Applications Engineer - Design, develop, implement and modify computer software applications for use in testing and validating integration of software and hardware systems employed in FDA regulated medical devices, and conduct research to validate systems and report results, utilizing Labview, advanced computer simulation techniques, computational physics, advanced EMM, and superconductivity. Requires B.S. or equivalent degree in Computer Science, Math, Physics, Engineering, Chemistry (math based) or closely related field, and three years experience developing software applications utilized to test and validate operational software and hardware in medical devices. (Note: Employer will accept M.S. level degree in Computer Science, Math, Physics, Engineering, Chemistry (math-based) or closely related field in lieu of three years of experience.) Send resume to: Michelle BeAzan, Human Resources, Stereotaxis, Inc., 4041 Forest Park Ave., St. Louis, MO 63108.

Software Engineer (Applications) (National Placement, two (2) positions). Develop, create and modify computer applications software for clients; analyze user needs and provide solutions; design, architect customized software modules and applications with the aim of optimizing operational efficiency. Both positions require a Bachelor's Degree in Engineering or Computer Science and four years of related experience. Position 1 requires a Java/Oracle Programmer with at least one (1) year experience in digital certificates/SL security programming. Skills must include JAXB, HTTP/HTTPS SSL, log4j, Websphere, WebSD, LDAP, RDBMS. Position 2 requires a Mainframe Programmer with a minimum of two (2) years working with State Government Welfare & Unemployment Insurance Systems that includes experience in 1) COBOL, 2) CICS 3) JCL 4) REXX 5) DB2 6) IMS. $70,500/yr, 40 hrs/wk, 9a - 6p. Send resumes, listing Job Order # WEB468727 to Site Manager, Beaver County CareerLink, 2103 Ninth Avenue, Beaver Falls, PA 15010-3957

Engineer

Sr. Software Engineer

VoIP Systems

Design, develop and implement complex network monitoring and billing applications for global Internet Telephony voice and data networks to include routing and DNIS rollup tools, pricing, and mc time-tuning and enhancement of the same and automation and integration of business processes. BS Engineering with 5 years experience as Software Engineer and/or Programmer/Analyst with prior experience to include development of billing systems and software applications for VoIP-Telecom industry. Send resume, referencing Job Code: CW11-8, to: Teleglobe (formerly ITXC Corp.), 750 College Road East, Princeton, NJ 08540 EOE

Database Administrator: MS SQL Servers/Sybase Dbases. Install, maintain MSSQL Server(s) & Sybase d/base w/data migration & integrity for complex, high end OLTP d/base(s) w/corollary duties. Exp w/Pathfinder applic & ESPRANT tool. Req: Bach of Engg/Sci; Comp w/relevant certifications & 3 yrs exp. Resume only (no calls/e-mails) to: Attn: CW/SF, National Medical Health Card, 26 Harbor Park Dr., Port Washington, NY 11050

Computers - Seeking qualified candidates for senior and mid-level IT professional positions including: Software Developers, Software Engineers, Web Administrators, IT Analysts & Technical Consultants. Qualified candidates must possess MS/BS or equiv and/or rel. work exp. Duties include: Work with 3 of the following: C, C++, Java, XML, JSP, Visual Basic, SQL, PL/SQL, Perl, and ASP. Fwd. resume & references to: ICSA, Inc. 477 Congress Street, Suite 1002, Portland, ME 04101.

Senior Consultant to perform Oracle, Siebel, Ariba & other ERP implems. re: functnl. & tech d/zn, conversions, customizn. of Oracle Mfrng. & Finance Applns. D/zn & dev w/ Oracle (8.0.5; 8.1.6, & 8i), Oracle dev tools & SQL Loader, TOAD, & DBA Studio ID & doc biz & tchl. req's to ensure d/zn comply w/ biz. thls & QTC processes. Resp for strategy, opns., data conversion, interfaces & mapping, form, rpts. d/zn, & training. Provide primary client contact thru utilizing owned & alliance partner resources. Pursue & secure new partnerships & enhance contract scope. Adhere to budgets & schedules. BS in Mech. or Ind. Engineering + 11 mo. exp. in job duties. Apply A-1, 4278 Covington Hwy., Decatur, GA 30035 w/ proof of perm. w/k authzn.





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Software Analyst. Under senior supervision, analyze, design, implement and maintain software for some of the leading banks in the mortgage industry. Develop new software not currently existing in the industry. Design software using modern software design tools in operating system platforms. Deploy applications on application servers. Design and model databases on database servers. Must have Bachelor's in Comp Sc, Engg or related, and must have knowledge of Rational Suite, Microsoft Vision, Linux, Solaris, Oracle 7/8i, MySQL, and SQL Server. Send resume to Mark Loomis, Praxus Technology Group, LLC, 1500 NW 118th St., Des Moines, IA 50326.

Prog Analyst. Design, develp & maintain news website. Create page layouts using QuarkXpress, PageMaker, CorelDraw, Illustrator & PhotoShop. Prep files for printing by pulling bleeds, replacing & calling out images. Use Adobe Acrobat & PhotoShop for production & output w/press specifctn by doing color correction, image cutting & other digital imaging techniques incldng color separation running Pitstop s/ware. Post/retrieve files to FTP server. Rsrch, anlyz & troubleht corrupt data utilizing Java, C, & C++. Req Bach deg or forgn equiv in Sci, Comp Sci, Buss Admin or Comm & 2 yrs exp in duties listed. In lieu will accept 3 yrs college & 2.5 years exp or any comb of edu, training &/or exp. Resume to Director, HR, India Abroad Publctns, 43 W. 24th St, 7th Fl, NY, NY 10010. Fax 212-627-9503.

Software Engineer. For proprietary trading firm, responsible for source code control & maintaining a homegrown configuration mgmt system that runs on Solaris & Windows platforms, develop tools & procedures to facilitate proper usage of configuration mgmt system & educating developers on the usage of those techniques; upgrade 3rd party tools as needed to support software development dept. Reqs: Bachelors or equiv in Comp Sci, Engineering or related field, 3 yrs exp in job offered or 3 yrs software development or configuration mgmt exp. Exp must incl. using Perl and C++ on Unix & Windows NT platforms. Proficiency in Windows Shell Scripting, dmk, sed, Rogue Wave Libraries, MKS & greater. 40 hrs/wk. Send res. to S-1, P.O. Box 17182, Phila., PA 19105.

Application Database Administrator (DBA) in Bioinformatics, applying expertise in Oracle versions 7 through 9 & MySQL to Bioinformatics applics. Work w/multi-site project teams to dsgn & create schemas to represent biological data, applying genetics/genomics knowl. Dvlp PL/SQL code to satisfy business rule reqmts for projects. Leverage expertise w/distributed d/bases to provide enterprise-wide, integrated data envrnmt; implmt new Oracle features to optimize performance & functionality. Utilize applic domain expertise during release processes; data curation & transformation tasks throughout applic life cycles; implmt monitoring & reporting tasks to identify & predict problems. Provide daily support to Bioinformatics d/base customers. Use & reinforce project mgmt processes from dvlpmt to test to production. Be available for scheduled off-shift activities to minimize production downtime. Liaison w/system DBA group to negotiate requests to meet Bioinformatics needs while conforming to sids & procedures. Req: B.S. or foreign equiv in Comp Sci, Engg or a related field, 4 yrs exp as an Oracle DBA. Following exp which may have been obtained concurrently: 3 yrs exp w/distributed d/base architecture, incl instance configuration & query execution; 2 yrs exp in Bioinformatics; 2 yrs exp w/ genetics & genomics terminology & meaning; & 2 yrs exp in SQL, PL/SQL, UNIX & MySQL. Resume to: E. Franklin, GlaxoSmithKline, 5 Moore Dr, Research Triangle Park, NC 27709.

Quality Assurance Engineer to develop testing methods & procedures to ensure product & process quality for company-wide processing & on multiple tasks/projects. Will generate comprehensive test plans, test scenarios & test cases based on business requirements, perform system acceptance testing & user acceptance testing to ensure that info systems & services meet internal quality standards & end-user requirements, participate in formal reviews of application designs, business and functional requirements, write & reproduce accurate software problem reports, develop automated test scripts utilizing commercial tools & will be responsible for integration regression & functional testing of software releases. Will identify & resolve technical issues & provide technical supervision. Requires Bachelor's or equiv in Comp Sci, Engineering, Math or Physics plus 3 yrs experience in Job Offered: OR 3 yrs exper developing & testing client/server and web applications. Candidate must also possess demonstrated expertise in the following: developing automated regression test plans & cases using WinRunner, Test Director and AstraQuick Test; writing database SQL queries; data verification in Informix/Oracle on both UNIX & Windows OS; and in performing data driven testing & verifying dynamic objects using TSL. Salary: $55,800/yr, Mon-Fri 9AM-5PM. Applicants must submit 2 copies of resume to Ginny Burton #4289, Dept for Employment Services, 275 East Main St, 2-WA, Frankfort, KY 40621. Equal Opportunity Employer. Only persons with authorization to work permanently in the U.S. need to apply.

Embedded S/W Eng. Design & develop s/w protocol stacks for 1394, 802.3 home network systems. Design & implement device drivers using C/C++ on Linux/Unix/Windows. Perform system verification & evaluation & FPGA/Board debugging. Bach's degree in Comp Sci, Physics or Elec Engrg reqd + 1 yr s/w engrg exp. Snd resume to Panasonic Semiconductor, 550 South Winchester Blvd, Ste 300, San Jose, CA 95128, Attn: HR, DA.

Seeking qualified applicants for the following positions in Memphis, TN: Senior Business Application Analyst. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree or equivalent" in computer science, math, statistics, business, MIS or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with airline scheduling systems development also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Matt Coplas, FedEx Corporate Services, 2955 Republican, Memphis, TN 38118. EOE M/F/D/V.

PROG. ANALYST - PEOPLESOFT

Analyze, dsgn, dvlp, modify, test, troubleshoot, implmnt, integrate & support high volume, complex client web & applnt-based server for enterprise-wide financial mgmt applin sys; software in a multi-hardware/software environment; B.S. degree in Comp. Sci. or Engrng + 2 yrs. exp. in job offered or in software engrng w/PeopleSoft reqd. Exp. must include integration of Vantage-One w/PeopleSoft financial applns; Session Initialization Protocol dsgn; AIX servers & DB2 dbase. High mobility preferred. 40 hrs/wk. OT as reqd. 8 am - 5 pm. $86,730/yr. Submit resume to Manager, Butler county CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5699. Please refer to Job Order No. WEB 469570.

Senior Prog/Analysts to lead teams to analyze, design, applic with OOAD methodologies using J2EE, JDK, JDBC, EJB, Java, HTML, JavaScript, XML, Weblogic, Websphere, Oracle, MS SQL Server on Windows envir., evaluate user requests for new programs or complex modifications to existing programs, test/debug programs, provide training to team members. Requre: BS or foreign equiv. in CS/Engg (any branch) & 3 yrs exp. in IT Competitive salary. Travel involved. F/T. Resume to: HR, Bahwan CyberTek Technologies, Inc., 209 West Central Street, Ste 312, Natick, MA 01760.

Director Database Admin. Design, create & develop database objects; administer applic. after deployment; configure servers & clients; administer d/b system, develop proposals, includ. estimates for costs, time, & resources, prep. statistical reports, complete cost/benefit analyses, prep project plans, perform project mngmnt. tasks. Oracle exp., Performance & Tuning skills. Unix & SQL Server database exp., Oracle 9i, Quest Toad, Perl, Statspack including explain plans & tkprof. On-Call Availability Requires. MS Comp Sci. & 1 yr. exp. Comp Salary. Send resume to: ELS, HR ATT: Luciana Brown, 1052 Mamaroneck Ave., Mamaroneck, NY 10543.

Embedded S/W Engineer. Design, Develop & release real time embedded s/w. Write s/w application & validation/verification test specs. Bach's deg in Comp Engrg or Elect Engrg + 5 yrs prog exp in specialty field. Snd resume to PASA, 776 Highway 74 South, Peachtree City, GA 30269. Attn: R Henkel, NB.

IT Managers needed. Seeking candidates w/ BS or equiv & relevant work exp. Part of rel work exp must include 2 yrs working w/ VB & ASP & 1 year working w/ SQL Server. Exp can be simultaneous. Duties include: Manage IT department, develop IT strategies to support business objectives, formulate IT roadmap to integrate & align business processes. Mail resume & refs to Human Resources, a2z, Inc., 10320 Little Patuxent Parkway, Suite 201, Columbia, MD 21044-3343.

PROCOM is seeking Systems Analysts to implement SAP software systems written in ABAP language related to finance modules, public sector modules, etc. Experienced applicants please respond with resume to: Procom Services, 801 Campbell Rd., E., Suite 110, Richardson, TX 75081 Attn: R. Kviring.

Product Development Manager (Miami Beach, FL) Direct & coord R&D of new IT apps for presurgical info mgt co. Consult w/ users & internal business devel teams to assess IT needs & sys requirements. Design & analyze new progs. Oversee app. develop & qual control. Need bach in comp sci, IT or related field + substantial exp. Send resume/letter in dupl to MMF Systems, Inc., 4701 Meridian Ave. Nichol Bldg, Level E, Miami Beach, FL 33140.

Programmer Analyst needed w/Bachelors degree or Foreign Equivalent in Engg. or Comp. Scie. or math & 2 yrs exp in using C,C++, Java, Oracle, Developer 2000, IIS, Tomcat & TCP/IP. Mail resumes to: R.J. Ventures, Inc. 15 East Germantown Pike, Norristown, PA 19401.

Programmer Analysts (multiple positions) sought by NJ-based computer s/w consultancy firm for job location in Portland, ME. Must have Bach or foreign equiv in Comp Sci, Engg or equiv & 1 yr relevant exp. Respond to HR Dept, Software Galaxy Systems, LLC, 480 Congress Street, Suite 205, Portland, ME 04101.

Project Engineer needed to gather IT and intelligence, write estimates, proposals, etc. & present technical architecture to clients & tech support for sales teams, research & negotiate tech'l partnerships; provide project & system engg support for projects using J2EE, MS.NET, Voice, Unix, C++, Oracle, Informix & mainframes. Approx 40% Int'l & domestic travel reqd. Resume to: Hireme, Global Consultants, 25 Airport Rd, Morristown, NJ 07960.

Programmer Analyst (Multiple Positions) Install, configure, administer, tune, and troubleshoot Sybase Replication Server 11.5.1 & SQL servers. Upgrade Sybase SQL Servers & perform problem determination. Tune Sybase SQL Servers by maturing the servers use Async I/O. Req: Bachelor in Comp. Sci., Comp Eng., or Electrical Eng. 40hrs/wk. Job/Interview Site: De Moines, IA. Send resume to Empirse Consulting LLC @ 200 E. Sandpointe Ave, Suite 725, Santa Ana, CA-92707.

Seeking qualified applicants for the following positions in Orlando, FL: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent" in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with C, Sybase and Unix Shell Scripting also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Carl Wilhelm, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Programmer Analysts

Analyze, architect, develop, integrate and test multi-tier Enterprise Applications. System integration and implementation using VC++, Java, XML, Web Logic, TCP/IP programming, COM+, SOAP, WebServices, .NET. Databases such as SQLServer and Oracle. Req: Bachelor's degree in Comp. Science or Engg. and 2 yrs of exp. Send resume to HR, eTransX Inc. 5214 Maryland Way, Suite 109, Brentwood, TN 37027 or E-mail info@etransx.com

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SYSTEMS SOFTWARE ENGINEER to provide on-site consultancy to analyze, design, develop, implement and modify systems software in web architecture using Java, JSP Servlets, XML, HTTP, WebMethods and RDBMS, Oracle, DB2 and WebSphere in Unix and Windows environment. VBScript, XML, HTTP, WebMethods and SQL Server in Unix and Windows environment. Require Master in Computer Science/Software Systems and four years experience in the job offered or any experience providing skills in the described job duties. 40% travel to client sites within the United States required. Salary: $70,000 per year, 40-hours/week, 8:30 am to 5:30 pm. Apply with resume to Human Resource Manager, 4C Solutions, Inc., 1201 7th Street, East Moline, IL 61244.

Project Director in Mass, AZ to direct & id. manageable onsite/offshore elearning & applications development projects. Must have MS deg., or foreign equiv., in Eng., Comp. Sc. or rel. field & 3 yrs. proj. eng. exper., incl. proj. design, implementation, planning, reqts. analysis & execution, 2 yrs. exper. in software proj. eng. for comp. or web-based training & proj. mgmt. exper. Bach. deg., or foreign equiv., in Eng., Comp. Sc. or rel. field & 5 yrs. progressive proj. eng. exper., incl. proj. design, implementation, planning, reqts. analysis & execution, plus 2 yrs. exper. software proj. eng. for comp. or web-based training & 1 yr. proj. mgmt. exper. can subst. for MS deg. & required exper. Send resume to Hilary Goeselin, HR Manager, Lionbridge Technologies, Inc., 492 Old Connecticut Path, Framingham, MA 01701.

Paradigm Infotech is looking for programmer/system analysts, DBA, s/w engineers. Candidate must have BS/MS with experience. Good skills in C/C++, Java, Oracle, WebLogic, VB, HTML, ERP are plus. Traveling required for some jobs. Apply jobs@paradigminfotech.com. EOE. No call

Infogen is seeking IT professionals to design applications for clients using Oracle9i, Weblogic / WebSphere, C++, Visual C++, VB, COM, STL, MTS, MSMQ, ASP, Java, HTML, XML, MTS, MSMQ, ADO, UML. Min BS/MS, travel is required. Send resume to infojobs@infogenmc.com. EOE.

K&M Softech is looking for programmer/system system, software/project engineers or IT professionals. Both entry & experienced levels needed. Some positions require travel. Skills in C/C++, VB, Java, Oracle, SAP, SQL are plus. Please send resumes to Recruit@kmsoftech.com. EOE. No calls

Staffing Tree, LLC has openings for System Analyst, IT consultants/recruiters. BS or equivalent required. Exp. in Oracle, Java, C/C++, SQL & IT placement/marketing is strong plus. Travel required for some positions. We sponsor green card. Please contact debdas@staffing-tree.com. EOE

S/W Application Programmers to identify, solve problems/incidents in SAP or Oracle suite of appls, analyze, design, maintain appls using either SAP, ABAP, VB .NET, DW or Oracle database. Oracle appls (Financial, Manufacturing, Distribution, HR, Project). Oracle Appl Server PL/SQL, Reports/ Forms on Windows/UNIX OS; perform req. analysis, conduct functional testing/debugging, document, maintain & update use cases. Require BS or foreign equiv in CS/Engg.(any branch) or related field and 2 years exp in IT. Travel involved. F/T position. Comp. salary. Resume to HR, Quest America, Inc., 211 East Ontario Street, Suite 1600, Chicago, IL 60611.

Information Technology
COMPUTER PROFESSIONALS
(Multiple Openings)
Software Engineer/Programmer Analyst, Omaha, NE

Must have bachelors degree or equivalent and experience (performing analysis, design, development, implementation, maintenance) in some of the following skills: C/C++, Java, J2EE, Cold Fusion, Frame Works (Struts, Spring Frame work, Hibernate). Microsoft Technologies (Visual Basic, .Net, ASP), Mainframe (REXX, CLIST, ISPF, TSO, Skills, COBOL, DB2, JCL), Windows 2000, NT, Sun Solaris and Linux. Must be able to travel or relocate nationwide. Attractive compensation package. Mail your resume to: info@solusionsdelivery.com or Human Re-sources Director, Solutions De-livery, Inc., 4780 South 131 St. Suite 14, Omaha, NE 68137.

Programmer/Analyst, Washington, DC. Assist in design, dev & implementation of client/server distributed software architecture. Portal, CRM, ERP, B2B, & B2C software using Java, JavaScript, XML/XSL, HTML, Oracle PL/SQL & C++ languages, JDK, J2EE, XSLT, SOAP, Portals technologies; software such as IBM WebSphere Application Developer, Microsoft Windows NT/2000/XP, Microsoft SQL Server, Oracle Database. Reqd. B.S.C.S & 2yrs exp. Send resume S. Arseniev, V.P., Ref. # 99A3, 3307 M St., N.W., Ste 200, Washington, DC 20007.

UNIX Database Administrator: install, maintain, repair optimize, data storage/integrity/retrieval for Unix scripting & corntanes. Plan, secure data transfer to non-Unix platforms as needed. Bach in Electronics Engg, Comp Sci or related field, w/Oracle, SCO, Novell, & relevent Certifications, & 3 yrs exp req'd. Resume only (no e-mail/calls): Attn. CW UDA Sandata Technologies Inc., 26 Harbor Park Dr., Port Washington, NY 11050.

Software Engineer to analyze, design, develop and test client server enterprise applications using J2EE, Java, C++, Servlets, JSP, XML, HTML, CORBA, Oracle, Websphere on Windows and UNIX operating systems; generate code from client requirements using Visio 2000 and UML; evaluate and enhance performance of enterprise application using JProbe Suite and automate testing process using WinRunner. Require BS or foreign equivalent in CS/Computer Engg with 3 yrs of exp in IT. Competitive salary. F/T. Resumes to CyberObject, 3050 Business Park Drive, Suite A-1, Norcross, GA 30071.

Oracle Architect: Collect campaign mang't info, validate, send data to Promotion History database. Maintain eCommerce marketing & IFS. Reqs Campaign Management & CDS w/in financial co; Req. Logical & Physical database design using Erwin data modeler. Req. exp loading data from a Teradata database into an Oracle 8i DB. Fax resume to Matt @ 704-334-9694.

Software Applications Engineer - Assigned as IT Consultant with project management responsibility, to design, develop and modify JSP, Servlets and software for web and general computer applications utilizing J2EE, STRUTS, Oracle/SQL and Java SDK. Multiple Openings Available. Requires Bachelors or equivalent-level degree in Computer Science, Computer Engineering, Mathematics or closely related field, and three years experience as Java/J2EE Developer in Web Applications. Send resume to Rick Heinlein, Ferguson Consulting, Inc., 12444 Powerscourt Dr., Ste. 235, St. Louis, MO 63131

Database Administrator wanted by consulting co in IL to manage co's Novell LAN, assess & repair comp problems. Recommend/ implmt new s/ware & h/ware. Utilize various comp prgms & act as liaison btwn facility & technology service vendors. Must have Bach degree or equiv & 1 yr exp in job offd or any Prgmr Analyst position. Employer will accept combo of edu &/or equiv exp in Prgmr/Analyst in lieu of Bach deg. Respond to: MY Management, Mr. Mohammed N. Yaqoob, 8060 Lawndale, Skokie, IL 60076. No calls.

IT Systems Manager (Miami Beach, FL) Plan, direct & oversee all IT activities for presurgical info mgt co, incl prod dev, quality control & security. Need bach in comp studies, comp sc, IT or related field (or professionally evaluated equiv exp) + knowledge of DB, OS & networkg. Send resume/letter in dupl to MMF Systems, Inc, 4701 Meridian Ave, Nichol Bldg, Level E, Miami Beach, FL 33140.

Programmer Analysts (2 Positions) w/ Bachelors or Foreign Equivalent in Computer Science or Engg or Math + 1 yr exp in using .NET Applications, VC++, VB, C#, VB.NET, SOAP, MSMQ, WIN32 APIs, ActiveX, ASP, Oracle, SQL Server, Sybase, Rational Rose & Clear Quest Interface Messaging. Mail res to: Compu-Info, 410 Kingstown Rd., #2A, West Kingston, RI 02892.

Software Engg needed Burlington, MA based company has positions avail. for qualified candidates possessing MS or equiv w/ rel. work exp. Duties include: Design, develop, implement & customize software applications for various business clients using 3 of the following: Sun Solaris, Load Runner/Win Runner, Weblogic, Unix, C/C++, VB, VC++, Java, .NET, EJB, J2EE, ASP.Net/ADO.Net, DOORS, Rational Rose and Visio, Websphere, Javaservlets, Perl, Corba, HTML/XSL/XML/DHTML, COM/DCOM, PL/SQL & Oracle/Sybase databases. Mail resume to Iconsoft Inc., 101 Cambridge St., Suite 305, Burlington, MA 01803.

Software Engineer. Develop, modify, analyze programs & apps utilizing s/ware devel life cycle. Bachelor in CS, Eng'g, or similar, plus 6 mos utilizing SDLC, incl Java, IBM Websphere, Eclipse, & HTML. Contact A. Hill, Job #2416.07, Irwin Mortgage Corporation, 10500 Kincaid Dr, Fishers, IN 46038.

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Personnel Manager (Technical) - Recruit, interview and select IT professionals to fill vacant consultant positions, administer technical interviews of applicants, negotiate employment terms, including salary, and benefits, ensure consultants achieve project goals, and arrange continuing education of consultants when necessary. Master's degree in Human Resources Management or Business Administration. In lieu of a Master's degree, we will accept a Bachelor's degree or foreign equivalent, with at least 5 years of progressive experience in IT Project Management or Resourcing. Must have 3 years of experience as a Personnel Manager (Technical) or in the related occupations of IT Project Management or Resourcing. Extensive travel, frequent relocation. $75,000/yr 40 hrs/wk. EEO/AAP/M/F/V/H Submit resumes to Armstrong County CareerLink, ATTN: CL Program Supervisor, 1270 North Water St, PO Box 759, Kittanning, PA 16201-0759 Job Order No WEB 469115

Programmer Analyst - Develop, create, modify computer syst/ apps software & specialized utility programs. Analyze, design databases within an application area, analyze user needs, develop software solutions using Relational Database Management Systems/related software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as computer professional in lieu of Bachelor's degree. Degree must be in CS/CA, Eng, Chem, Math, Physics or scientific/business field. Must have 1 yr exp using Oracle or SQL Server. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP /M/F/V/H Submit resumes to Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5689 Job Order No. WEB470440



Programmer Analyst - Legacy Systems (AS/400) - Multiple Openings

Systems analysis, design, development, testing, debugging, quality assurance, integration, implementation, post implementation support & conversion of complex on-line client-server based accounting, inventory, manufacturing, finance & other business application systems using Relational Database Management Systems (RDBMS), Fourth Generation Languages (4GLs) and other software utilities in a multi-hardware/multi-software environment including IBM mainframes, mid-range and PC systems. B.S. in Computer Science/Math/Engineering/Science/Business - Commerce (or equivalent) and 1 yr. experience in job offered or as a Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 3 of B, or 2 of B and 1 of C, or 1 of A and 2 of B. A) Includes software packages (SPCS, MACPAC, MAPICS; B) includes languages RPG/400, CL, COBOL/400, SQL/400, Query/400; C and C) includes communication/CASE Tools, APPC, APPN, SYNON, AS/SET High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,533 - $78,000 per year. Qualified applicants should contact or send resume to: Site Manager, PA CareerLink - Westmoreland County, 300 East Hills Street, Youngwood, PA 15697-1808. Refer to Job Order # WEB 469177

SENIOR DATABASE DESIGN ANALYST to analyze, design, develop, implement and support large databases including data migration ETL processes in both UNIX and IBM environments. Tune Oracle and Teradata databases for optimum performance and security using ANSI SQL, PL/SQL, UNIX Shell, PERL, Multiload, Tpump, Fastload, BTEQ, Teradata Manager Performance Monitor (PMON), SQL Loader, Oracle Web Server and HTML. Require: B.S. degree in Computer Science, or a closely related field with 5 yrs of progressively responsible exp in the job offered or as a Database Consultant. Extensive travel on assignment to various client sites within the U.S.is required. Competitive salary offered. Apply by resume to: RaviKandimalla, Everest Computers Inc., 875 Old Roswell Road, Ste E-400, Roswell, GA30076, Attn: Job AP

Chief Computer Programming Consultant at various U.S. sites based on client location. Programming + support applications. Technical lead/ programming project mgt. Consult w/ client mgt re: program & tech needs, identify & resolve problems. Technologies incl. Compaq, HP Non-Stop (Tandem). Involves travel. Requires BS Comp. Sci., EE or related + 2 yrs relevant exp. Resume to S.T.J. Inc. H.R., PMB 111-B, 7007 Sleater-Kinney Rd. SE, Lacey WA 98503.

Programmer Analyst - Develop, create, modify computer syst/ apps software & specialized utility programs. Analyze, design databases within an application area, analyze user needs, develop software solutions for Internet Applications. Bachelor's degree or foreign equiv. in CS/ CA or Eng. Must have 1 yr exp using ASP, HTML and JAVA. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP/M/F/V/H Submit resumes to Armstrong County CareerLink, ATTN: CL Program Supervisor, 1270 North Water Street, PO Box 759, Kittanning, PA 16201-0759 WEB470371

SAP ABAP Developer - Wausau, Wisconsin. Develop and maintain the ABAP programming environment in the SAP R/3 mySAP environment as part of the Information Technology department. Analyze, develop, monitor and implement ABAP program functionality for all SAP modules throughout the company's facilities to achieve company goals. Responsible for being involved in all aspects of the SAP functional implementation of the business, specifically for developing programs from functional requirements and for determining functional requirements from business requirements. Develop, maintain streamline and test new and current ABAP programs in the system. Work with the SAP Core Team to address issues, provide programmatic solutions and recommend more efficient methods of system operations. Assist in system upgrades, and assist in the conversion from legacy systems and integration to legacy systems. Required is a Bachelor of Science degree in Computer Science, or Computer or Management Information Systems and four (4) years of experience as a SAP ABAP Developer, Developer, Software Developer, or Programmer Analyst. As part of the required experience, the applicant must have had experience in ABAP coding in SAP on a release of 4.x or better experience with RFC's ALE, IDOC's in SAP 4.x, EDI, SAP Script, User Exits, and BAPI, experience in ABAP programming for the MM/PM/FI/CO/SD modules of SAP, and experience with Word, Excel, Access, Java, and HTML. Must have proof of legal authority to work in the U.S. Qualified applicants please email resume and cover letter to mondeski@wausauhomes.com and clearly identify position applying for in subject line of email.

Software Engineer (Waltham, MA) Analyze, design and develop technical architecture and advanced web-based software systems for broadband services and infrastructure, provide technical and project leadership in all phases of software development cycle, research, design and develop applications and components using J2EE and Microsoft .Net technologies, implement and deploy solutions using Java, EJB (Enterprise Java Beans), XML (Extensible Markup Language), Servlets, C++, C, SQL and LDAP (Lightweight Directory Access Protocol) on iPlanet, WebLogic, WebSphere platforms, Oracle database and portal frameworks (Epicentric). Requires Masters degree in Computer and Information Systems and either 1 year exp. in the job offered or 1 year exp. in software engineering on web-based systems using J2EE, EJB, XML, LDAP, WebLogic, Oracle and portal frameworks. Salary $86,845/yr, Mon-Fri, 8am-5pm, 40 hrs/wk. To apply submit two (2) copies of resume to: Case # 200300358, Division of Career Services, Labor Certification Unit, 19 Staniford St, 1st Fl, Boston, MA 02114

Programmer Analyst - Administer, maintain, design, develop, create, and modify computer systems and applications software, specialized utility programs, networks, and applications; analyze user needs and develop networks using Systems and related software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as computer professional in lieu of Bachelor's degree. Degree must be in CS/ CA or Eng. Must have 1 yr exp using UNIX, NIS, AWK, PERL, E10K, and TUXEDO. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to Site Administrator, Greene County CareerLink, 4 West High Street, Waynesburg, PA 15370-1324 WEB470388

SYSTEMS ENGINEER

Implement client projects incorporating proprietary enterprise application integration products and ancillary tools. Gather customer requirements, research and analyze requirements, perform systems-level design and project planning. Test and debug applications and systems, including source code and general software processes, and provide client training. May provide technical leadership. Travel required. Job based in Oak Brook, IL.

Bachelor's degree in Computer Science, Electrical Engineering, or closely related field, or the foreign equivalent, and two years of experience in systems development, testing, and implementation, including J2EE, Weblogic, LDAP, and Front End Development.

SENIOR SOFTWARE CONSULTANT

Design development solutions with employer's proprietary software based on project specifications and install in customer environments; develop business logic and interfaces using BPEL, Java (J2EE), Monk and other languages in customer environments using proprietary software and implement solutions; identify and resolve coding problems; mentor internal, client and partner resource(s) in development efforts; accurately estimate development work effort for self and potentially others; work with customers to develop OS level scripts in support of proprietary software; and direct and advise clients on technology architecture. Travel required.

Bachelor's degree in Computer Science, Electronics Engineering, or closely related field, or the foreign equivalent and two years experience designing and developing enterprise software applications including Java/J2EE, XML, EAI, MQ Series, Web Services, and Oracle or other RDBMS.

Please send resume, indicating position of interest, to: **Human Resources, SeeBeyond Tech. Corp., 181 West Huntington Drive, Monrovia, CA 91016** or contact us at **hire_me@seebeyond.com**. EOE.

SEEBEYOND

Software Engineers-Multiple Positions wanted by an IT consulting firm in Keene, NH to work at various client locations throughout USA. Respond to HRD, Infowave Systems, 39 Central Square, Suite #201A, Keene, NH - 03431. For all these positions we need Two years plus progressive experience in software analysis, design and development with a Bachelors Degree.

SAP ERP Engineers: Experience in implementing web enabled SAP ERP modules such as SD, MM, BW etc. CRM, ROBMS, performance tuning, and internet technologies.

Oracle Data Warehouse Engineers: Experience in Enterprise Data Warehouse applications using Oracle Forms, Reports, ETL Informatica, BI Business Objects, Database tuning, shell scripts, Oracle Applications on UNIX and Windows platforms. Other desired skills include Pro*C, Internet tools, scripting and testing tools.

Oracle Software Engineers: Experience in 3 tier Enterprise Applications using Oracle, PL/SQL, Pro*C, Forms, Reports, Oracle Applications, Discoverer, Designer, Erwin, Shell scripts, middleware such as 9iAS on UNIX.

Microsoft and ERP Engineers: Experience in Enterprise and Web Applications using Erwin, ERP Great Plains/GEAC, Dexterity, ASP, VB, SQL Server or Oracle, Tuning and testing on .Net Technologies, Windows, UNIX and IIS.

Java Engineers: Experience in Enterprise and Web applications using Java, J2EE, JSP, EJB, XML suite, webapp servers such as Web Logic or Web Sphere, Rational Rose, UML, Used Cases, BPMS etc. on UNIX and windows platform. Must have strong skills in Database programming and tuning on Oracle or DB2. Others skills incl. scripting and testing.

Oracle Database Administrators: Experience in Oracle 9i/8i database administration, data modeling and database design for a data warehouse environment on UNIX. Also experience in performance tuning of VLDB's, database security, data warehouse and OLAP development. Skills should include PL/SQL, SQL, Shell Scripts, perl, Cron, OEM, Server Manager, Uncenter, UNIX and Windows NT/2000. Other skills desired: DBMS like SQL server, MS Access, Sybase etc, programming skills, ETL processes etc.

Programmer Analyst - Develop, create, modify computer syst/ apps software & specialized utility programs. Analyze, design databases within an application area, analyze user needs, develop software solutions using Enterprise Resource Planning/ related software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as computer professional in lieu of Bachelor's degree. Degree must be in CS/CA, Eng., Chem., Math, Physics, or scientific/business field. Must have 1 yr exp using SAP, BAAN, PeopleSoft, Oracle Apps/Financial/ Manufacturing/HR. Extensive travel, frequent relocation. $66,550/ year. 40 hrs/wk. EEO/AAP/ M/F/V/H. Submit resumes to McKeesport CareerLink, ATTN: ES Manager, 345 Fifth Avenue, McKeesport, PA 15132-2600 Job Order No. WEB470431

Programmer Analyst - Develop, create, modify computer syst/ apps software & specialized utility programs. Analyze, design databases within an application area, analyze user needs, develop software solutions using Oracle and related software. Bachelor's degree or foreign equiv. Foreign equiv may be a 3 yr degree. Degree must be in CS/CA, Eng, or scientific/business field. Must have 1 yr of exp in the job offered or related field. Will accept a Master's degree in CS/IS in lieu of exp. Must have 6 mo. exp using Oracle and SQL. Extensive travel, frequent relocation. $66,550/ yr 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to Fayette County CareerLink, ATTN: CareerLink Program Supervisor, 135 Wayten Smith Drive, Uniontown, PA 15401 WEB470361

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Customer Application Consultant will coordinate pre-sales and/or post-sales support of company products and systems; provide technical support in sales presentations and product demonstrations and provide solutions to customer application problems. Requires BS and 10 years of experience in process power plant design including 5 years of experience using PDS 3D software.

Senior Software Analyst (4) will plan and conduct computer programming assignments in the development of company ship building products. Requires BS in CS, Math, Engineering or related discipline and 3 years experience in programming and software analyses to include 2 years with COM or OO programming and 1 year with VB and C++ or Visual C++ in a Windows environment. One of the positions based in Alabama, requires 1 year experience with VHL. Two positions are located at our Hampton, VA offices.

Send resume to S. Wolchik at Intergraph Process, Power and Marine, 300 Intergraph Way, Madison, AL 35758, or fax to 256-730-3428. Please reference ad number CF1104.

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Programmer Analyst (Micro/Web) - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analysis, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B; or 2 of A and 1 of B; or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server; and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SQL, 9GL*FORMS, ESQL/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK). High mobility preferred 40 hrs/week, 8 am - 5 pm. $66,533 - $78,000 per year. Qualified applicants should contact or send resume to Fayette County CareerLink, ATTN: CareerLink Program Supervisor, 135 Wayten Smith Drive, Uniontown, PA 15401. Refer to Job Order # WEB 469841.

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INFORMATION TECHNOLOGY Information Technology Auditor. Req. Bachelor's degree (or higher) in Comp Sci. or Info Systems and 2 years' exp. in the job offered or 2 years' exp. performing auditing & security reviews on ERP systems to assess application & module configurations. All stated exp must include each of the following: firewalls & intrusion detection systems; control systems for ATM, frame-relay, and FDDI networks; Unix, Windows, IBM midrange & mainframe operating systems; & SCP/DRB assessments. Must have experience with Sarbanes 404 compliance systems & ISO 17799. Must be available to travel domestically up to 35% of working time. Perform auditing and security reviews on Enterprise Resource Planning (ERP) such as SAP and PeopleSoft systems, and to assess application and module configurations. F/T. Apply with resume to: Delphi Corporation, Attn A.V., Maildrop 480-410-122, 5825 Delphi Drive, Troy, MI 48098.



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Applications Development Specialist - Working in a team environment and under supervision, plans, conducts, and coordinates programming application activities. Performs system design, development and installation of systems applications. Corrects systems errors and prepares operating instructions. Documents computer programs for systems of moderate complexity. Evaluates customer capabilities and needs. Develops conversion plans and procedures. Translates specifications for software components into designs and implements the designs. Utilizes DIAMOND Software application skills and PL/SQL programming skills for software development and coding. Diagnoses software issues (bugs or defects) and provides resolutions. Requires a Bachelor's Degree in Computer Applications or Computer Science plus 5 years of experience in the job offered or 5 years of experience in software application development or programming. 3 of the 5 years of experience must include Diamond software application development, PL/SQL, Oracle development, and healthcare software systems. Salary $63,000, 40 hours/week, M-F, 8:00am to 5:00pm, job location: Jacksonville, FL. Send Resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869. RE: Job Order: FL2373330.

SOFTWARE CONSULTANT Perform project analysis and design, define project architecture, implement assigned deliverables and test deliverables, develop and maintain technical documentation, identify and communicate project risks to senior project staff. Develop integration between network management applications and various enterprise third part applications. Knowledge of the following technologies: J2EE, BEA Weblogic Server, BEA Weblogic Portal, Oracle 9i, AnT, HttpUnit, HtmlUnit, Red Hat Linux, Struts, JavaScript, and other J2EE related technologies.. A bachelor's degree in C.S./C.I.S./M.I.S. or related field required. 40 hours per week 8:00 a.m to 5:00 p.m., $39,852.00/year. Must have proof of legal authority to work in the United States. Send your resume to Madhavi Bhadbhade, Nebraska Department of Labor, P.O. Box 94600, Lincoln, NE 68509. Refer to Job Order TREL6-5YJJE-86699. This advertisement is paid for by the employer.

A position is available for a Systems Analyst in Columbus, Georgia with a computerized solutions company. The Systems Analyst will be primarily responsible for providing expertise in systems integration and reengineering projects. Specific responsibilities include using systems engineering and applications engineering to manage, design, develop, improve, and integrate large database systems for re-engineered mainframe systems and software application. Candidates for this position should possess a Bachelor's degree in a computer field, or any combination of education and experience; 2 years' experience as a Database Administrator in the IBM Main Frame MVS or MVS OS/390 environment including ADABAS, DB2, and VSAM databases; and coding and interpreting Assembler/COBOL language which contain ADABAS direct commands. Apply by mail to: Danny Marom, Modern Software Technologies, Inc., 1150 Lake Hearn Drive, Suite 130, Atlanta, Georgia 30342.

Programmer Analyst-Develop, create, modify computer syst/apps software & specialized utility programs. Analyze, design databases within an application area. Analyze user needs, develop software solutions using SAP & related software. Bachelor's degree in computer science/applications, engineering, mathematics, physics or other scientific or technical field. In lieu of a Bachelor's degree, we will accept an Associate's degree or foreign equivalent and three years of experience in the field. Must have at least one year of experience as a computer professional and one year of experience using SAP. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to Fayette County CareerLink, ATTN CareerLink Program Supervisor, 135 Wayten Smith Drive, Uniontown, PA 15401. Job Order No WEB 469104.

Programmer Analyst - Develop, create, modify computer syst/apps software & specialized utility programs. Analyze, design databases within an application area. Analyze user needs, develop software solutions using Graphical User Interface (GUI). Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as a computer professional in lieu of Bachelor's degree. Degree must be in CS/CA or Eng. Must have 1 yr exp. using Oracle and 2 of the following: Visual C++, C, C++, Crystal Reports, Visual Basic. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to Mon Valley Regional CareerLink, Donora Industrial Park, 570 Gallifa Drive, Donora, PA 15033-1386. Job Order No. WEB470391.

Programmer Analyst - Develop, create, modify computer syst/apps software & specialized utility programs. Analyze, design databases within an application area. Analyze user needs, develop software solutions using Siebel CRM & related software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as a computer professional in lieu of Bachelor's degree. Degree must be in CS/CA or Eng. Must have 1 yr exp. using Siebel CRM. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to CareerLink Westmoreland, ATTN: CL Program Supervisor, 300 East Hills Street, Youngwood, PA 15697-1806. Job Order No. WEB470365.

Software Engineers sought by ITMGlobal Inc. for locs in NJ & nationwide. Reqs. Masters w/1 yr exp. Each wkd least 5 yrs progressive exp will be accepted in lieu of Masters. Research, analyze, dsgn, dvlp, test & implmt warehouse & data warehouse based applics using Cobol, DB2, Perl Scripting, Shell Scripting, SQL Server, Teradata, Informatica, DataStage, BO, Cognos & XML/XSL on Unix & Win platforms. Must have legal auth to work in US. Relocation may be required. Excellent pay & benefits. Send resume w/proof of work status to 4 Sequoia Dr, Dayton, NJ 08810.

Software Engineer (Metairie, LA) Under supervision of the project manager, research, design, development and customization of client server software using Oracle RDBMS, SQL and various GUIs (Graphical User Interface) in Windows/Unix operating systems. Req. B.S. in Comp. Sc., MIS, Math, Bus. or Eng. and 2 yr exp. in the job offered or 2 yr. exp. as a programmer/analyst, systems analyst or computer consultant. All candidates must possess at least 2 yr. exp in using Peoplesoft applications and also hands on exp.in using Oracle RDBMS, SQL and various GUIs in Windows/Unix operating systems. 40 hrs/wk. 9-5, $62,000/yr. Submit resume to the Office of Workforce Development, P.O. Box 94094, Baton Rouge, LA 70804-9094. Job Order # 129054.



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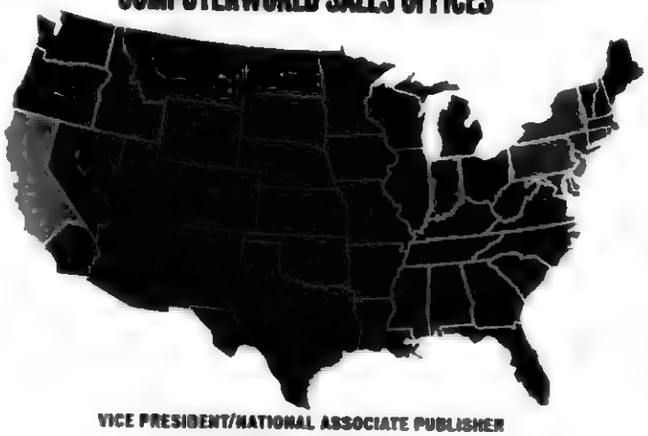
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ERP System

paper manufacturer that claimed modifications it made to SAP AG's R/3 software were custom development, which is tax-exempt in Wisconsin. Packaged software is taxable.

The Neenah, Wis.-based company's 1995 installation of R/3 cost $23 million, of which $5 million was for a license for the ERP software. The rest of the money was spent on modifications and implementation costs, according to court papers released Oct. 26 by Judge Steven Ebert of Circuit Court Branch 4 in Dane County, Wis.

After Menasha paid a sales tax of $342,614 on the implementation to the state's Department of Revenue, the company tried to recover the money by petitioning the state Tax Appeals Commission. Menasha is now seeking a total of $500,000, including interest.

The appeals commission agreed with Menasha that the software was custom-written, but Ebert overturned that decision, ruling that R/3 "was existing and prewritten" when sold.

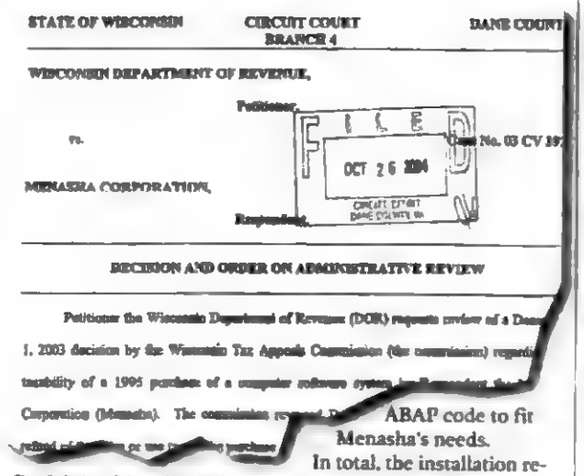
Agony and Ecstasy

The DOR "is pleased with the decision," said spokeswoman Eva Robelia, who explained that a Menasha victory would have set a precedent allowing other companies that have paid similar taxes over the past four years to file appeals. The state potentially would have had to refund about $300 million in taxes and interest.

Officials at Menasha, which has up to 90 days to appeal, are unhappy, their lawyers said. "Wisconsin has taken the position that all software is off-the-shelf unless it's written from scratch, which no one does anymore," said Leonard Sosnowski, an attorney at law firm Foley & Lardner LLP, which represents Menasha. The larger issue, he said, is that not only is the modified software itself taxable, but potentially so are the services required to fix or reprogram it during the implementation. Sosnowski also said the case could be used as a reference in other states, where some IT executives are keeping an eye on its progress.

"Clearly, the judge is not understanding the real world of IT," said Bubba Tyler, CIO at Quaker Chemical Corp. in Conshohocken, Pa., which runs PeopleSoft Inc. applications. "There's no such thing as an 'off the shelf' ERP system, and therefore everyone requires 'development' for it to work with a given firm's business," he said. "If I have to write custom reports or create custom output for my customers or construct interfaces for the tool to work with other tools I use, all of this is unique and should not be taxed."

Andrew Nelson, another lawyer at Foley & Lardner, added that if the case is upheld, some companies might move IT operations to states with more favorable tax laws.



STATE OF WISCONSIN CIRCUIT COURT BRANCH 4 DANE COUNTY

WISCONSIN DEPARTMENT OF REVENUE,

Petitioner,

vs.

Case No. 03 CV 39

MENASHA CORPORATION,

Respondent.

FILED
OCT 26 2004
CIRCUIT COURT
DANE COUNTY WI

DECISION AND ORDER ON ADMINISTRATIVE REVIEW

Petitioner the Wisconsin Department of Revenue (DOR) requests review of a Dec
1, 2003 decision by the Wisconsin Tax Appeals Commission (the commission) regardi
taxability of a 1995 purchase of a computer software system by Respondent Mena
Corporation (Menasha). The commission reversed De
refund of
or use

Explaining his ruling, Ebert said R/3 always requires substantial modification to adapt to a given customer's specifications. In this case, at SAP's recommendation, Menasha hired Deloitte & Touche LLP to help it make the changes. The implementation team used the R/3 Development Workbench tool kit to customize SAP's proprietary ABAP code to fit Menasha's needs.

In total, the installation required 3,000 modifications, for which Menasha paid some $2.5 million to SAP, $13 million to Deloitte and $775,000 to other consultants.

Even so, wrote Ebert, "the court sees no reason why software that provides the building blocks upon which modifications specific to the particular purchaser are made should not be deemed prewritten software."

Almost all ERP applications must be customized or modified after they're purchased, said John Matelski, deputy CIO for the city of Orlando, which runs PeopleSoft applications. He agreed with Ebert that making such tweaks isn't a true modification.

Moreover, if Menasha's arguments were to hold true, he said, then most implementation consulting costs would need to be considered nontaxable — and that would set a significant precedent that could require the state to refund all taxes to ERP customers that did such customizations.

As a rule, there is no rhyme or reason to how states assess software taxes, said L.J. Kutten, a lawyer at the Software Taxation Institute in Reno, Nev. Some states will allow a company a tax exemption if its software customization costs exceed half of the purchase price, Kutten said. Others tax out-of-the-box software costs but exempt later customization expenses. **50566**

Microsoft Plots New Office System Release

VP says vendor plans to continue cycle of two to three years between upgrades

BY CAROL SLIWA

A Microsoft Corp. executive confirmed last week that the company intends to continue shipping a new version of its Office System software every two to three years.

That would place the release date for the next version of the product suite, known as Office 12 within Microsoft, between next October and October 2006, since Office System 2003 shipped a year ago last month. But Chris Capossela, vice president of Microsoft's information worker product management group, said he isn't ready to discuss any specific dates.

"What I am ready to say is Office has had a fantastic 100% track record of shipping a new version every two to three years after the prior version," he said. "And I think the next version will be in that time frame too."

Capossela also gave few details about the new functionality that's expected to be included in Office 12. But he noted that corporate users have been asking for more help with managing documents and other content.

Microsoft's main document management product is SharePoint Portal Server, which is part of Office System. Capossela said the company wants to "raise the bar in what SharePoint does," but he also sees a "great partner opportunity" for other vendors to address gaps in functionality.

In response to another customer request, Microsoft will try to make it easier for mobile users to connect to SharePoint Portal sites, according to Capossela. He said end users currently can't access the sites unless they "VPN into" their corporate networks.

Packaging Questions

Speculation is mounting that Microsoft may add new server products to Office System. But Capossela said the company hasn't decided how the Office 12 functionality will be packaged. "So if someone says, 'Hey, is there going to be an Excel server? Is there going to be a Word server? Is there going to be a Visio server?' we literally don't know yet," he said.

But Microsoft is pushing ahead on its vision of an Office System that includes desktop applications, server software, and services designed to help teams of workers collaborate, he added.

Michael Silver, an analyst at Gartner Inc., said momentum among corporate users appears to be building for the Office 2003 suite of desktop applications. According to a survey of 184 clients at a recent Gartner conference, half of their combined total of PCs are likely to be running Office 2003 by the end of next year, he said.

Silver added that he expects the new version of Office System to ship in the same time frame as the desktop version of the next major Windows release, code-named Longhorn — in the second half of 2006 at the earliest. **50570**

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FRANK HAYES ■ FRANKLY SPEAKING

Chaos Is Back

WE'RE LOSING GROUND. Only 28% of IT projects succeed these days, down from 34% a year or two ago. Outright failures — IT projects canceled before completion — are up to 18% from 15%. The remaining 51% of IT projects are "challenged" — seriously late, over budget and lacking expected features.

Those numbers are from the just-completed Chaos report from The Standish Group. Standish has been doing this study since 1994, and ever since, we've been steadily improving our ability to deliver projects. A decade ago, only 16% of IT projects were successes. By last year, it was twice that. Now we're backsliding.

How did we get headed in the wrong direction?

When I talked to Standish Chairman Jim Johnson, the numbers were still being crunched. But he pointed to a few significant details. For one: Projects are getting more expensive, and big projects are more likely to fail.

For another: As projects get bigger, we're no longer keeping our work iterative. We've gone back to more traditional development practices — practices with higher failure rates.

For a third: Lack of user involvement has jumped back to the top position among reasons for IT project failure. But lack of executive support is still running a very close second. Without committed executive sponsors and involved users, our projects fail.

Johnson told me the key to success is scope management. If you can keep projects tight and focused, avoid bloated feature wish lists and watch out for explosive requirements such as, "The new system must do what the old system did," you can do OK.

Maybe he's right. But I think we need to do more than just avoid scope creep.

One reason I like the Chaos study is that Standish counts up the results of lots of real projects, and it has been doing that for long enough that we can see real trends. So we know that our biggest success rate for IT projects came right in the middle of the recent downturn. After the bubble burst, budgets were tight, resources were strained and big projects were rare.

And — not coincidentally — our success rate jumped and our project cancellation rate dropped. When projects are small, we succeed.

That suggests that we don't just need to keep projects from getting too big. We need to work actively to dismantle big projects.

Chop a big project down into smaller projects and three things happen. First, everything's simpler. We can use smaller, more focused teams. We can deal with a limited subset of requirements. Communication with users and team members is easier.

Second, we're less likely to abandon the small-project techniques that we know will work. Quick prototyping, continuous user feedback and iterative development deliver successful projects. But we're afraid to use them when we take on big projects. That's why we turn to traditional big-project approaches — and fail.

Third and maybe most important, small projects just aren't interesting to an organization's political players. Small projects aren't sexy. They don't grab the CEO's attention. So they don't attract fights over who will control the budget, or gamesmanship over the requirements, or early-and-often finger-pointing when anything goes wrong.

But those aren't the people you want as business sponsors anyhow.

By aggressively chopping down big projects, we can shed those problems and get back our success factors. Even as the demand returns for IT to solve big problems, we don't have to fail trying to solve them with big projects. We can break them down, solve them piecemeal and succeed.

We *can* stop losing ground and head in the right direction again.

That direction is small. 50543



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Unclear on the Concept

A flood at a cement company flushes water and cement through a server, and this pilot fish gets the job of retrieving data from the hard drive. "For those who don't know, wet cement is corrosive," reports fish. "The components were in a pile at the bottom of the case. The drive itself stayed dry, and we retrieved the data by purchasing a matching drive and controller and carefully soldering ribbon cables to the mechanism. And yes, there had been backups – the tapes were kept on the floor next to the server."

SHARK TANK

Fast Thinking

First task for this new-hire pilot fish is to review the company's 5-year-old disaster recovery plan. "It's a big priority for the CIO to have the plan updated ASAP because hurricane season is coming and he wants to be prepared," fish says. "I saw on the documents that we have a secondary site, but there was no address, so I asked where it is. They told me it's three blocks from here – the CIO wanted to be sure we can get there quickly!"

That Makes Two

Budget-conscious pilot fish redeploys an old but working server to the machine shop and asks a forklift driver to haul the server to its new location. Next day, fish goes over to hook up the server – and finds out it's at the bottom of the scrap hopper, under a thousand pounds of steel scrap. Why did you dump it there? furious fish asks forklift driver. Driver: "The tool room supervisor said, 'Get that piece of @#$%!d out of here! We already have a computer here, and it doesn't work!' "

Go Ahead And Try

This university has a new voice-mail system, and pilot fish watches as a vendor rep trains staffers to use it. Rep: The first time you use your mailbox, you'll be prompted to choose and enter your password using the phone's keypad." Support staffer: "Can it be letters *and* numbers?" Rep: Well, sure. Staffer: "Case-sensitive?"

Impossible? Outsource It

It's United Way pledge time at this company, but the charity no longer produces pledge cards as continuous forms, so the IT department can't use a line printer to personalize them with employees' names and ID numbers. Can't you use a laser printer on these three-part forms? pledge coordinator asks pilot fish. "I explained the part about making toner on the top copy, but not being able to do that with Parts 2 and 3," fish says. "He listened attentively and then wanted to know if anybody else in town could print three-part forms on a laser printer."

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Maybe he's right. But I think we need to do more than just avoid scope creep.

One reason I like the Chaos study is that Standish counts up the results of lots of real projects, and it has been doing that for long enough that we can see real trends. So we know that our biggest success rate for IT projects came right in the middle of the recent downturn. After the bubble burst, budgets were tight, resources were strained and big projects were rare.

And — not coincidentally — our success rate jumped and our project cancellation rate dropped. When projects are small, we succeed.



That suggests that we don't just need to keep projects from getting too big. We need to work actively to dismantle big projects.

Chop a big project down into smaller projects and three things happen. First, everything's simpler. We can use smaller, more focused teams. We can deal with a limited subset of requirements. Communication with users and team members is easier.

Second, we're less likely to abandon the small-project techniques that we know will work. Quick prototyping, continuous user feedback and iterative development deliver successful projects. But we're afraid to use them when we take on big projects. That's why we turn to traditional big-project approaches — and fail.

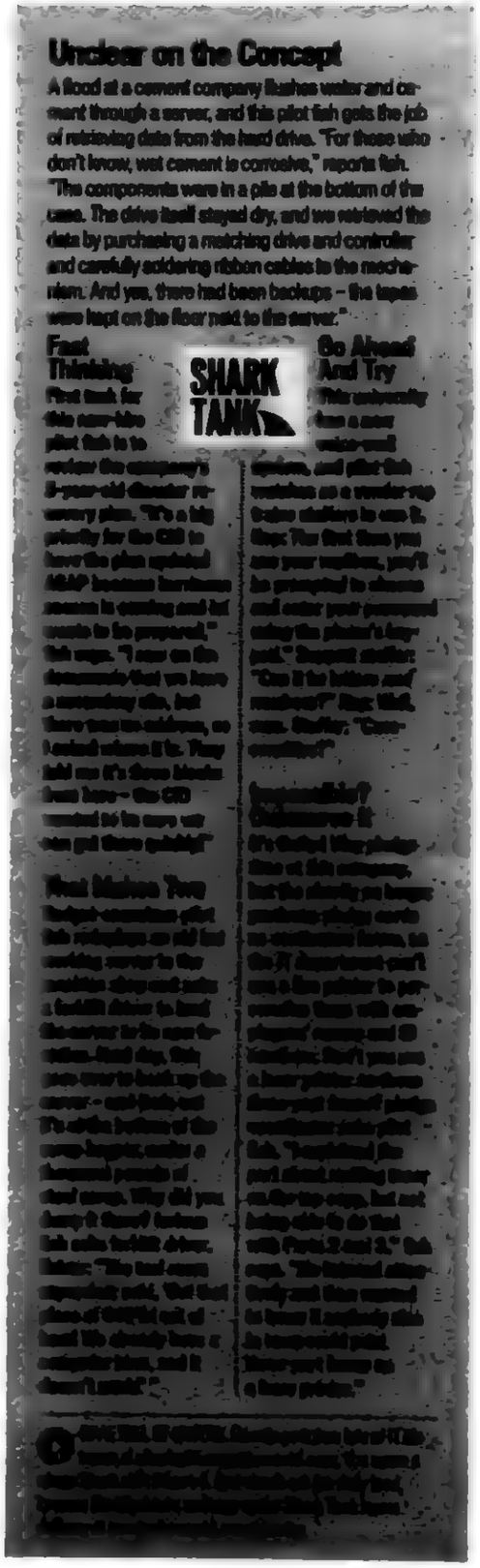
Third and maybe most important, small projects just aren't interesting to an organization's political players. Small projects aren't sexy. They don't grab the CEO's attention. So they don't attract fights over who will control the budget, or gamesmanship over the requirements, or early-and-often finger-pointing when anything goes wrong.

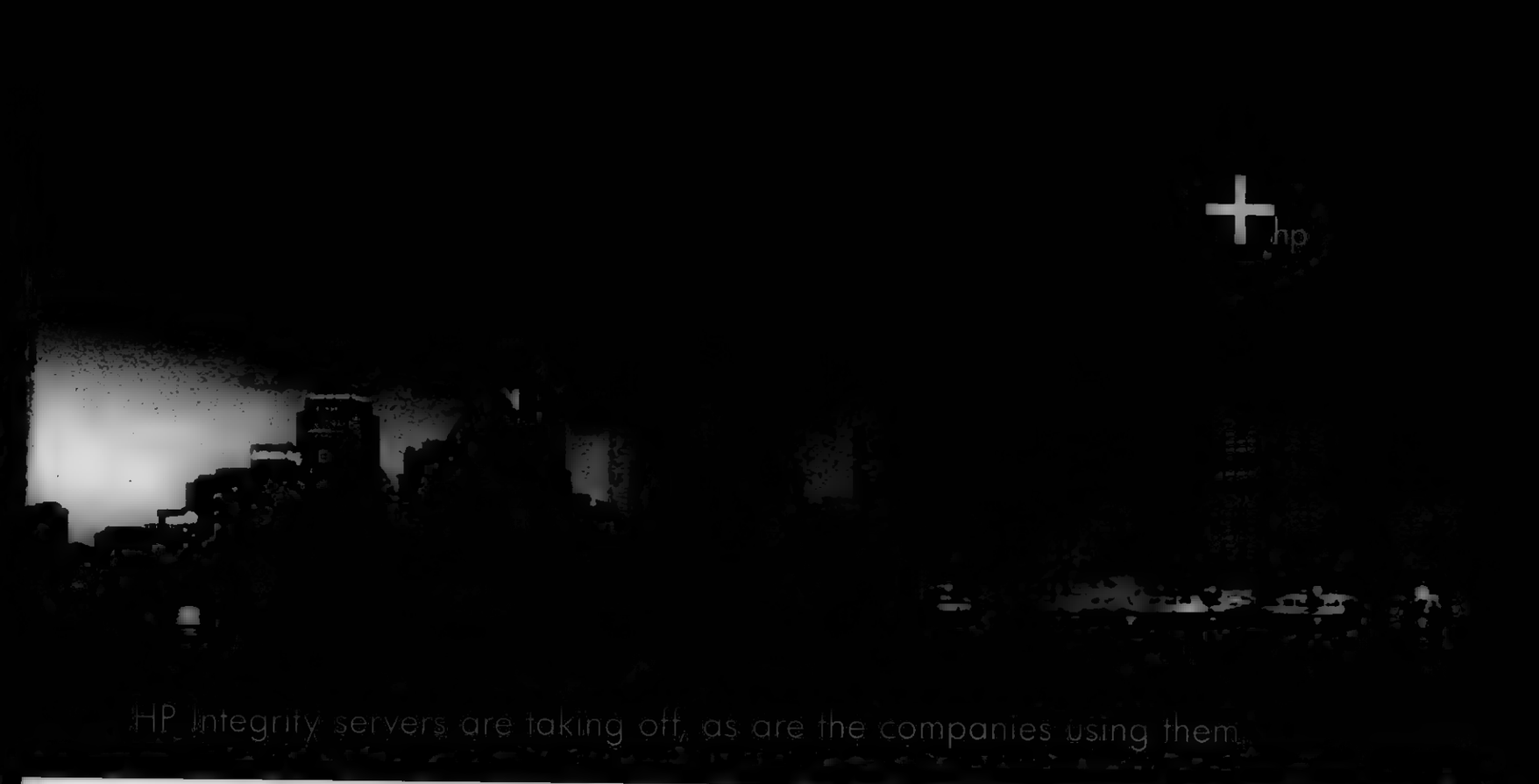
But those aren't the people you want as business sponsors anyhow.

By aggressively chopping down big projects, we can shed those problems and get back our success factors. Even as the demand returns for IT to solve big problems, we don't have to fail trying to solve them with big projects. We can break them down, solve them piecemeal and succeed.

We *can* stop losing ground and head in the right direction again.

That direction is small. 50543





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Don Tennant says it's time to get over fears of offshoring and innovate instead. PAGE 22



Sun's Jonathan Schwartz insists there's nothing stopping the company from making all of Solaris open-source. PAGE 8

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NOVEMBER 15, 2004 • VOL. 38 • NO. 46 • $5/COPY

DaimlerChrysler Rolls Out Standard PCs Worldwide

Automaker plans to replace 160k systems, deploy XP globally

BY PATRICK THIBODEAU

DaimlerChrysler AG is standardizing its 160,000 PCs worldwide on common hardware and software in an effort to eliminate costly bottlenecks on upgrades and enterprise-wide deployments of applications.



The automaker still plans to buy PCs from multiple vendors. But as part of the standardization project, which is called PC Global, DaimlerChrysler will replace all of its desktop and laptop PCs with systems that run Windows XP and meet or exceed certain hardware configurations.

Vince Morrotti, DaimlerChrysler's chief technology officer, said last week that the company has spent much of this year laying the groundwork for PC Global and designing the project plan. Thus far, it has replaced about 20,000 PCs in Europe, the

PC Rollout, page 59

Novell Puts Its Weight Behind Desktop Linux

Upgraded OS seeks to oust Windows in 'fixed-function' apps

BY MATT HAMBLEN

Novell Inc. last week began shipping a desktop version of Linux that is designed for business users and comes with a bundled set of open-source applications as well as technical support, training and consulting options.

The rollout of Novell Linux Desktop 9 follows a similar desktop release by Red Hat Inc. last spring [QuickLink 46758] and furthers the efforts of Linux vendors to give users more viable client-level alternatives to Windows.

Until now, Novell offered a desktop product only for Linux enthusiasts and open-source developers. Three users who are familiar with the existing software said they welcome the release of the

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DAVID HOLLENBACH



Outsourcing Dangers

SPECIAL REPORT Is your service provider in financial trouble? Is quality slipping? Is your intellectual property safe? This special report will help you find out. Stories begin on page 39.



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Editor's Picks

We've collected links to our most useful articles about outsourcing, including the Offshore Buyer's Guide.

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Viktor Portmann
Project Manager, *Department of Foreign Affairs, Switzerland*

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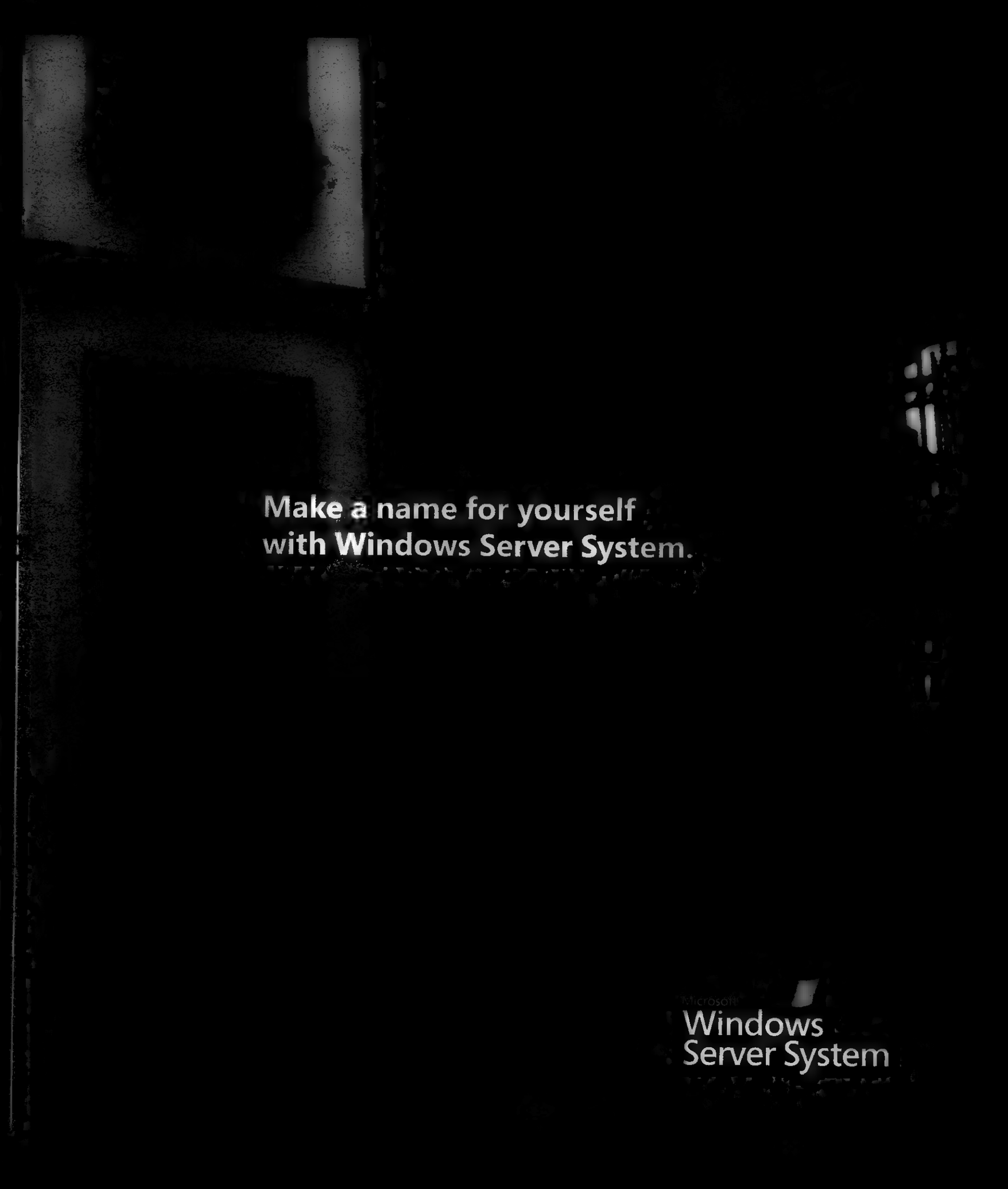
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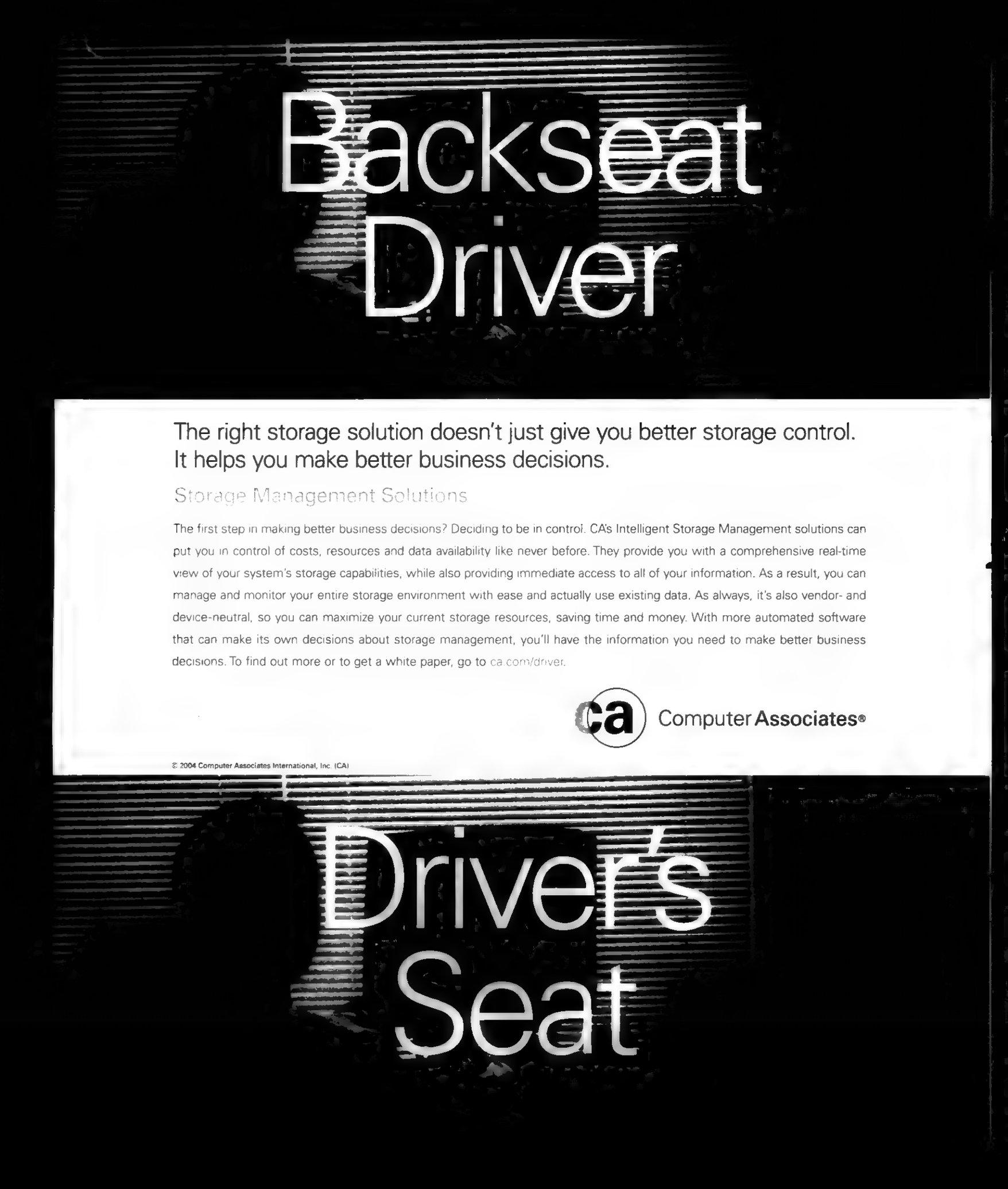
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Masterful Mergers

In the Management section: You don't integrate six newly acquired technology groups in a year without learning valuable lessons about strategies and processes for implementing change. Thomson Financial CIO Jeremy Lehman passes them on. **Page 33**

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Outsourcing Dangers

This special report will help you manage the often-overlooked risks of outsourcing by keeping a close eye on the contractor's finances, service quality and handling of your trade secrets.

SPECIAL REPORT

PACKAGE BEGINS ON PAGE 38.



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46 Sinking Quality. Many companies report dissatisfaction at the end of the first year of an outsourcing deal. Here are some common problems and how to avoid them.

50 Talent Drain. Outsourcing can benefit your company but strip it of its best and brightest minds. Here's how to figure out who goes, who stays and who manages the outsourcer.

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Data Points. Our newest collection of charts has outsourcing factoids to download for your PowerPoint presentations. QuickLink a1929

Getting Off on the Right Foot. Five tips from Danny Ertel and Sara Parker at Vantage Partners for smoothing out a new outsourcing relationship. QuickLink 50299

Eight Principles of Good Outsourcing Governance. Consultant Cathy Hyatt of EquaTerra says companies that follow governance principles rather than hard and fast rules are more successful at creating strong outsourcing relationships. QuickLink 50461

Voices From the Front Lines. Readers tell us how domestic and offshore outsourcing has affected the quality of work, security of information and skill level of their companies' IT workers. QuickLink 50455

AT DEADLINE

Nortel Delays Filing Results Again

Nortel Networks Corp., struggling through an accounting scandal that has sparked regulatory and criminal probes, again delayed filing its restated financial results, primarily because of revenue-reporting problems. Nortel now expects to file limited preliminary unaudited third-quarter 2004 results by mid-December. It plans to file audited results for 2003 and unaudited statements for the first and second quarters of 2004 within 30 to 60 days.

Dell's Q3 Results Outpace Industry

Dell Inc.'s financial performance continued to outpace the industry, as revenue grew by 19% and profits increased by 25% in the company's third quarter, which ended Oct. 29. For its fourth quarter, Dell is projecting revenue growth of 17% to $13.5 billion.

DELL BY THE NUMBERS

	REVENUE	
Q3 FY '05	$12.5B	$846M
Q3 FY '04	$10.6B	$677M

30-Year Vet Takes The Helm at Intel

Thirty-year Intel Corp. veteran Paul Otellini last week was promoted to CEO, succeeding Craig Barrett, who earlier this year disclosed plans to step down.

Barrett was named chairman, replacing Andrew Grove, who is now senior adviser to management and the board.

Microsoft Probes SP2 Bug Report

Microsoft Corp. late last week said it's investigating claims that several new vulnerabilities have been found in Windows XP Service Pack 2 by security firm Finjan Software Inc. in San Jose. Finjan said it found as many as 10 "serious" flaws in SP2, some of which could allow hackers to gain complete remote control of a compromised computer.

Security Pros Bemoan Need for Tactical Focus

More proactive initiatives fall by the wayside, conference attendees say

BY JAIKUMAR VIJAYAN
WASHINGTON

OPERATIONAL and tactical considerations continue to dominate the IT security agenda, despite a growing need for more strategic approaches to data protection, said attendees at the Computer Security Institute's annual conference here last week.

Contributing to the status quo is a troubling lack of communication between security organizations and business units as well as the challenges of dealing with an increasingly complex environment of threats to IT systems, security managers said.

"We're still fighting a lot of yesterday's battles," said Fred Trickey, information security administrator at Yeshiva University in New York.

> **"We're still fighting a lot of yesterday's battles."**
>
> **FRED TRICKEY**, INFORMATION SECURITY ADMINISTRATOR, YESHIVA UNIVERSITY

Reacting to Threats

Instead of focusing on ways to make IT security an enabler of business initiatives, security managers are spending far too much time dealing with unreliable code and chasing the latest viruses, worms and spyware, Trickey lamented.

"We've no choice," he said, adding that many IT security staffs don't have the resources or management support they need in order to become more proactive.

Tony Spinelli, vice president of information security at First Data Corp.'s merchant services group in Hagerstown, Md., agreed that security initiatives have to be about more than just mitigating threats.

But Spinelli said he thinks that a lack of understanding of business needs on the part of security managers is a big source of the problem.

"What's really needed is more of a strategic planning process that involves business executives and technologists," Spinelli said. Instead, security managers all too often offer "nothing by way of a long-term strategy" for IT security, he added.

Security practitioners need to learn to speak the language of business users and try to understand the kinds of problems they're facing, according to Roger Fradenburgh, a consultant at Greenwich Technology Partners Inc. in Boston.

For example, working with the business side to classify data and prioritize it according to the level of protection it needs is a good way for security staffs to demonstrate their value and deliver a tangible return on investment, Fradenburgh said.

But he added that the continuing failure of many security managers to communicate in such a fashion has created a perception among end users that IT security is an impediment to business. "In a lot of situations, business people look at the security people as purveyors of fear who are always saying that the sky is falling," Fradenburgh said.

Increasing Complexity

Changing business requirements and the growing complexity of threats can keep security managers tied to operational and tactical tasks even if they would prefer to focus on broader challenges, said Terri Curran, director of information security at Bose Corp. in Framingham, Mass.

Curran and other conference attendees noted that their focus is limited because they're being pinned down by mounting regulatory requirements and because they're facing an increase in the number of opportunities for attacks fostered by the adoption of technologies such as wireless LANs and Web services applications.

"The complexity of the day-to-day world is increasing by leaps and bounds," said Joseph Popinski, director of network security at Information Engineering Inc., a security consulting firm in Huntsville, Ala. "You can get very bogged down in the operational stuff."

For instance, issues such as network access control, intrusion detection, network operations and help desk functions can take up much of a security staff's working hours, said Popinski. **50751**

MORE ONLINE

For full coverage of this topic, visit our Security Knowledge Center:

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www.computerworld.com

Vendors Seek Certification for Application Security Tools

WASHINGTON

FOUR SECURITY software vendors last week announced an initiative aimed at giving IT managers a consistent way to evaluate Web application security tools from different companies.

As part of the effort, Teros Inc., Imperva Inc., NetContinuum Inc. and F5 Networks Inc. said they have established a proposed set of baseline criteria that products would have to meet to qualify as true application security products.

ICSA Labs, a Mechanicsburg, Pa.-based product testing and certification organization, will administer the new process and do third-party evaluations of application security tools. The initiative was detailed at the Computer Security Institute's annual conference here.

The certification program is aimed at resolving some of the confusion that exists in the market over what truly constitutes a Web application security tool, said Wes Wasson, vice president of marketing at Santa Clara, Calif.-based NetContinuum. Many of the products that are now being sold offer little more than standard network-level protection, he claimed.

Growing interest in application-level security has caught the attention of large vendors that "unfortunately are making marketing claims" that aren't borne out by their products, said Mark Kraynak, director of product marketing at Foster City, Calif.-based Imperva.

The vendors that launched the effort invited companies such as Cisco Systems Inc., Symantec Corp. and Check Point Software Technologies Ltd. to submit their application security tools for evaluation under the certification program.

In an e-mail statement, a Cisco spokeswoman said the company "will evaluate the opportunity to determine participation." Check Point and Symantec also said they were considering the proposal.

Greg Young, an analyst at Gartner Inc., said application-level firewalls "are a fairly new technology, and this should simplify the process of product selection for buyers."

Similar baseline standards already exist for conventional network firewalls, and they too are administered by ICSA, Young added.

–Jaikumar Vijayan

3Com Launches Terabit Switching Gear

Company gets boost in switch race from development pact with Huawei

BY MATT HAMBLEN

3Com Corp. today will introduce a family of terabit-class switches for large corporate users that are based on technology developed through a joint venture formed last year with China-based Huawei Technologies Co.

The Switch 8800 line is rated to provide bandwidth of 1.44Tbit/sec., said Bill Naas, director of enterprise product marketing at 3Com in Marlboro, Mass. The first two models will ship in January and are priced at $26,000 and $36,000, he said.

3Com is one of the first vendors to provide terabit switching hardware, and it's certainly the first equipment vendor with broad switching and routing portfolios, said Zeus Kerravala, an analyst at The Yankee Group in Boston.

Naas said the 8800 will be used in network backbones and other corporate applications where Gigabit Ethernet is being pushed to desktops to support large volumes of data, such as enormous video and image files.

Initial Interest

Art Jeffords, manager of networks and telecommunications at Covenant Health in Knoxville, Tenn., has been beta-testing the Switch 8814 and said it "seems to be a good product." In the next year, he expects to deploy the 8814 or a similar switch in the line at Covenant's main data center and may install others inside the group's five hospitals.

"In hospital systems, there are so many images being moved over networks, from MRIs to CT scans and more," requiring greater network capacity, Jeffords said.

Covenant Health has used 3Com switches for years. "They have been very responsive to our needs," Jeffords said.

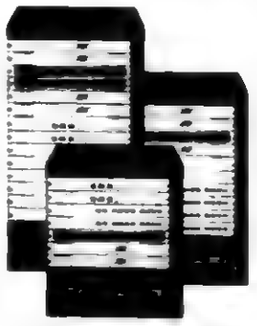
Larry Padgett, director of network and technical services at the Palm Beach County School District in Florida, said he wants to install two switches from the 8800 family in the district's central core. "We're looking for it, and I'm tickled pink to see 3Com getting back into big iron," he said. The district, which has 160 schools and 170,000 students, is "growing immensely," Padgett said.

Some high school desktops already have Gigabit Ethernet connections, so terabit switching will soon be needed to handle data between a mainframe and more than 100 servers, he said.

Four years ago, when 3Com exited the enterprise business for a short period of time, Padgett looked at switches from Nortel Networks Ltd. and Cisco Systems Inc., but he found that 3Com's products outperformed them.

Stephen Dantinne, supervisor of technology for the Vineland School District in Vineland, N.J., said he did a similar evaluation of switching vendors eight years ago and also found that 3Com came out on top.

Terabit switching is offered by several switching vendors, including Foundry Networks Inc. in San Jose, Force10 Networks Inc. in Milpitas, Calif., and Enterasys Networks Inc. in Andover, Mass., according to Kerravala and Steven Schuchart, an analyst at Current Analysis Inc. in Sterling, Va. But the current offerings come from vendors that don't back a range of switching and routing products, including voice-over-IP switching, Kerravala said.



3COM is releasing its 8800 line of terabit-class switches.

"Getting out of the enterprise hurt 3Com four years ago, but they are now serious about the enterprise customer," Schuchart said. "They are getting a big payoff with Huawei."

Last month, 3Com made another key move for enterprise customers when it signed an agreement with Siemens Corp.'s business services unit to gain access to 34,000 Siemens service workers globally. **50745**

Business Objects Details Plans For Dashboards, New BI Tool Set

User group looks for aid in a variety of tasks, metrics

BY HEATHER HAVENSTEIN
GRAPEVINE, TEXAS

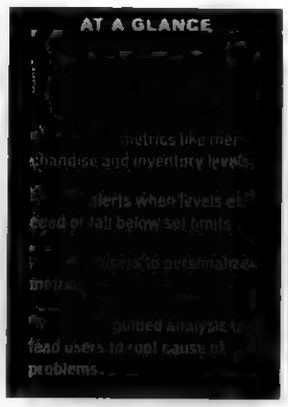
Executives from Business Objects SA last week talked up dashboard technology at the company's user conference here while rallying users to standardize on its new business intelligence (BI) suite.

IT executives at the conference said they are turning to the technology for help with budgeting chores, performance evaluations, inventory management and other jobs.

Business Objects officials outlined plans to add functionality to Dashboard Manager 6.5, which will allow users to customize metrics to measure everyday operational performance from transactional data housed in back-end systems. The new version is slated to ship this month.

At the same time, the executives called on users to standardize on the Business Objects XI (formerly Business Objects 11) suite. They said the release, set to ship by year's end, will knit together query and analysis, reporting, business scorecarding and dashboards, plus underlying data-integration technology.

Bernard Liautaud, chairman and CEO of France-based Business Objects, said dashboards — technology that can alert users when operational data strays from preset thresholds — are poised to mirror the evolution of reporting tools. The latter were once relegated to IT shops but are now used by businesses to customize reports for analyzing transactional data.



Dashboards will be an important part of The Tile Shop LLC's plans over the next two years. The Plymouth, Minn.-based retailer expects to begin using dashboard data to support budgeting for inventory purchases, and it plans to tie manager salaries to key performance indicators (KPI) tracked in the systems, said IT director Gerald Baltrush.

Today, store managers can feel helpless "because they don't have all the information they need," Baltrush said. "We're not just going to come from an ivory tower and say, 'Here are the KPIs — adjust or else.' I want them . . . to start doing their own analysis, [and] they'll have data that has teeth."

Sears, Roebuck and Co. uses Business Objects dashboards to provide 500 merchandising and apparel users with better tools for managing store inventory, said Edgar Aguilar, senior IT specialist at the Hoffman Estates, Ill.-based retailer. Aguilar characterized dashboards as the "next logical step in the BI life cycle," but he doesn't think users are ready to create their own yet.

Aguilar said Sears is also moving to reduce the number of BI tools it supports. The company has pockets of "every BI tool known to man," he said. Sears has begun standardizing on Business Objects technology and will likely migrate to XI or its as-yet-unnamed successor, he said.

On the other hand, Thomas Nather, a senior systems analyst at Penske Logistics LLC in Beachwood, Ohio, is evaluating how to provide users with "one-stop shopping" for access to BI data using technology from Business Objects and Hyperion Solutions Corp.

Business Objects has strong presentation and semantic layers, while Sunnyvale, Calif.-based Hyperion has strengths in financial reporting and analytics, he said.

"As you add on applications, which stack do you add on to, because each has its own specialty?" he said. "You need flexibility so you can go from high-level information back to operational data to give users one-stop shopping. We don't advocate just one vendor, because sometimes you can get yourself in a silo." **50710**

AT DEADLINE

Nortel Delays Filing Results Again

Nortel Networks Corp., struggling through an accounting scandal that has sparked regulatory and criminal probes, again delayed filing its restated financial results, primarily because of revenue-reporting problems. Nortel now expects to file limited preliminary unaudited third-quarter 2004 results by mid-December. It plans to file audited results for 2003 and unaudited statements for the first and second quarters of 2004 within 30 to 60 days.

Dell's Q3 Results Outpace Industry

Dell Inc.'s financial performance continued to outpace the industry, as revenue grew by 18% and profits increased by 25% in the company's third quarter, which ended Oct. 29. For its fourth quarter, Dell is projecting revenue growth of 17% to $13.5 billion.

DELL BY THE NUMBERS

REVENUE		
Q3 FY '05	$12.5B	$846M
Q3 FY '04	$10.6B	$677M

30-Year Vet Takes The Helm at Intel

Thirty-year Intel Corp. veteran Paul Otellini last week was promoted to CEO, succeeding Craig Barrett, who earlier this year disclosed plans to step down.

Barrett was named chairman, replacing Andrew Grove, who is now senior adviser to management and the board.

Microsoft Probes SP2 Bug Report

Microsoft Corp. late last week said it's investigating claims that several new vulnerabilities have been found in Windows XP Service Pack 2 by security firm Finjan Software Inc. in San Jose. Finjan said it found as many as 10 "serious" flaws in SP2, some of which could allow hackers to gain complete remote control of a compromised computer.

Security Pros Bemoan Need for Tactical Focus

More proactive initiatives fall by the wayside, conference attendees say

BY JAIKUMAR VIJAYAN
WASHINGTON

OPERATIONAL and tactical considerations continue to dominate the IT security agenda, despite a growing need for more strategic approaches to data protection, said attendees at the Computer Security Institute's annual conference here last week.

Contributing to the status quo is a troubling lack of communication between security organizations and business units as well as the challenges of dealing with an increasingly complex environment of threats to IT systems, security managers said.

"We're still fighting a lot of yesterday's battles," said Fred Trickey, information security administrator at Yeshiva University in New York.

> **"We're still fighting a lot of yesterday's battles."**
>
> **FRED TRICKEY** INFORMATION SECURITY ADMINISTRATOR YESHIVA UNIVERSITY

Reacting to Threats

Instead of focusing on ways to make IT security an enabler of business initiatives, security managers are spending far too much time dealing with unreliable code and chasing the latest viruses, worms and spyware, Trickey lamented.

"We've no choice," he said, adding that many IT security staffs don't have the resources or management support they need in order to become more proactive.

Tony Spinelli, vice president of information security at First Data Corp.'s merchant services group in Hagerstown, Md., agreed that security initiatives have to be about more than just mitigating threats.

But Spinelli said he thinks that a lack of understanding of business needs on the part of security managers is a big source of the problem.

"What's really needed is more of a strategic planning process that involves business executives and technologists," Spinelli said. Instead, security managers all too often offer "nothing by way of a long-term strategy" for IT security, he added.

Security practitioners need to learn to speak the language of business users and try to understand the kinds of problems they're facing, according to Roger Fradenburgh, a consultant at Greenwich Technology Partners Inc. in Boston.

For example, working with the business side to classify data and prioritize it according to the level of protection it needs is a good way for security staffs to demonstrate their value and deliver a tangible return on investment, Fradenburgh said.

But he added that the continuing failure of many security managers to communicate in such a fashion has created a perception among end users that IT security is an impediment to business. "In a lot of situations, business people look at the security people as purveyors of fear who are always saying that the sky is falling," Fradenburgh said.

Increasing Complexity

Changing business requirements and the growing complexity of threats can keep security managers tied to operational and tactical tasks even if they would prefer to focus on broader challenges, said Terri Curran, director of information security at Bose Corp. in Framingham, Mass.

Curran and other conference attendees noted that their focus is limited because they're being pinned down by mounting regulatory requirements and because they're facing an increase in the number of opportunities for attacks fostered by the adoption of technologies such as wireless LANs and Web services applications.

"The complexity of the day-to-day world is increasing by leaps and bounds," said Joseph Popinski, director of network security at Information Engineering Inc., a security consulting firm in Huntsville, Ala. "You can get very bogged down in the operational stuff."

For instance, issues such as network access control, intrusion detection, network operations and help desk functions can take up much of a security staff's working hours, said Popinski. **50751**

MORE ONLINE

For full coverage of this topic, visit our Security Knowledge Center.

QuickLink k1600
www.computerworld.com

Vendors Seek Certification for Application Security Tools

WASHINGTON

FOUR SECURITY software vendors last week announced an initiative aimed at giving IT managers a consistent way to evaluate Web application security tools from different companies.

As part of the effort, Teros Inc., Imperva Inc., NetContinuum Inc. and F5 Networks Inc. said they have established a proposed set of baseline criteria that products would have to meet to qualify as true application security products.

ICSA Labs, a Mechanicsburg, Pa.-based product testing and certification organization, will administer the new process and do third-party evaluations of application security tools. The initiative was detailed at the Computer Security Institute's annual conference here.

The certification program is aimed at resolving some of the confusion that exists in the market over what truly constitutes a Web application security tool, said Wes Wasson, vice president of marketing at Santa Clara, Calif.-based NetContinuum. Many of the products that are now being sold offer little more than standard network-level protection, he claimed.

Growing interest in application-level security has caught the attention of large vendors that "unfortunately are making marketing claims" that aren't borne out by their products, said Mark Kraynak, director of product marketing at Foster City, Calif.-based Imperva.

The vendors that launched the effort invited companies such as Cisco Systems Inc., Symantec Corp. and Check Point Software Technologies Ltd. to submit their application security tools for evaluation under the certification program.

In an e-mail statement, a Cisco spokeswoman said the company "will evaluate the opportunity to determine participation." Check Point and Symantec also said they were considering the proposal.

Greg Young, an analyst at Gartner Inc., said application-level firewalls "are a fairly new" technology, and this should simplify the process of product selection for buyers."

Similar baseline standards already exist for conventional network firewalls, and they too are administered by ICSA, Young added.

– Jaikumar Vijayan

3Com Launches Terabit Switching Gear

Company gets boost in switch race from development pact with Huawei

BY MATT HAMBLEN

3Com Corp. today will introduce a family of terabit-class switches for large corporate users that are based on technology developed through a joint venture formed last year with China-based Huawei Technologies Co.

The Switch 8800 line is rated to provide bandwidth of 1.44Tbit/sec., said Bill Naas, director of enterprise product marketing at 3Com in Marlboro, Mass. The first two models will ship in January and are priced at $26,000 and $36,000, he said.

3Com is one of the first vendors to provide terabit switching hardware, and it's certainly the first equipment vendor with broad switching and routing portfolios, said Zeus Kerravala, an analyst at The Yankee Group in Boston.

Naas said the 8800 will be used in network backbones and other corporate applications where Gigabit Ethernet is being pushed to desktops to support large volumes of data, such as enormous video and image files.

Initial Interest

Art Jeffords, manager of networks and telecommunications at Covenant Health in Knoxville, Tenn., has been beta-testing the Switch 8814 and said it "seems to be a good product." In the next year, he expects to deploy the 8814 or a similar switch in the line at Covenant's main data center and may install others inside the group's five hospitals.

"In hospital systems, there are so many images being moved over networks, from MRIs to CT scans and more," requiring greater network capacity, Jeffords said.

Covenant Health has used 3Com switches for years. "They have been very responsive to our needs," Jeffords said.

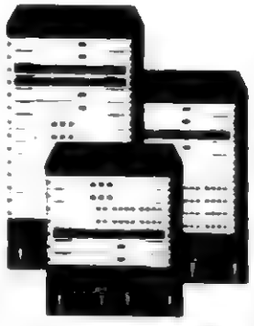
Larry Padgett, director of network and technical services at the Palm Beach County School District in Florida, said he wants to install two switches from the 8800 family in the district's central core. "We're looking for it, and I'm tickled pink to see 3Com getting back into big iron," he said. The district, which has 160 schools and 170,000 students, is "growing immensely," Padgett said.

Some high school desktops already have Gigabit Ethernet connections, so terabit switching will soon be needed to handle data between a mainframe and more than 100 servers, he said.

Four years ago, when 3Com exited the enterprise business for a short period of time, Padgett looked at switches from Nortel Networks Ltd. and Cisco Systems Inc., but he found that 3Com's products outperformed them.

Stephen Dantinne, supervisor of technology for the Vineland School District in Vineland, N.J., said he did a similar evaluation of switching vendors eight years ago and also found that 3Com came out on top.

Terabit switching is offered by several switching vendors, including Foundry Networks Inc. in San Jose, Force10 Networks Inc. in Milpitas, Calif., and Enterasys Networks Inc. in Andover, Mass., according to Kerravala and Steven Schuchart, an analyst at Current Analysis Inc. in Sterling, Va. But the current offerings come from vendors that don't back a range of switching and routing products, including voice-over-IP switching, Kerravala said.



3COM is releasing its 8800 line of terabit-class switches.

"Getting out of the enterprise hurt 3Com four years ago, but they are now serious about the enterprise customer," Schuchart said. "They are getting a big payoff with Huawei."

Last month, 3Com made another key move for enterprise customers when it signed an agreement with Siemens Corp.'s business services unit to gain access to 34,000 Siemens service workers globally. **50745**

Business Objects Details Plans For Dashboards, New BI Tool Set

User group looks for aid in a variety of tasks, metrics

BY HEATHER HAVENSTEIN
GRAPEVINE, TEXAS

Executives from Business Objects SA last week talked up dashboard technology at the company's user conference here while rallying users to standardize on its new business intelligence (BI) suite.

IT executives at the conference said they are turning to the technology for help with budgeting chores, performance evaluations, inventory management and other jobs.

Business Objects officials outlined plans to add functionality to Dashboard Manager 6.5, which will allow users to customize metrics to measure everyday operational performance from transactional data housed in back-end systems. The new version is slated to ship this month.

At the same time, the executives called on users to standardize on the Business Objects XI (formerly Business Objects 11) suite. They said the release, set to ship by year's end, will knit together query and analysis, reporting, business scorecarding and dashboards, plus underlying data-integration technology.

Bernard Liautaud, chairman and CEO of France-based Business Objects, said dashboards — technology that can alert users when operational data strays from preset thresholds — are poised to mirror the evolution of reporting tools. The latter were once relegated to IT shops but are now used by businesses to customize reports for analyzing transactional data.

AT A GLANCE

Business Objects Dashboard Manager

MONITORS metrics like merchandise and inventory levels.

SENDS alerts when levels exceed or fall below set limits.

ALLOWS users to personalize metrics.

INCLUDES guided analysis to lead users to root cause of problems.

Dashboards will be an important part of The Tile Shop LLC's plans over the next two years. The Plymouth, Minn.-based retailer expects to begin using dashboard data to support budgeting for inventory purchases, and it plans to tie manager salaries to key performance indicators (KPI) tracked in the systems, said IT director Gerald Baltrush.

Today, store managers can feel helpless "because they don't have all the information they need," Baltrush said. "We're not just going to come from an ivory tower and say, 'Here are the KPIs — adjust or else.' I want them . . . to start doing their own analysis, [and] they'll have data that has teeth."

Sears, Roebuck and Co. uses Business Objects dashboards to provide 500 merchandising and apparel users with better tools for managing store inventory, said Edgar Aguilar, senior IT specialist at the Hoffman Estates, Ill.-based retailer. Aguilar characterized dashboards as the "next logical step in the BI life cycle," but he doesn't think users are ready to create their own yet.

Aguilar said Sears is also moving to reduce the number of BI tools it supports. The company has pockets of "every BI tool known to man," he said. Sears has begun standardizing on Business Objects technology and will likely migrate to XI or its as-yet-unnamed successor, he said.

On the other hand, Thomas Nather, a senior systems analyst at Penske Logistics LLC in Beachwood, Ohio, is evaluating how to provide users with "one-stop shopping" for access to BI data using technology from Business Objects and Hyperion Solutions Corp.

Business Objects has strong presentation and semantic layers, while Sunnyvale, Calif.-based Hyperion has strengths in financial reporting and analytics, he said.

"As you add on applications, which stack do you add on to, because each has its own specialty?" he said. "You need flexibility so you can go from high-level information back to operational data to give users one-stop shopping. We don't advocate just one vendor, because sometimes you can get yourself in a silo." **50710**

BRIEFS

Firefox Set to Take On Internet Explorer

The Mozilla Foundation in Mountain View, Calif., has released Version 1.0 of its Firefox browser, an open-source product that may offer real competition to Microsoft Corp.'s ubiquitous Internet Explorer. A preview release of Firefox was downloaded over 8 million times. Firefox includes an integrated pop-up ad blocker and safeguards against online scams like phishing and spoofing (see QuickLink 50296).

Cisco CEO Cautious About Near Term

Cisco Systems Inc. said revenue in its first quarter, which ended Oct. 30, rose 17.1% from the year-earlier total but only 0.8% from the previous quarter's level. CEO John Chambers said he has a "healthy paranoia" about the near term, noting that it's too soon to predict how confident users will be over the next four months.

CISCO BY THE NUMBERS

	REVENUE	PROFIT
Q1 '05		$1.4B
Q1 '04		$1.09B

Northrop Gains $46M IT Contract

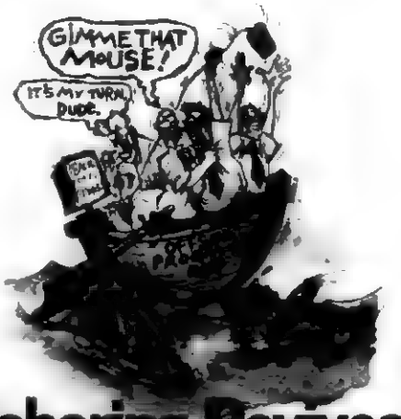
Northrop Grumman Corp. was awarded a five-year, $46 million outsourcing pact by the city of Indianapolis and the county of Marion, Ind. The contract calls for Northrop Grumman to run and support the city and county data centers, networks, help desks and application services.

SBC to Cut 10,000 Jobs in Next Year

SBC Communications Inc. plans to cut more than 10,000 jobs, or 6% of its workforce, due to productivity improvements and declining demand for local phone access. San Antonio-based SBC will continue to hire workers for wireless and broadband access posts.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



Offshoring Revives Man-Month Myth . . .

. . . as IT shops apply "brute-force programming techniques" with low-cost coders from India and elsewhere. That's the observation of Tom Bigelow, CEO of Performance Software Corp., a Phoenix-based developer of custom software for the aerospace industry.

Bigelow says companies that hire offshore developers in bulk eventually hit a wall. That's because, as Frederick P. Brooks Jr. revealed in *The Mythical Man-Month*, his classic book on software engineering published nearly 30 years ago, you can't compress the time it takes to complete software simply by throwing more bodies at it — not even in the Internet age. Most IT managers have been "mandated to cut *x* percent from their budget," Bigelow contends. So, many have grasped at the straw of offshore development with the hope of saving money and still getting big development jobs done. The frequent results, he says, are late projects, bad projects and dead projects. While upper management is busy updating its spreadsheets with lower-cost programmers from abroad, many midlevel IT managers are foundering as they try to control workgroups overseas, Bigelow says. But he acknowledges that offshore workers are "ideal for certain tasks, such as test and verification." The best IT departments are "tri-partnering" their development, Bigelow says, describing an ideal scenario in which 60% of the work is done in-house, 30% is sent offshore and 10% is outsourced to U.S. firms.

Extended enterprise supply chains call . . .

. . . for new tools to augment ERP software, according to Peter West, vice president of marketing at RiverOne Inc. in Irvine, Calif.


WEST pushes new tools for the "inter-enterprise."

"ERP systems are designed to work in-house, not across multiple suppliers," West claims. Yet, he notes, companies that have business partners manufacture goods for them want to control the process "as if [the goods] were being made inside their four walls." RiverOne's Interactive application, which targets electronics manufacturers, gives supply chain managers exactly that — an inside look at the work being done by their partners. With the Interactive 6.0 upgrade scheduled for release in next year's first quarter, customers will get a new "adaptive supply chain architecture" that lets them use wizard-style tools to create business processes throughout their supply chains, West says. Users will be able to define the roles of various partners in the manufacturing process and then use exception-based reporting methods to assure quality and accountability. "At the end of the day, the best supply chain wins," West says.


ZUFFOLETTO says browser-based CRM clients aren't enough.

Salesforce.com comes under fire from . . .

. . . new competitors in online subscription market for hosted sales force automation tools and other CRM software. For example, Uptilt Inc. in Redwood City, Calif., plans to unveil its SalesCenter service this week. Dave Dabbah, general manager of SalesCenter, says Uptilt will take on San Francisco-based Salesforce.com Inc. by selling a product that's easier to use and customize and by offering consulting services at no extra charge. Monthly fees start at $1,000 per end user for a minimum of 10 seats.

Taking a different competitive tack is SmartCompany Inc. in Walnut Creek, Calif. SmartCompany CEO Joe Zuffoletto explains that although hosted CRM technology has clear advantages over packaged software, it lacks a powerful enough client application to do what many users want, such as drag-and-drop capabilities and easier integration with Microsoft Office. Zuffoletto claims that the answer is a Windows-based client. "A browser just runs out of steam," he says. SmartCompany is working on a Windows offering as an alternative for accessing its online CRM software. Zuffoletto says the technology should ship late in the first quarter of next year and cost "in the neighborhood" of $299 per user. Putting a Windows front end on a Web-based app may seem counterintuitive, and Zuffoletto acknowledges that it certainly flies in the face of Salesforce.com's mantra of no software on PCs. But if the limitations of browsers become a broader issue for users, maybe the new mantra will be "nearly no software."

Instant messaging meets collaboration . . .

. . . with business-oriented tool from Five Across Inc. in Palo Alto, Calif. Company officials say the most popular instant messaging products were designed with consumers, especially teenagers, in mind. Five Across also claims that IM tools tailored for corporate users mostly take IT issues into account, not business ones. The company's InterComm software replaces the usual IM buddy list with functional groups of end users. It also can store and forward messages to people who aren't online, create unlimited shared-notes fields and store common documents in a group repository. InterComm 1.1, which ships this week, adds RSS feeds and structured messaging forms. A companion Workgroup Server, which centralizes IM administration, is also due this week. ● 50694


Corporate IM users in 2007, according to Radicati Group

BRIEFS

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MATTHEW FAULKNER

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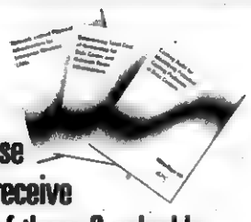
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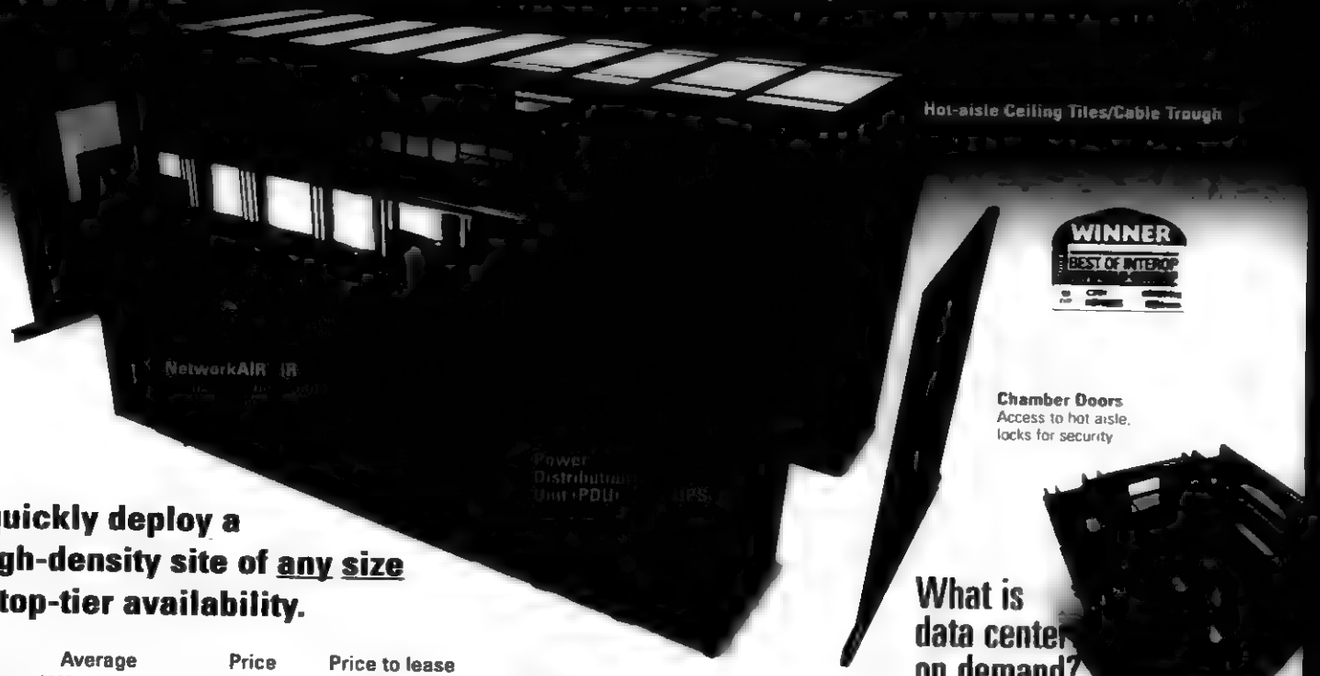
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ISXT280MD40R	40	up to 5kW	$699,999*	$21,999
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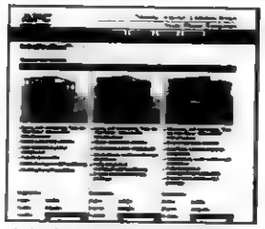
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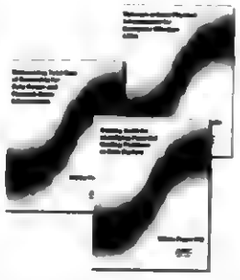
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Sun Adds Mix-and-Match Disk Storage, Multivendor Software

BY LUCAS MEARIAN

SUN Microsystems Inc. today plans to announce four storage products, including upgraded software with multivendor management capabilities and a pair of midrange storage devices that can mix and match Fibre Channel and Serial ATA disk drives within the same box.

The storage rollout is part of Sun's quarterly product launch, which is being held in San Francisco and will feature the formal announcement of Solaris 10 (see story below).

Chief among the new storage offerings is the latest version of Sun's Enterprise Storage Manager software. ESM 3.0 can use the Storage Management Initiative Specification (SMI-S) to control rival disk arrays from EMC Corp., IBM, Hitachi Data Systems Corp. and Hewlett-Packard Co., Sun officials said.

Sun first embedded support for SMI-S into its software 18 months ago. But until now, the company has been able to give storage administrators only a consolidated view of its own hardware, said Mark Canepa, executive vice president of network storage at Sun.

Sun also plans to introduce its second network-attached storage device, a midrange product called the StorEdge 5310 NAS that can scale up to 32TB of capacity with Fibre Channel disk drives and 74.5TB using a combination of Fibre Channel and Serial ATA disks.

Serial ATA is a less expensive technology that can be used for secondary storage, enabling data backups to be done within the same box used for primary storage.

In addition, Sun will unveil the StorEdge 6130, a midrange disk array that can also mix Fibre Channel and Serial ATA drives with a maximum capacity of 33.6TB (see box).

The company is also adding a tool called the Compliance Archiving System. The software offers write-once, read-many capabilities, plus audit-trail options for Sun's NAS devices, setting them up as potential competitors to fixed-storage products from vendors such as EMC.

Charles Sears, manager of research computing at the College of Oceanic and Atmospheric Sciences at Oregon State University in Corvallis, said he's having trouble completing disk-to-tape data backups during his allotted processing window. The amount of data the school stores on high-performance Fibre Channel disk drives in its Sun storage devices is "growing exponentially," Sears said. As a result, he's looking at using Serial ATA technology to provide a near-line backup capability.

Sears uses Sun's ESM 2.1 software, and he hopes over the next month to upgrade to the new version of the software and manage the devices under one umbrella. "That would be nirvana," Sears said. **50728**

New From Sun

StorEdge 5310 NAS →

- Network-attached storage device that supports both Fibre Channel and Serial ATA disk drives.
- Available in early December; pricing has yet to be finalized.

StorEdge 6130 Array

- Midrange disk array that can hold a mix of Fibre Channel and Serial ATA disks.



- Available now for Fibre Channel only, with pricing starting at $46,470 for 365GB. Mixed support is due early next month.

Enterprise Storage Manager 3.0

- Upgraded software with SMI-S support for managing disk arrays from other vendors.
- Available now; pricing starts at $33,000 and is expected to average about $100,000.

Schwartz Says Solaris Can Be Completely Open-Source

BY PATRICK THIBODEAU

Sun Microsystems Inc. will formally launch Solaris 10 this week, when officials plan to lay out pricing for the operating system as well as details about releasing the open-source version of the software that is due next year. **Jonathan Schwartz,** *Sun's president and chief operating officer, spoke with* Computerworld *last week about Solaris 10, the open-source plan and other topics.*



In your weblog, you call Solaris 10 "the single biggest improvement we've ever delivered in a commercial operating system." What makes it so? First and foremost, we have extended to customers the ability to run the same safe, protected and scalable operating system on our existing Unix offerings on Sparc, as well as bringing to them the first truly vendor-neutral operating system that runs across Dell, Hewlett-Packard, IBM and Sun's x86, 64-bit systems.

Second, we've really gone back and revisited the fundamental issues that customers had with their systems. We all know that the old saw is, "The hardware I was running was too expensive, and not only that, I was getting only 15% utilization, so therefore I built out a big grid of little x86 systems."

I was with one customer last week who told me they had bought a few thousand IBM BladeCenter xSeries systems, and their server utilization was about 6%. Just because you chopped up the utilization problem into smaller units doesn't mean the utilization problem has gone away, which is why we added logical partitioning into Solaris with containers.

Third, there is just an extraordinary investment that we have made in ensuring that we bring an open-source Solaris to the marketplace, a truly vendor-neutral Solaris.

What do you think independent software vendors are going to do with open-source Solaris? I'm not necessarily convinced it's going to yield a new set of new applications, as much as a new way of interacting with Sun. So, ISVs that want to be able to make enhancements or modifications to their products or the base operating system will have the freedom to do so — the freedom to innovate.

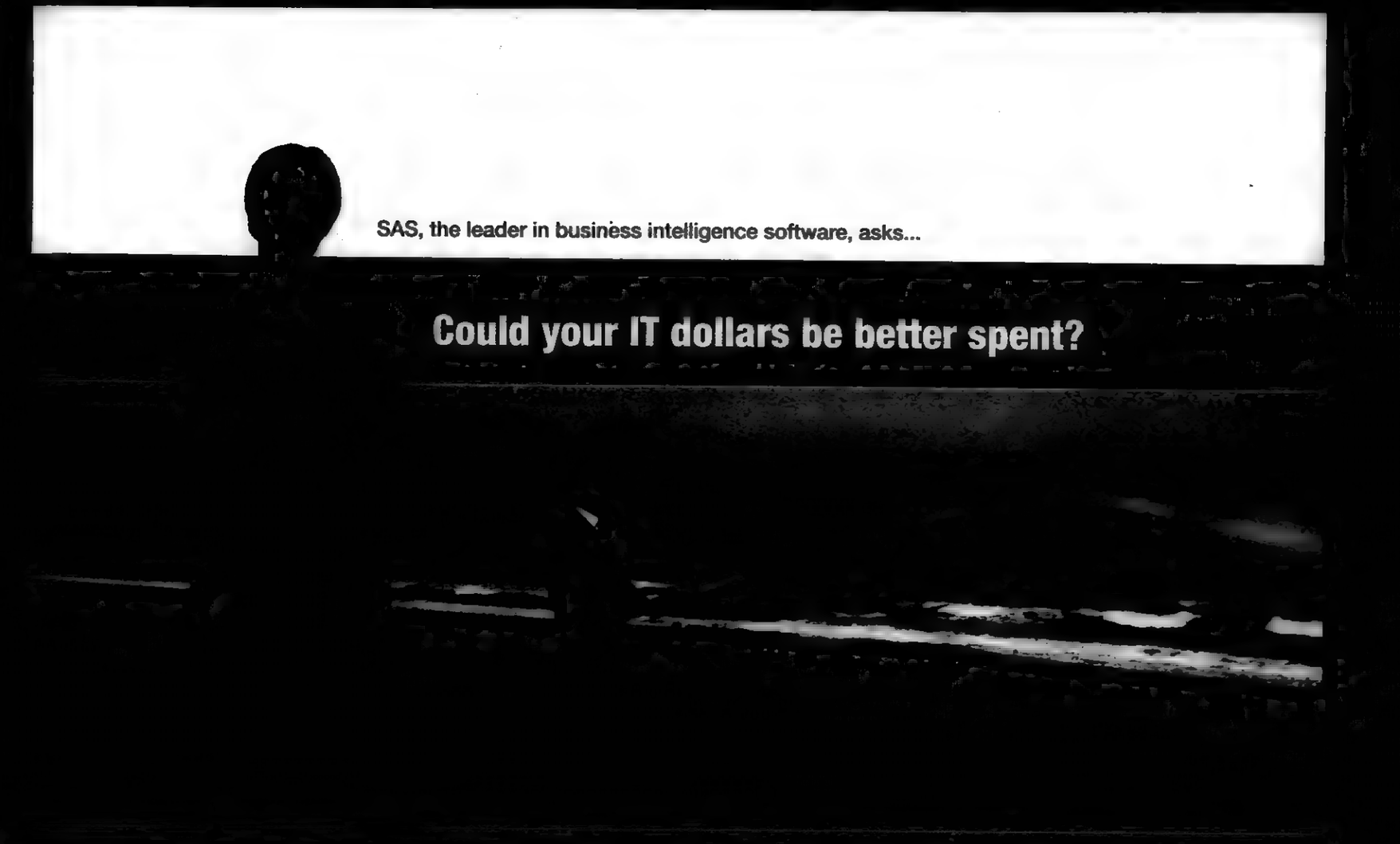
How will the open-source Solaris development community work? Will you create something similar to OpenOffice.org? Absolutely. It's critically important for us that we cultivate a very high-integrity relationship with the open-source community, which we have had historically.

What's the time frame for releasing open-source Solaris? We will have the license announced by the end of this calendar year and the code fully available [by the] first quarter of next year.

Is there anything preventing you from making all of Solaris open-source? Nothing at all. And let me repeat that. Nothing at all.

Is Solaris in competition with Linux? No, that's like asking if Solaris is in competition with the open-source movement. Solaris is in competition with Red Hat. Solaris will be as much the open-source movement as anything else. The competition ultimately is going to be had and be seen between companies that have competitive offerings.

One year ago this month, Sun announced a strategic alliance with Advanced Micro Devices to deliver Opteron-based Sun Fire systems. What has this alliance accomplished in the past year? On the one hand, it's given us a springboard into the $20 billion-plus x86 server market, with products that have distinct competitive advantages over similar systems from, say, Dell. I question the wisdom of anyone who continues to buy 32-bit x86 systems when you can buy x86 64-bit systems that cost less and run two or three times as fast. In addition to that, there is obviously a very close partnership between the AMD team and the Solaris kernel team, and so we are looking to do co-evolution of the systems. **50749**



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BRIEFS

Oracle's PeopleSoft Bid Nears an End

The 18-month saga involving PeopleSoft Inc. and Oracle Corp. could be coming to an end this week. PeopleSoft's board last week voted to urge shareholders to reject what Oracle has said is its "best and final" offer to buy the company. Oracle officials agreed to withdraw the $8.8 billion offer if not accepted by Nov. 19.

Chartered Agrees to Build AMD Chips

Sunnyvale, Calif.-based Advanced Micro Devices Inc. has signed up Singapore-based Chartered Semiconductor Manufacturing Ltd. to produce AMD's Opteron and Athlon 64 processors starting in 2006, adding manufacturing capacity to existing plants in Dresden, Germany, and in Austin. Chartered will also license AMD's Automated Precision Manufacturing technology as part of the agreement.

Tax Benefit Shifts PeopleSoft's Profit

PeopleSoft last week revised its third-quarter profits upward by $2.6 million as a result of a higher-than-expected tax benefit on its severance payment of almost $14 million to former CEO Craig Conway, who was fired last month. The restated profit totaled $26.2 million after the tax adjustment.

Symbol Delays Filing Q3 Results

Symbol Technologies Inc. delayed filing its third-quarter results and revised figures for the first nine months of the year downward by $13.3 million, to $1.3 billion, as a result of inventory reporting errors. The Holtsville, N.Y.-based company's financials are monitored by the U.S. Securities and Exchange Commission because of financial irregularities discovered last spring.

i2's Closed-Loop Vision Garners User Support

Bundling of technologies and processes promises a dynamic supply chain

BY MARC L. SONGINI
ORLANDO

DALLAS-BASED i2 Technologies Inc. last week continued to push its so-called closed-loop supply chain vision to a mostly receptive audience at the i2 Directions 2004 user conference here last week.

The closed-loop approach, first disclosed last year, bundles i2 supply chain, integration and analytical technologies and processes that can be used to cut costs, boost efficiency and help resolve glitches on the fly. Non-i2 technologies can be added to the loop using Web services.

CEO Sanjiv Sidhu said the approach can deliver a full-scale, dynamic supply chain, whereas the traditional method simply creates a static forecast. "The concept of a plan is having accountability and being something you live in and die in to make it happen," he said.

Mike Stevens, leader of trailer fleet services at Stamford, Conn.-based GE Equipment Services, agreed that disciplined supply chains are a necessity. The company uses i2's demand manager, forecasting and supply chain planning tools to manage its fleet of 125,000 trailers. The software uses three years of historical data to make demand projections for use by the sales force and requires extensive participation by company employees. But those involved need to be given incentives to participate, Stevens said. "This needs to be managed, and people have to be accountable for the results," he added.

Stevens said the product has mostly met his expectations, though he would like a simpler user interface menu. "If I don't understand it, the sales force won't either," he said. "i2 is a strong technical company, but they have to make the interface have a Forrest Gump look before it hits the market."

Signs of Progress

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The apparel maker uses i2's supply chain and demand management applications and recently completed a pilot of its Master Data Management data synchronization software, which it expects can enhance its closed-loop processes. The MDM tool rapidly linked information from i2's Supply Chain Planner module to data created by a homegrown mainframe application to produce an inventory report. Previously, it took months to link the data sets, Shiver said.

Ravi Vancheeswaran, a planning director at ON Semiconductor Corp. in Phoenix, wants to take advantage of i2's stated approach of selling applications as components. "At some point, we want to make the supply chain to be like Lego pieces," he said. Currently, ON runs i2's Six.One Demand Planner, Supply Chain Planner and Demand Fulfillment applications.

Miami-based logistics services provider Ryder System Inc. wants to further exploit functions in i2's Transportation Optimizer and Transportation Manager products.

For instance, Ryder would like to support ocean freighting operations, including the ability to handle steamship schedules, said transportation product manager Ron Abrams. In addition, Abrams said he would like to use the software to help Ryder meet unique customer requirements during backhauling and fixed-routing operations. **50730**

Cisco Expands WLAN Line, Teams Up With AirDefense

BY MATT HAMBLEN

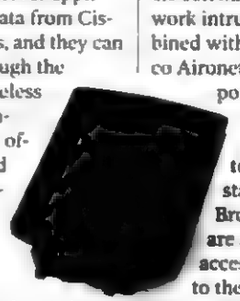
Cisco Systems Inc. last week added two Wi-Fi access points that support new security standards and can handle more users than its previous devices. It also announced a partnership for integrating its wireless networking products with AirDefense Inc.'s intrusion-detection technology.

The Aironet 1130AG and 1230AG series of access points provide dual-band 802.11a/b/g connectivity and comply with the 802.11i and WPA2 security protocols, said Ron Seide, Cisco's senior product line manager for wireless networking.

The 1130AG is designed for office use and starts at $699; the 1230AG is a more ruggedized device that costs $999.

Both products can operate on 15 nonoverlapping channels and deliver data rates of up to 108Mbit/sec., Seide said. He added that future upgrade plans call for increasing the number of supported channels to 26, which should mean less interference for end users.

AirDefense's server appliances can read data from Cisco's access points, and they can be accessed through the CiscoWorks Wireless LAN Solution Engine. The engine offers an integrated console that supports wireless LAN management and intrusion detection, Seide said.



Cisco's Aironet 1230AG

The partnership between Cisco and Atlanta-based AirDefense grew out of informal joint work that the two companies began doing for customers more than a year ago, said AirDefense's founder and Chairman Jay Chaudhry.

One of the early users was Lehman Brothers Holdings Inc. in New York. Frederick Nwokobia, a senior engineer at the financial services firm, said AirDefense's Enterprise 6.0 software for detecting network intruders has been combined with more than 300 Cisco Aironet 1200 series access points at several Manhattan locations.

The AirDefense technology lets IT staffers at Lehman Brothers see if there are any ad hoc or rogue access points connected to the company's network, said Nwokobia. "We're trying to be proactive with our WLAN and to operate in a clean environment," he noted.

The Wi-Fi connections have been in place less than a year, and Lehman Brothers hasn't been attacked thus far, according to Nwokobia. He said the AirDefense software has notified IT staffers of suspicious network activity, which often involves an end user with a wireless card that isn't authorized to access the network.

Lehman Brothers has seen the benefits of having Wi-Fi capabilities for office workers who need to carry their laptops to conference rooms and other locations, Nwokobia said. He added that the company has deployed voice-over-IP products from Cisco for 13,000 workers and is investigating support for wireless VoIP transmissions over the Wi-Fi network. **50724**

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GLOBAL An International IT News Digest

BT Group to Buy Infonet for $965M

LONDON

BT GROUP PLC last week agreed to buy El Segundo, Calif.-based Infonet Services Corp. for about $965 million, in another attempt by BT to expand into the U.S. and offer global networking services.

Infonet provides Asynchronous Transfer Mode and virtual private networking services to hundreds of multinational companies, including Bayer Group, Nestlé SA and Hitachi Ltd.

London-based BT's previous attempts to crack the U.S. market include an aborted effort to acquire MCI Inc. and the ill-fated Concert joint venture with AT&T Corp.

Some analysts said the Infonet acquisition is a good move for BT. But Camille Mendler, an analyst at the London office of The Yankee Group, said that "BT has not been good at integrating its acquisitions" and that the merger "means less choice for users."

The deal is due to close by mid-2005.

■ JOHN BLAU, IDG NEWS SERVICE

Number of Wi-Fi hot spots expected in Taipei, Taiwan, by the end of next year.
— HEWLETT-PACKARD CO.

GE to Sell 60% Of Indian BPO Unit

BANGALORE, INDIA

GENERAL ELECTRIC CO. said it's selling a 60% stake in GE Capital International Services Americas Inc. (GECIS), its business process outsourcing subsidiary in India, to two U.S. investment firms for about $500 million.

General Atlantic Partners LLC in Greenwich, Conn., and Oak Hill Capital Partners LP in New York will jointly buy a majority stake in GECIS, which is based in Gurgaon near Delhi. GE will hold on to the remaining 40%, and the Indian operation will continue to serve its business units under a multiyear contract. But after the transaction closes, GECIS will also offer its services to other companies worldwide.

In 1997, GE was one of the first multinational companies to outsource back-office, data center and call center operations to a subsidiary in India. But now companies are moving away from captive subsidiaries and are instead outsourcing such work to independent Indian outsourcing companies.

■ JOHN RIBEIRO, IDG NEWS SERVICE

Telabria Plans First U.K. WiMax Network

TELABRIA LTD., a start-up in Sittingbourne, England, has begun construction of a WiMax broadband wireless network in southern England, initially in the county of Kent. Enterprise customers will be offered end-to-end WiMax links as a wireless alternative to T1 and leased lines.

Telabria said at the recent WiMax Forum in Boston that it aims to be the first company in the U.K. to offer commercial WiMax service, starting in mid-2005. Other WiMax networks are beginning to sprout in Europe, including trial networks in Dublin and Skelleftea, Norway. **50688**

■ JOHN BLAU, IDG NEWS SERVICE

Compiled by Mitch Betts.

Briefly Noted

Microsoft Canada Co. **President Frank Clegg is taking a seven-month sabbatical and will be replaced by David Heinler, a Microsoft Corp. vice president from the U.S. Clegg praised the management team at the Mississauga, Ontario-based unit but said the Canadian executives are "not ready yet" for the role of president.**

■ MICHAEL MACMILLAN, ITWORLDCANADA.COM

Dell Inc. **is setting up its third customer contact center in India, in Chandigarh in the country's northern region. The center is likely to open by March, with about 300 employees who initially will provide tech support to U.S.-based customers.**

■ JOHN RIBEIRO, IDG NEWS SERVICE

Vodacom (Pty) Ltd. **in Midrand, South Africa, said it will be the first company to market Research In Motion Ltd.'s BlackBerry handheld devices in South Africa, beginning in the first half of next year with the 7100v model. That product is designed for use in Europe and the Asia-Pacific region.**

■ COMPUTING SOUTH AFRICA

Regs May Force New IT Reality on Insurers

BY LUCAS MEARIAN

The insurance industry, long the technology laggard in the financial services sector, may soon be forced to embrace a variety of technologies to keep up with proposed state and federal reforms.

With regulators seeking greater oversight of the industry, experts say insurance companies will likely need to invest in CRM tools, middleware and straight-through-processing schemes and then integrate those technologies with existing systems.

Pressure on insurers is growing, as more state attorneys general file lawsuits against brokerages that allegedly created phony bids to justify recommendations to customers to accept the bids that would provide the brokers with the highest commissions.

Last month, New York Attorney General Eliot Spitzer filed a civil lawsuit against Marsh & McLennan Cos., charging that the nation's largest insurance brokerage created fake bids for insurance contracts.

"All of these [proceedings] will likely impact [IT] systems in some way," said Ann Purr, second vice president of information management at the Atlanta-based Life Office Management Association, an educational group representing 1,250 companies worldwide..

"If it requires gathering different data or gathering data in a different way, then it's going to be more work for the IT community. If it's just reporting to an additional place, that's just an additional process," Purr said.

The insurance industry is currently regulated only at the state level. That means a company must file separate financial statements and paperwork for each new product and fee in every state it does business in.

At the same time, Congress may soon debate a proposal to shift oversight of the industry from the states to the federal government. The industry is facing the Oxley-Baker State Modernization and Regulatory Transparency (SMART) Act, a proposal in Congress that would create federal oversight of the insurance business. The SMART Act could provide relief from the patchwork of state regulations, but it could also require significant new IT investments.

A spokesman for Rep. Michael Oxley (R-Ohio), who also sponsored the Sarbanes-Oxley Act, said it's unlikely that the bill will be filed and approved before the end of the year. But analysts said that if and when it does become law, it could dramatically change the face of IT in the insurance industry.

"On the technology side, it changes the whole dynamics and culture of the industry," said Deborah Smallwood, an analyst at TowerGroup in Needham, Mass. "They'll need to streamline and automate systems that weren't necessarily fully automated before."

Analysts also said online business-to-business marketplaces may become more popular in light of the investigations because of their transparency, which would lessen fears of fraud.

Mark Snyder, benefits director at Owens Corning in Toledo, Ohio, used an online bidding engine from Waltham, Mass.-based IE-Engine Inc. to procure insurance for his company's employee disability plan, pharmacy benefits, medical plan and workers' compensation plan. IE-Engine uses an application service provider model to provide an online marketplace to exchange bids in a request-for-proposals process. "It would give us comfort that we wouldn't have to worry about [bid rigging] using the online tool," he said.

Smallwood said the insurance industry's computing systems have front-end product distribution systems that are separate from customer relationship management systems and back-end quoting and pricing systems. Significant integration work would be necessary to meet strong oversight requirements. **50739**

Federal Oversight

The SMART Act would eliminate the need for insurance companies to make separate financial and product filings in each state. It would also create a state/national insurance oversight panel made up of:

- Three members from state insurance commissions
- One member from the U.S. Treasury
- One member from the U.S. Securities and Exchange Commission
- One member from the Federal Reserve
- A chairman from the National Association of Insurance Commissioners

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Infonet provides Asynchronous Transfer Mode and virtual private networking services to hundreds of multinational companies, including Bayer Group, Nestlé SA and Hitachi Ltd.

London-based BT's previous attempts to crack the U.S. market include an aborted effort to acquire MCI Inc. and the ill-fated Concert joint venture with AT&T Corp.

Some analysts said the Infonet acquisition is a good move for BT. But Camille Mendler, an analyst at the London office of The Yankee Group, said that "BT has not been good at integrating its acquisitions" and that the merger "means less choice for users."

The deal is due to close by mid-2005.

■ JOHN BLAU, IDG NEWS SERVICE



GE to Sell 60% Of Indian BPO Unit

BANGALORE, INDIA

GENERAL ELECTRIC CO. said it's selling a 60% stake in GE Capital International Services Americas Inc. (GECIS), its business process outsourcing subsidiary in India, to two U.S. investment firms for about $500 million.

General Atlantic Partners LLC in Greenwich, Conn., and Oak Hill Capital Partners LP in New York will jointly buy a majority stake in GECIS, which is based in Gurgaon near Delhi. GE will hold on to the remaining 40%, and the Indian operation will continue to serve its business units under a multiyear contract. But after the transaction closes, GECIS will also offer its services to other companies worldwide.

In 1997, GE was one of the first multinational companies to outsource back-office, data center and call center operations to a subsidiary in India. But now companies are moving away from captive subsidiaries and are instead outsourcing such work to independent Indian outsourcing companies.

■ JOHN RIBEIRO, IDG NEWS SERVICE

Telabria Plans First U.K. WiMax Network

TELABRIA LTD., a start-up in Sittingbourne, England, has begun construction of a WiMax broadband wireless network in southern England, initially in the county of Kent. Enterprise customers will be offered end-to-end WiMax links as a wireless alternative to T1 and leased lines.

Telabria said at the recent WiMax Forum in Boston that it aims to be the first company in the U.K. to offer commercial WiMax service, starting in mid-2005. Other WiMax networks are beginning to sprout in Europe, including trial networks in Dublin and Skelleftea, Norway. 50888

■ JOHN BLAU, IDG NEWS SERVICE

Compiled by Mitch Betts.

Briefly Noted

Microsoft Canada Co. President Frank Clegg is taking a seven-month sabbatical and will be replaced by David Heesler, a Microsoft Corp. vice president from the U.S. Clegg praised the management team at the Mississauga, Ontario-based unit but said the Canadian executives are "not ready yet" for the role of president.

■ MICHAEL MACMILLAN, ITWORLDCANADA.COM

Dell Inc. is setting up its third customer contact center in India, in Chandigarh in the country's northern region. The center is likely to open by March, with about 300 employees who initially will provide tech support to U.S.-based customers.

■ JOHN RIBEIRO, IDG NEWS SERVICE

Vodacom (Pty) Ltd. in Midrand, South Africa, said it will be the first company to market Research in Motion Ltd.'s BlackBerry handheld devices in South Africa, beginning in the first half of next year with the 7100v model. That product is designed for use in Europe and the Asia-Pacific region.

■ COMPUTING SOUTH AFRICA

Regs May Force New IT Reality on Insurers

BY LUCAS MEARIAN

The insurance industry, long the technology laggard in the financial services sector, may soon be forced to embrace a variety of technologies to keep up with proposed state and federal reforms.

With regulators seeking greater oversight of the industry, experts say insurance companies will likely need to invest in CRM tools, middleware and straight-through-processing schemes and then integrate those technologies with existing systems.

Pressure on insurers is growing, as more state attorneys general file lawsuits against brokerages that allegedly created phony bids to justify recommendations to customers to accept the bids that would provide the brokers with the highest commissions.

Last month, New York Attorney General Eliot Spitzer filed a civil lawsuit against Marsh & McLennan Cos., charging that the nation's largest insurance brokerage created fake bids for insurance contracts.

"All of these [proceedings] will likely impact [IT] systems in some way," said Ann Purr, second vice president of information management at the Atlanta-based Life Office Management Association, an educational group representing 1,250 companies worldwide.

"If it requires gathering different data or gathering data in a different way, then it's going to be more work for the IT community. If it's just reporting to an additional place, that's just an additional process," Purr said.

The insurance industry is currently regulated only at the state level. That means a company must file separate financial statements and paperwork for each new product and fee in every state it does business in.

At the same time, Congress may soon debate a proposal to shift oversight of the industry from the states to the federal government. The industry is facing the Oxley-Baker State Modernization and Regulatory Transparency (SMART) Act, a proposal in Congress that would create federal oversight of the insurance business. The SMART Act could provide relief from the patchwork of state regulations, but it could also require significant new IT investments.

A spokesman for Rep. Michael Oxley (R-Ohio), who also sponsored the Sarbanes-Oxley Act, said it's unlikely that the bill will be filed and approved before the end of the year. But analysts said that if and when it does become law, it could dramatically change the face of IT in the insurance industry.

"On the technology side, it changes the whole dynamics and culture of the industry," said Deborah Smallwood, an analyst at TowerGroup in Needham, Mass. "They'll need to streamline and automate systems that weren't necessarily fully automated before."

Analysts also said online business-to-business marketplaces may become more popular in light of the investigations because of their transparency, which would lessen fears of fraud.

Mark Snyder, benefits director at Owens Corning in Toledo, Ohio, used an online bidding engine from Waltham, Mass.-based IE-Engine Inc. to procure insurance for his company's employee disability plan, pharmacy benefits, medical plan and workers' compensation plan. IE-Engine uses an application service provider model to provide an online marketplace to exchange bids in a request-for-proposals process. "It would give us comfort that we wouldn't have to worry about [bid rigging] using the online tool," he said.

Smallwood said the insurance industry's computing systems have front-end product distribution systems that are separate from customer relationship management systems and back-end quoting and pricing systems. Significant integration work would be necessary to meet strong oversight requirements. 50739

Federal Oversight

The SMART Act would eliminate the need for insurance companies to make separate financial and product filings in each state. It would also create a state/national insurance oversight panel made up of:

- Three members from state insurance commissions
- One member from the U.S. Treasury
- One member from the U.S. Securities and Exchange Commission
- One member from the Federal Reserve
- A chairman from the National Association of Insurance Commissioners

AMD



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Novell's Antitrust Suit Points to Continued Dominance of Office

Claims Microsoft hampered sales of WordPerfect in '90s

BY PATRICK THIBODEAU

Novell Inc. last week filed an antitrust lawsuit alleging that Microsoft Corp. illegally tried to eliminate competition in the desktop applications market in the mid-1990s. The move highlighted the continuing problems that alternatives to Microsoft Office have in winning users.

The lawsuit involves the WordPerfect application suite, which Novell owned from 1994 to 1996. WordPerfect is now owned by Ottawa-based Corel Corp., which released Version 12 of the suite this year. Corel has forged alliances with PC makers such as Dell Inc., which will offer the applications on some of its systems.

But according to The NPD Group Inc., a market research firm in Port Washington, N.Y., as of September WordPerfect had just a 2.4% share of the market for productivity suites sold through retail and online channels. That was good enough for second place behind Microsoft, which controls more than 95% of the market.

The experience of Pete Collins, CIO for the city of Austin, points to one of the difficulties that vendors have in trying to compete against Office. Collins said he has tested the free open-source productivity software developed by OpenOffice.org. He noted that third-party software vendors have built links to the applications in Office to handle certain functions but not to the ones in OpenOffice.

The open-source suite needs more third-party interoperability to "go to the next level," Collins said. "That's the bottom line."

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Novell filed the WordPerfect-related lawsuit in U.S. District Court in Utah. The company built its case around findings made in the U.S. government's antitrust suit against Microsoft and is seeking unspecified damages as compensation for the alleged business harm caused by Microsoft.

Brad Smith, Microsoft's general counsel, said during a teleconference that Novell's claims about WordPerfect have no merit and that Microsoft is prepared to resolve the dispute in court.

Microsoft and Novell agreed to settle a separate antitrust suit related to Novell's NetWare operating system business, one of two settlement deals announced by Microsoft last week (see box).

Joseph LaSala Jr., Novell's general counsel, said in a statement that the two companies had "extensive discussions" about resolving the WordPerfect claims. But he added that they "were unable to agree on acceptable terms."

A Novell spokesman said the Nov. 5 departure of Vice Chairman Chris Stone [QuickLink 50604] was unrelated to the legal developments with Microsoft. **50747**

Legal Settlements

MICROSOFT AND NOVELL

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MICROSOFT AND THE COMPUTER & COMMUNICATIONS INDUSTRY ASSOCIATION

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Continued from page 1

Novell

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Tom Pratt, information systems manager at Coastal Transportation Inc. in Seattle, uses Novell's enthusiast-aimed SUSE Linux Professional 9.2 desktop software but keeps a Windows 2000 machine nearby for applications that don't support Linux. Pratt said he likes his Linux system but would have reservations about requiring workers to give up Windows, partly because of the different look and feel.

"Technically, it would be easy to switch to Linux," Pratt said. "But it would be hard for users to adapt, and that would provide no real advantage."

Novell Linux Desktop 9 is built on the base technology used in the SUSE Linux Enterprise Server 9 operating system, which Novell acquired along with the existing desktop version when it bought SUSE Linux AG in January.

Novell will make the new software available through its channel partners at an annual fee of $50 per system, which includes updates but not technical support, said Ted Haeger, director of marketing for Novell Linux Desktop.

Novell is bundling OpenOffice.org's desktop applications, the Mozilla Web browser and other software into the desktop Linux release (see box). But the company is "not going after the Windows power user," Haeger said. "We're not trying to get into a big David-and-Goliath battle with Windows." He added that Novell Linux Desktop 9 is best suited for fixed-function systems in call centers or on shop floors, and engineering applications and replacements of Unix workstations.

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Forrester Research Inc. analyst Simon Yates contrasted the $50 annual fee for Novell Linux Desktop 9 with the purchase prices of up to $500 that users have to pay for Microsoft Corp.'s Windows XP and Office software. But if users are heavily locked in to Windows systems, chances are slim that they would consider deploying many Linux desktops, he said. **50715**

Novell Linux Desktop 9

- Novell's version of the OpenOffice desktop applications suite
- The Mozilla Foundation's Firefox Web browser
- Novell Evolution, a collaboration client that supports e-mail, calendaring, contact management and task lists
- A choice of the KDE and GNOME user interfaces
- A Citrix MetaFrame client
- Built-in integration with Novell's ZENworks Linux Management software

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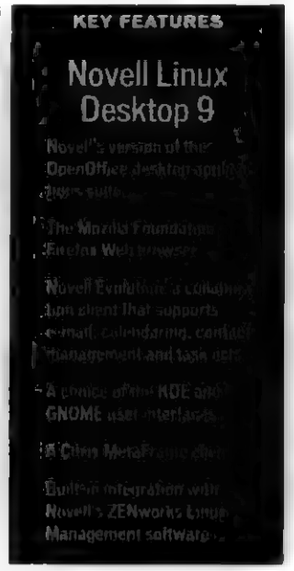
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. INTRO
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Meta COO Says Clients Want Action

BY THOMAS HOFFMAN

IT managers are ever more demanding of providers of technology products and services, and those growing demands are extending to IT research firms. Clients want more than just research and advice — they want hands-on assistance in assessing the status of projects and developing requests for proposals, says **CO Hobbs,** *the new president and chief operating officer of Stamford, Conn.-based Meta Group Inc. Hobbs, previously a CIO consultant in Meta's executive strategies practice, spoke to* Computerworld *last week after the company reported improved third-quarter earnings and a corporate restructuring.*



What were areas of strength in Meta's third-quarter financials? We've seen pretty solid growth in most markets and across most of our products. It's not earthshaking growth, but it's solid growth. We're seeing the benefits of distributors we've acquired and getting some of the overhead under control over the past year.

What were the drivers for the recent executive departures and promotions? Over the past several years, our organization has gotten top-heavy. We had some executives who were more removed from the market than they should have been. Until three weeks ago, I had been supporting 25 CIOs. I'm pretty hands-on, and I like to have our executives involved in service delivery. We had gotten removed from that. I've removed a number of executives that I don't have to replace. That says something right on its surface. As we continue to develop and implement our model, we'll insist on managers who are hands-on.

What are the key factors shaping the IT research market? Customers are looking for more than comprehensive recommendations. What our clients are interested in is taking actionable recommendations and making them into efficient and effective executions. It's about getting our hands dirty and taking executions on behalf of our clients — for example, [saying], "Here are the three ERP systems that are best suited for a company your size." Then we get involved in the RFP [process] and the bake-off and assessing the project under a one- or two-year cycle.

We're working with the client more deeply on the investment than we had before. That doesn't mean that we're interested in doing the implementation. But I think we're a viable element of risk management for a client.

Are there other changes you're planning to drive? We need to hone our ability to package our research into units that the market can consume. Making it available in meaningful packages that make them useful for the clients. We're trying to develop client-ready information from the various points of research we have. So the focus will be on that and trying to get all of our market ratios in line to make all of our operating units profitable. **50672**

Bluetooth Group Unveils Road Map to 2007

BY MATT HAMBLEN

The Bluetooth Special Interest Group (SIG) last week released a three-year road map for Bluetooth short-range wireless technology, with improvements that triple bandwidth and can multicast signals to seven other users.

While many Bluetooth applications focus on the consumer market, Michael Foley, executive and technical director of the Bluetooth SIG in Overland Park, Kan., said the 2005 core update could improve Bluetooth-enabled sensors used in manufacturing.

The technology's best-known corporate user, United Parcel Service Inc. in Atlanta, is unsure whether it will take advantage of the new features laid out in the road map, said UPS spokeswoman Donna Barrett. The company expects to expand its use of Bluetooth over the next three or more years.

Meanwhile, the extensions could help Bluetooth fend off incursions from potential alternatives such as the emerging ultrawideband (UWB) technology. The road map should help show that Bluetooth has staying power, Foley said. Although some analysts have belittled Bluetooth when comparing it with the much faster UWB, Foley said he believes the two can coexist.

UWB products could appear next year, said Craig Mathias, an analyst at Farpoint Group in Ashland, Mass. UWB promises data rates of 1Gbit/sec., about 100 times the current bandwidth of Bluetooth.

"Bluetooth is here now, while low-cost UWB is five years out," said Ken Dulaney, an analyst at Gartner Inc. in Stamford, Conn. "They are making improvements, but frankly, it takes me far too long to use the [Bluetooth] technology." In the case of mobile phone headsets linked wirelessly via Bluetooth to an actual phone, the Bluetooth connection is no better than infrared, he said. **50666**



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Microsoft Indemnifies Most of Its Users

Targets open-source rivals in legal move that some say will have little impact

BY JORIS EVERS

Microsoft Corp. last week expanded its indemnification program to cover most of its customers, in a bid to further set itself apart from open-source rivals. The move, some experts said, is a great marketing tool but will have little impact on users.

Vendor indemnification programs have emerged as part of IT risk-mitigation strategies and have become particularly important for Linux sites because The SCO Group Inc. has threatened copyright infringement lawsuits.

"When we evaluate companies and software products, indemnification is one of the first things we look at," said Ken Meszaros, assistant vice president and infrastructure manager at LandAmerica Financial Group Inc., a Richmond, Va.-based real estate transaction services provider. "It is important that the vendor is willing to stand up for the integrity of its products."

For several years, Microsoft has indemnified its volume license customers from possible legal threats.

Last year, the vendor lifted the monetary cap on that protection. Microsoft is now extending protection to virtually all users of its products.

David Kaefer, director of business development at Microsoft, said that after a review, the company "came to the conclusion that there really is no reason why we would not offer it to anybody."

While having a form of free insurance is always nice, the Microsoft move appears to be mostly marketing, said David Elkins, a partner in the intellectual property practice at Squire, Sanders & Dempsey LLP in Palo Alto, Calif. The largest corporations that most need protection are already covered, he said.

"Microsoft is using its financial power to enhance its marketing advantage in this particular area," Elkins said. Smaller Linux vendors can't match Microsoft's blanket indemnification because they don't have the financial means, he noted.

"Indemnification is one element in overall platform value, just like total cost of ownership, security or reliability," Kaefer said. "Linux vendors offer much narrower indemnification."

Al Gillen, an analyst at IDC, said that the program won't mean much to users. "The chances are that if a customer was sued over intellectual property violations by Microsoft software, there is a pretty good chance that Microsoft would have to step into the fray anyway," he said. **50677**

Evers is a reporter for the IDG News Service.

MORE THIS ISSUE

Microsoft's indemnification plan is little more than a marketing gimmick, writes Frank Hayes. See page 60.

Vendor Issues Fix As Worm Emerges

IN SHARP CONTRAST to October's barrage of critical patches, Microsoft last week had just one "important" fix for users in its scheduled round of security updates for November.

But a new exploit that began circulating last week can take advantage of an unpatched vulnerability in Microsoft's Internet Explorer browser could force the company to release an out-of-cycle patch before its next monthly update, analysts said.

Microsoft's latest patch fixes a hole in the company's Internet Security and Acceleration Server. The vulnerability could allow an attacker to spoof trusted Internet sites and content, said Microsoft.

"At this point, we are considering this a moderate threat," said Oliver Friedrichs, a senior manager at Symantec Corp.'s security response center. "The main thing we are concerned about is that this vulnerability could be used to launch phishing attacks."

However, a new version of February's MyDoom worm that took advantage of an unpatched and recently announced vulnerability in Microsoft's Internet Explorer IFrame function began spreading last week.

The mass-mailing worm, which spread itself via e-mail, was dubbed Bofra or MyDoom.AH and was rated as a low risk to corporate security by Symantec. "Early indications are that to be infected, a user must click on a malicious Web link sent in an e-mail," Microsoft said.

"This is a zero-day vulnerability," said Thor Larholm, senior security researcher at PivX Solutions Inc. in Newport Beach, Calif. "We are definitely hoping that Microsoft will schedule an out-of-cycle patch to fix this one, since exploits are already out there."

Microsoft, which moved to a monthly patch-release cycle in October 2003, released an out-of-cycle patch in July to address a similar zero-day exploit.

– *Jaikumar Vijayan*

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DON TENNANT

Get Over It

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It's an amazing dynamic we have here. That was only one of countless e-mails we've received in recent years suggesting that sending work offshore is anti-American. And more often than not, we're charged with being equally anti-American for writing about it. (Our outsourcing special report, which begins on page 39, will no doubt fan that flame.) There's an intense, reactionary disdain for these "corporate traitors" among a very vocal element of xenophobes, and IT professionals — vendors and users alike — are increasingly reluctant to incur their wrath.

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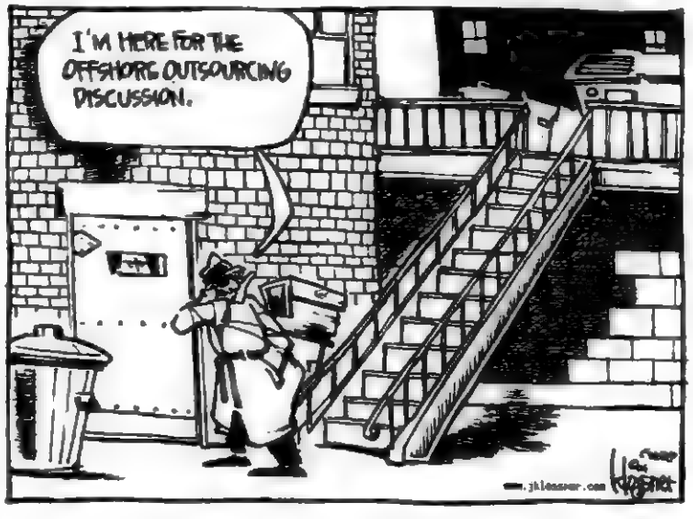
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1. Know what's being said about your company on other people's weblogs. This is a no-brainer. If you're not using a tool like PubSub or Feedster to see what's being said about you and to monitor your company and brands, you're behind the times. Such monitoring is a simple way to get a rough gauge of what's being said in the marketplace. If there's negative buzz, you want to be able to pick up on the discussions early and get ahead of the issue.

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ANN STATES

ERECTING Secure INFRASTRUCTURE

Construction management firm Lend Lease Corp.'s year-long effort to rebuild its security and enterprise management systems has lowered operating costs and boosted productivity.
By Matt Hamblen

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A little more than a year after the Blaster attack, the company had completed a $1.8 million project to purchase and install 18 software products from six vendors, including Remedy, a unit of BMC Software Inc. Lend Lease dubbed the project HighRISE, after the company's work on skyscrapers and because it includes Remedy identity, system and endpoint management tools. The products, deployed together, went live in early September.

Software Pyramid

Miles describes HighRISE as a five-level pyramid, with service management functions at the top (see diagram, next page). These include help desk, service level, asset and change management products from Remedy, as well as remote-control and business intelligence products from ManageSoft Corp.

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The directory management tier includes administration products from NetIQ Corp., plus directory software from Microsoft Corp. and Oracle Corp.

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The bottom tier, threat and availability management, includes application, security and inventory management functions.

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Lend Lease's Project HighRISE

FIELD REPORT

OBJECTIVES: Revamp global service, systems and security management functions by deploying an array of products to improve security and IT staff productivity.

CHALLENGES: Lend Lease fought the clock to roll out 18 products from six vendors in 12 months – without hiring a systems integrator.

PAYOFF: Lend Lease is on track to save at least $1.2 million in labor annually by automating patching and at least $500,000 in help desk costs by automating password support functions. It can also identify and react to attacks more quickly. Staff response times to problems have improved by 30%.

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However, oversight of the vendors took considerable work. Miles delegated responsibility for mitigating the risks to eight project managers and urged teams to communicate bad news quickly. He kept a "risk register" throughout the process, sharing it with the project teams. Miles and other managers informed the vendors immediately when problems developed.

At one juncture, Miles recalls, project managers encountered a problem integrating NetIQ and ManageSoft products. ManageSoft's team agreed to build a fix and brought in developers to do the work overnight.

Skibinski, Miles and others placed a great deal of emphasis on sound planning, including putting 80% of the effort on people and the process and only 20% on the technology, Miles says. "Analyze, analyze and make sure the design is correct before you get in the build phase of the project," he says.

Change Factors

While the Blaster attack was the catalyst for change, the HighRISE project was prompted by other factors, including the need to become more efficient. In recent years, Lend Lease has had a 33% reduction in IT staff, from 356 people to 240, and its IT operations budget was cut from $90 million to $60 million after the company consolidated seven North American data centers into one Atlanta-area facility called the Shared Technology Center.

Skibinski, Miles and about 90 IT staffers now work in the Shared Technology Center. That center and two others in England and Australia control IT for the $7 billion company, which has offices in 44 countries.

While bolstering security was the general theme behind HighRISE, Skibinski says Lend Lease also had to be able to respond to constant audit requests from customers curious about its internal operations. That task was made more difficult by government reporting standards for companies like Lend Lease that provide construction financing as well as management services. Mergers and acquisitions also complicated this process.

HighRISE will make it easier for Lend Lease to process construction bids online so it can stay competitive and communicate better with other companies. And it will simplify the process of setting up and managing IT operations at project sites. Those IT facilities are built and then taken down several years later as buildings and bridges are finished.

While conceiving and finishing a project in a year is noteworthy, the HighRISE effort is also unusual in other ways. One was Skibinski's decision to put Miles, the company's top security official, in charge of what became a complete systems, service and security management overhaul. Skibinski says it helped to have someone with knowledge of IT security working to integrate security and related software into all of Lend Lease's processes.

Also, Lend Lease worked upfront to develop ITIL-based standards that affected the people and process components as much as the technology. Lend Lease used a life-cycle management process, gleaned from several sources, that relied on intense planning to reduce implementation problems, says Tom Peck, assistant project director.

Payoffs

Lend Lease sees two areas where HighRISE will quickly pay for itself. One is a reduction in the cost of labor for disseminating antivirus patches, which Lend Lease estimates required 1,200 worker hours each. At $100 per hour for labor, deploying a single patch could cost $120,000, and Lend Lease estimates that it faces 10 to 20 critical security events per year. With an automatic change and security patch management system, those costs can be nearly eliminated, Miles says.

Password management tools will also help reduce costs. Miles estimates that 20% to 30% of some 90,000 annual help desk calls came from users who were confused about or had forgotten their passwords. At up to $30 per call, the annual cost of helping users with passwords could hit $500,000 or more. Skibinski says at least half of those calls will be eliminated.

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Password and patch management are areas in which benefits from the HighRISE technologies are most easily measured, Miles says. But there have been improvements in other areas, including security. "We've noticed attacks are down, and our ability react to them has drastically increased, and in a matter of seconds we can get alerts saying things such as, 'This server is causing a virus outbreak,' " Miles says.

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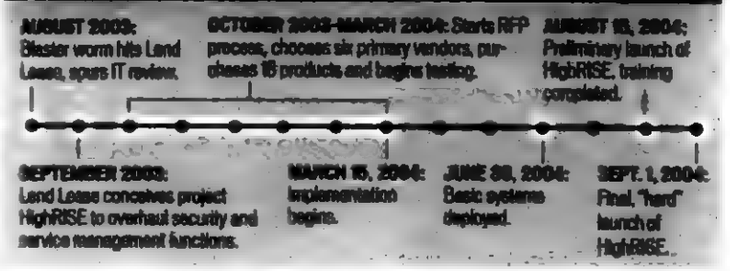
Because the rollout of HighRISE has gone well, Skibinski says Lend Lease is planning a second phase. "Now, single sign-on would be nirvana," says project manager Bob Chapman.

Overall, Lend Lease was "very forward thinking" in piecing together so many management products at once, saving time in the project rollout, says Scott Crawford, an analyst at Enterprise Management Associates in Boulder, Colo., who has discussed the project with Lend Lease.

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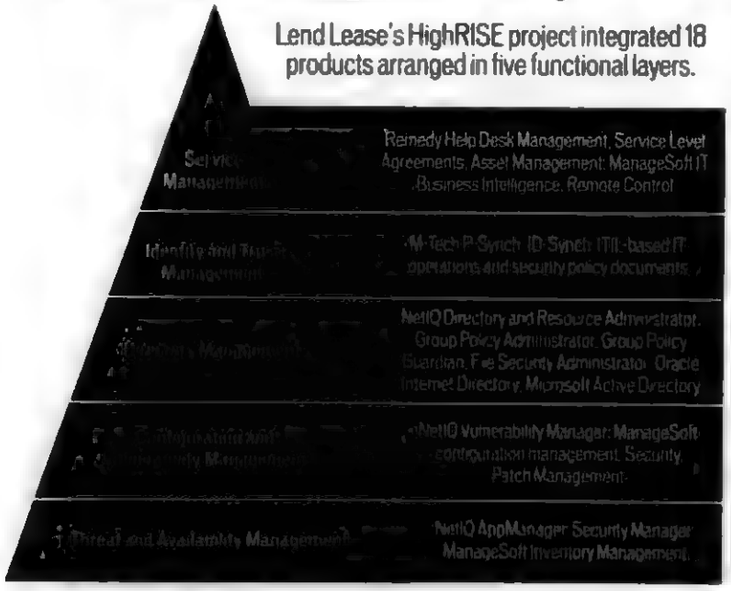
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Project HighRISE Timeline



The Project HighRISE Pyramid

Lend Lease's HighRISE project integrated 18 products arranged in five functional layers.



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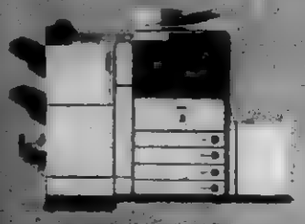



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BRIEFS

Akonix Updates IM Monitoring Tools

Akonix Systems Inc. in San Diego has announced Version 4.0 of its Akonix Enforcer instant messaging security and control application, which is designed to help enterprise IT departments protect their networks against risky user behavior. It features widened support to identify and block the latest peer-to-peer file-sharing protocols and networks, including BitTorrent and eDonkey. The application can also identify and block Internet Relay Chat sessions. Enforcer 4.0 will be available by mid-December, according to Akonix. Pricing starts at $2,000 per server and $12.50 per user.

Cyclades Launches Server Control Tool

Cyclades Corp. in Fremont, Calif., last week announced the AlterPath Manager, which is designed to provide consolidated and secure access to Intelligent Platform Management Interface controllers on servers from a unified interface. Administrators will be able to remotely access IPMI-enabled servers to manage hardware performance, said Cyclades. The AlterPath Manager E2000 with the IPMI Management Package is available for $12,790.

Sun Rolls Out Java Suite Upgrade

Sun Microsystems Inc. last week released Sun Java Studio Enterprise 7. The main new feature, Code Aware Collaboration, will allow dispersed development teams to use instant messaging to communicate, according to Sun officials. The suite also features support for Unified Modeling Language and an application profiler that lets developers identify and resolve potential performance-related problems before production deployment. Version 7 is available for $1,895 per developer per year or for $5 per employee per year for companies that license for more than 100 employees.

ROBERT L. MITCHELL

Microsoft Goes to Pieces

HAVING SURVIVED EFFORTS to break up its Windows monopoly, Microsoft is now leading the charge to break up the very operating system it defended. With the release of Longhorn in 2007, the company has said it will offer "role-based" versions of Windows in which only the code needed to perform a given



function will be included in a particular build of the operating system. It seems that the monolithic, one-size-fits-all approach to Windows may finally be reaching the end of the road.

The idea of a slimmer Windows has been long in coming. It runs counter to the company's marketing urge to add ever more features. But the move toward smaller, simpler Windows versions is driven not by marketing and sales as much as it is by competitive pressure and the demand for greater security, manageability and flexibility. And those trends could well extend beyond simply tailoring an operating system to a few task-specific server functions.

Windows today isn't so much a precision tool as it is a very large Swiss Army Knife, with dozens of features, functions and services extending from its core. But administrators don't want all that in a Web, storage or print server. Leaner, function-specific versions of Windows could present fewer vulnerability points to attackers while making installation, patching and maintenance easier. The strategy could extend to a wide range of server roles and would benefit security-sensitive functions such as call management and Web servers.

Microsoft's approach also represents a calculated response to Linux. The open-source operating system has done well in focused server roles, in part because IT professionals can disassemble the kernel and recombine the pieces required to create a purpose-built version of Linux. In so doing, it gives administrators a lot more flexibility than Windows allows today.

Now, rather than simply selling task-specific editions of Windows, Microsoft may let systems administrators choose which core elements of Windows to include at installation. That's good news for administrators, but the question is how far Microsoft will go in letting customers define and extend those role-based configurations. How much flexibility will IT gain — and how much control is Microsoft willing to give up?

Microsoft might decide to let administrators build optimized Windows versions for a few predetermined roles, such as print or storage server functions, but not allow full control over which core components for other functions are included or excluded. Meanwhile, businesses might want to extend the concept to the desktop, where administrators could create streamlined, role-based deployments for workstations used by retail clerks, warehouse workers or financial analysts.

The role-based approach could also be applied further up the software stack, where the same code-bloat problem infects applications such as Office. The tightly integrated set of desktop productivity applications offers a wide range of features that most people never use. And while some major features can be eliminated at installation, Office remains a large and unwieldy application set for users with fairly simple or narrowly defined roles. Rather than saying "Supersize it" for every application, administrators should have the option to assemble only those core elements of Office — and similar products — that exactly meet the needs of the people using them. The road to business agility won't run through fat software.

At the recent ITxpo conference in Cannes, France, research firm Gartner also took a swipe at the size and complexity of enterprise software offerings. Analyst Yvonne Genovese said vendors must break monolithic application suites into smaller, more granular increments so that customers can respond more quickly to changing business needs. Considering that upgrades can take two years to complete, that's not possible today. If vendors break apart the software into smaller pieces, IT can rearrange them more readily as business processes change.

That's the direction SAP is taking with the next generation of R/3, and it's the objective of Microsoft's Project Green, Genovese says. Microsoft is struggling to break apart its Navision, Great Plains, Solomon and Axapta business applications and reassemble the pieces into a cohesive set of components that can be recombined to better suit customers' business needs.

Whether businesses will abandon monolithic enterprise applications and demand more granular, task-specific components in a big way remains to be seen. But increased global competition and the need to react faster to changing market conditions could provide the impetus for IT organizations to begin loudly making such demands. If that happens, Microsoft's decision to enable role-based versions of Longhorn could be just the tip of the iceberg for software vendors. **50640**

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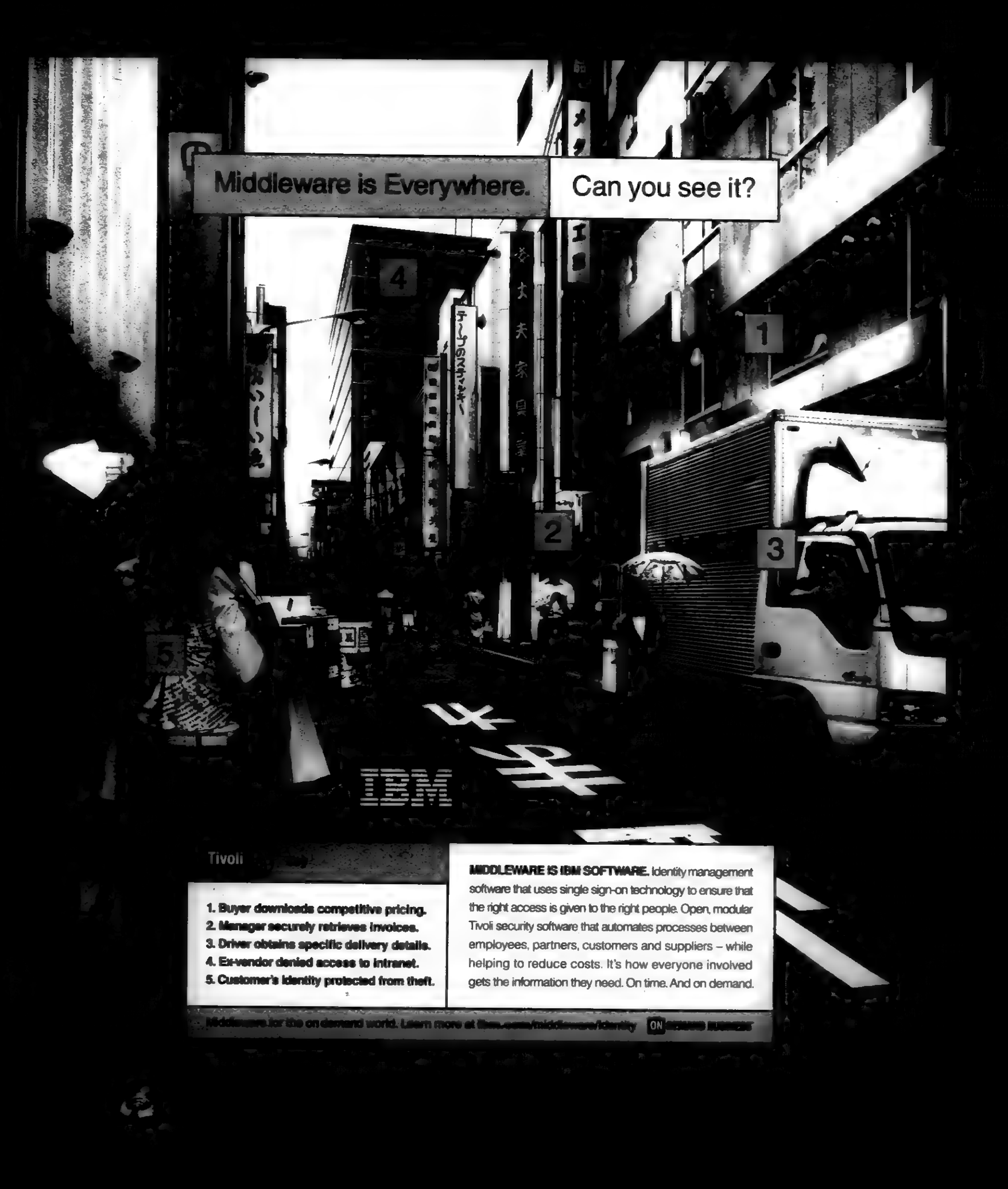
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MASTERFUL Mergers

Successfully integrating six acquired technology groups in a year taught CIO **Jeremy Lehman** some valuable lessons. Here's what he learned.



BERND AUERS

Process is the glue that binds the new organization, according to Thomson Financial CIO JEREMY LEHMAN.

IT MENTOR Achieving the goals of a merger or consolidation can be tough. I know, having led the merger of six acquired technology groups at Thomson Financial in 2003. Forging a team from multiple cultures and connecting systems — while cutting costs — presents a thorny leadership challenge. My experience at Thomson Financial, an information and workflow software provider formed through more than 40 acquisitions, offers some lessons in effective mergers. Looking back a year later, here's what I learned:

1 **MAKE CHANGE SO SIMPLE IT HURTS.** Simplicity is key. Select a few priorities and execute deeply. Make visible progress, but don't chase perfection. Make fewer changes than you want, accept practical but inelegant solutions, and say no to lower priorities. You may want to simultaneously retire older systems, adopt a new architecture and redesign data center operations, but most organizations can concentrate on only a handful of goals during the emotional period following a merger.

Establish principles by defining how you want the organization to work, but allow latitude in how they are implemented. For example, we had great success adopting an architecture that used object-oriented front ends connected to back-end Web services. While not everyone used the exact same design pattern, developers adopted the new approach quickly. On the other hand, a new

CIO Merger Checklist

Inventory all projects and confirm staff assignments.

Arm yourself with the facts.

Identify top projects and dig into details. Don't let postmerger administrative tasks distract from your primary mission of building and operating applications.

Enforce the use of time-tracking systems and compare the results to the original assignments. Recording how people spend their time is the only way to really know who is doing what.

Make sure everyone understands that layoffs are likely.

Embrace geek culture. Mergers often emphasize business issues, so remind IT people that they are valued. Use your own geek side to connect with people. Write some code yourself (and endure the inevitable reaction!), arrange a networked game tournament or invite an industry expert to lecture.

Consolidate to as few locations as possible. Physical location still influences productivity. People will generally communicate well within reporting boundaries, so use collocation to encourage cross-team communication. For example, developers and testers should work side by side.

Plan higher travel and entertainment expenses to get people comfortable both with one another and with learning complex systems.

Be sure your staff includes finance and human resources leaders. This is particularly important when cutting the size of your organization and during budget processes. You will be overloaded if you can't delegate effectively.

Mentor your team. Dedicating time is hard in the crucial early days, yet that's also when coaching and trust are most important.

daily build system, where developers check in their code to test its fit with the work of others each day, wasn't as popular because it was very prescriptive about the tools and steps involved. In retrospect, we could have achieved most of the benefits by mandating that teams do a daily build but not specifying the details.

4 DON'T BEND ON PROCESS. Process is the glue that binds the new organization. Make it one of your few top priorities. Adopting uniform processes can sound scary, particularly to people from smaller organizations where hallway conversations and personal relationships are enough to get work done, but don't make exceptions to keep a wary team comfortable. Some pointers:

- **Win over your direct reports first.** Make sure they understand the benefits and how processes should work. Be an example to them of how they should evangelize their teams.
- **Portals and collaboration systems are effective ways to launch new processes.** Move fast and avoid the temptation to overengineer; use off-the-shelf tools where available.
- **Many different approaches to software development and project management can work.** Effective leadership and execution is more important than the choice of methodology. Start with a highly visible project, and don't grant any exceptions.

5 WIN HEARTS AND MINDS. Gaining support for a new way starts with showing respect for the old way. Always point to admirable aspects of legacy organizations when discussing how you want to evolve the team. Never ask why a particular technical decision was made. It's easy in hindsight to question an approach taken by another team. Concentrate instead on meeting current and future needs.

Explicitly define the culture you want to build, but don't make a big production over how you'll implement it. Simply state how you want your people to work and set an example with each situation or project. Always personally model how you want your people to act. Expose the team to organizations with advanced versions of what you want to achieve. For example, if your team needs to improve network operations, have them visit the operations centers of your large network carriers.

A frequent speed bump for mergers is the claim that a newly assimilated organization's applications or technologies are uniquely complex. Be skeptical: it's often a smoke screen for fear of change. Complexity isn't a reason to resist change. In fact, it may be a result of the attitudes or processes that need to change. But a postmerger team is dealing with too may tough issues to immediately rebuild complex systems. Better to extend, surround and embrace them rather than root them out right away.

Latency and Volume

Application speed and stability can become top issues when the combined load of merged organizations is directed to one surviving system. Adding layers of abstraction to achieve integration also slows response times.

To deal with this, appoint one strong leader who's accountable for applications, databases, networks, server engineering and operations.

Make sure you have the right skills to make applications fast. Scalability projects require different skills than writing new features, so teams may not know what they don't know.

Start projects by getting metrics that accurately reflect real end-user experience.

– *Jeremy Lehman*

1 USE SIZE TO YOUR ADVANTAGE. Most organizations slow down as they get bigger, but size can also enable speed. Here's how:

- **Inventory all projects.** Make sure business leaders understand that some projects will go away because priorities change with a merger. Then concentrate more people and investment on fewer top priorities.
- **Collaborate with partner companies that are attracted by the market power of the combined firm.** Find partners by looking at your industry's supply chain and where your company affects customers' spending. For example, if your company sells applications, then your products may influence investment in hardware, networking and systems integration.
- **Reuse software components by focusing on "plumbing"** like user-interface frameworks, authentication and authorization, and data-access frameworks. Don't get mired in elaborate schemes to reuse business logic. Reusing plumbing components frees up developers to concentrate on your business.

2 SPEED AND COMMUNICATION ARE YOUR BEST TOOLS. Make change happen by moving fast while explaining why. Demonstrate your priorities by making a big change early. Allow time to fully implement the details of the initial project and deliver results. Later, set a sustainable pace of change by moving incrementally along consistently communicated principles.

For example, consider bringing together several teams with different software development processes. Guide them to adopt a general principle such as iterative development. Allow for some variation in how people do it rather than prescribing an exact methodology, but firmly stick to basics such as common artifacts and rapid cycles. Verify that iterations are working well across all major projects before starting further change. Look for indicators that the organization is ready to move on, such as junior managers tweaking the process and tools.

Carefully consider whether to use off-the-shelf frameworks like ITIL or extreme programming. They can cut the time spent designing processes and go straight to training and execution, and the community and tools surrounding a framework can help sustain adoption. But they can also be expensive and time-consuming, and they may cover a wider range of IT processes or business functions than you need. Overall, they work well with smaller teams but are too generic to steer larger organizations.

OTHER LESSONS

- **Openly discuss reductions and act rapidly.** The hard fact is that many mergers involve cutting people. Trust or distrust earned early in the process can set the tone for your tenure as a leader.
- **Celebrate successes.** It's easy for managers to focus only on fixing problems.
- **Adopt a "no orphans" policy that reaches out to every individual.** Each person needs to know exactly what is expected of him.
- **Start with large group events,** then later have smaller gatherings that emphasize two-way conversations.
- **Require leaders to personally coach new skills like managing project portfolios and partner relationships.** These are typically new to people who come from smaller companies.

A year later, our new team has led the way in our industry's evolution from point applications to integrated workflow, successfully migrated thousands of demanding customers off legacy systems and executed these goals while significantly cutting costs. It wasn't always easy; we sometimes took on too much at once. But looking back, the main lessons I can offer are to pick a small handful of simply communicated goals, be diplomatic but firm in adapting new processes, insist on common standards across all projects and thoroughly implement all facets of your initial projects before moving to further change. **50353**

Lehman is senior vice president of technology at Thomson Financial. Contact him at jeremy_j_lehman@hotmail.com.

CIO Merger Checklist

- **Inventory** all projects and confirm staff assignments.
- **Arm** yourself with the facts.
- **Identify** top projects and dig into details. Don't let postmerger administrative tasks distract from your primary mission of building and operating applications.
- **Enforce** the use of time-tracking systems and compare the results to the original assignments. Recording how people spend their time is the only way to really know who is doing what.
- **Make sure** everyone understands that layoffs are likely.
- **Embrace** geek culture. Mergers often emphasize business issues, so remind IT people that they are valued. Use your own geek side to connect with people: Write some code yourself (and endure the inevitable reaction!), arrange a networked game tournament or invite an industry expert to lecture.
- **Consolidate** to as few locations as possible. Physical location still influences productivity. People will generally communicate well within reporting boundaries, so use collocation to encourage cross-team communication. For example, developers and testers should work side by side.
- **Plan** higher travel and entertainment expenses to get people comfortable both with one another and with learning complex systems.
- **Be sure** your staff includes finance and human resources leaders. This is particularly important when cutting the size of your organization and during budget processes. You will be overloaded if you can't delegate effectively.
- **Monitor** your team. Dedicating time is hard in the crucial early days, yet that's also when coaching and trust are most important.

daily build system, where developers check in their code to test its fit with the work of others each day, wasn't as popular because it was very prescriptive about the tools and steps involved. In retrospect, we could have achieved most of the benefits by mandating that teams do a daily build but not specifying the details.

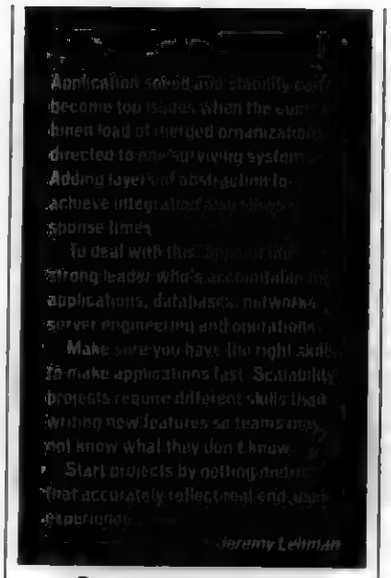
2 DON'T BEND ON PROCESS. Process is the glue that binds the new organization. Make it one of your few top priorities. Adopting uniform processes can sound scary, particularly to people from smaller organizations where hallway conversations and personal relationships are enough to get work done, but don't make exceptions to keep a wary team comfortable. Some pointers:

- **Win over your direct reports first.** Make sure they understand the benefits and how processes should work. Be an example to them of how they should evangelize their teams.
- **Portals and collaboration systems are effective ways to launch new processes.** Move fast and avoid the temptation to overengineer; use off-the-shelf tools where available.
- **Many different approaches to software development and project management can work.** Effective leadership and execution is more important than the choice of methodology. Start with a highly visible project, and don't grant any exceptions.

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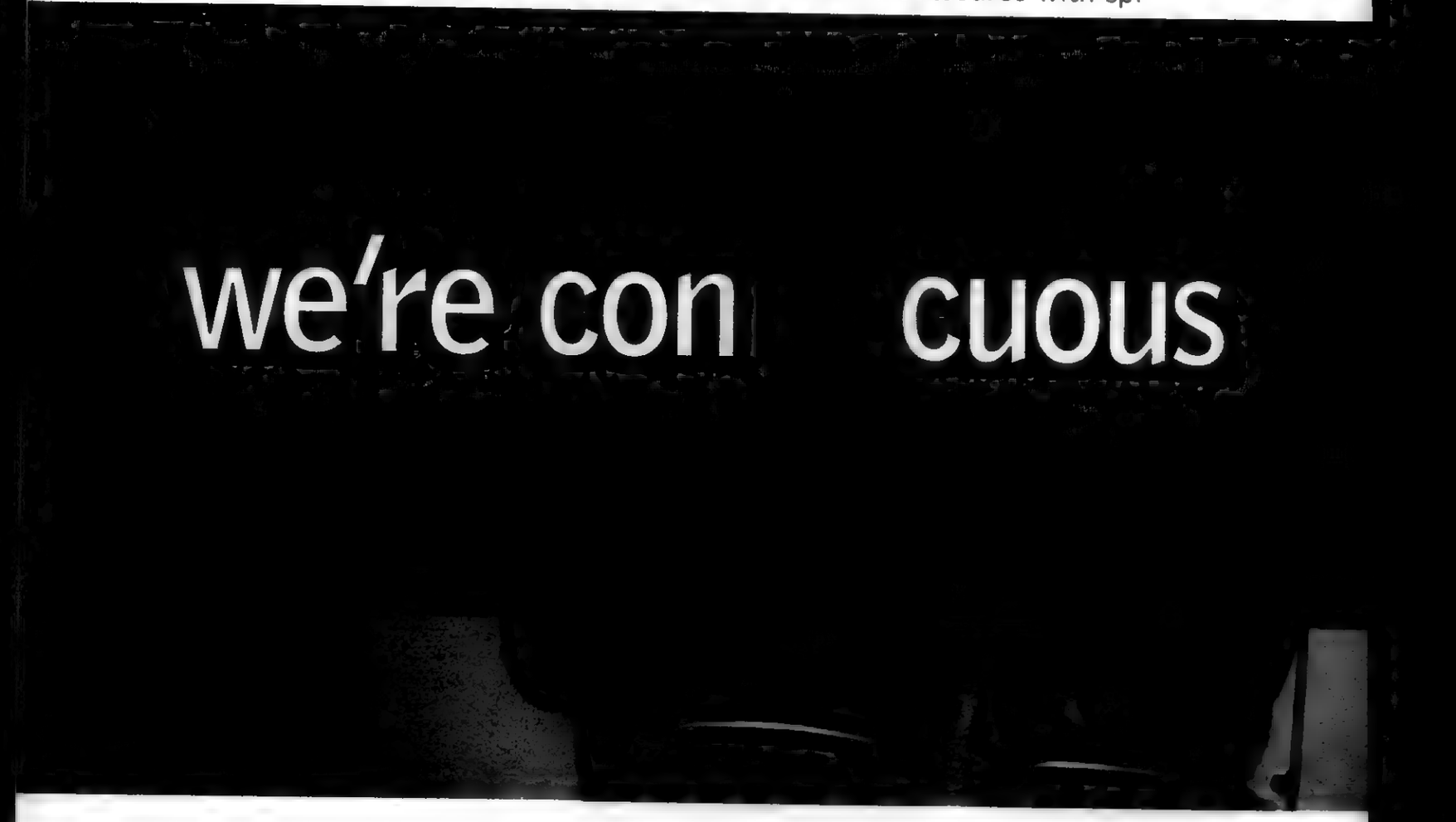
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BARBARA GOMOLSKI

Justifying IT's Place In the Business

I SPEND A LOT OF TIME working with IT managers who are trying to prove that their organizations are valuable to the business. Often, these efforts come in response to challenges from the business about the cost or quality of IT.

You know the drill. Even though demand for IT services is up within the organization, top executives become convinced that IT costs can be reduced by 10% or more with no detriment to the business. Or the CFO gets the notion that outsourcing IT would save the company a good deal of money. In cases like this, IT leaders must frequently scramble to demonstrate why these moves would actually be harmful to the business.



Barbara Gomolski, a former *Computerworld* reporter, is a vice president at Gartner Inc., where she focuses on IT financial management. Contact her at [redacted]

Often, IT managers' efforts to demonstrate what technology does for the business don't go as well as they had hoped. There are many reasons for this. The best practices described here can help ensure that your efforts to show IT's value are fruitful.

Don't rely solely on IT cost benchmarks to tell your story. Showing that your level of IT spending is in line with (or lower than) that of your peers may appease some C-level executives, but cost benchmarks are a way to demonstrate IT efficiency — not effectiveness. A CIO may demonstrate that IT costs are in line but still fail to show the value derived from IT. Don't get me wrong — cost benchmarking is worthwhile. But too many IT leaders rely exclusively on cost benchmarks to tell their story and approach the exercise with the wrong goals. Remember that the most critical question to ask is not, "Are we spending too much on IT?" Rather, the question to ask is, "Does our current level of IT investment align with our business strategy?"

Don't adopt an overly defensive posture when IT's performance is called into question. While many CIOs become understandably defensive during conversations about IT performance, it's politically unwise to be overly defensive. Instead, keep an open mind about the organization's options for IT service delivery. If your IT organization is like most, it's excellent at some things, pretty good at many things and not that good at others. In the areas where your staff is not performing well, outsourcing may be a better option for the business. Similarly, reducing the level of IT investment in a certain area may also be what's required to align IT spending with organizational goals. CIOs who rush to defend their fiefdoms ultimately lose credibility with their business counterparts.

Be proactive, not reactive. IT performance management is a critical part of the CIO's job. Don't wait until outsourcing looms to begin benchmarking and measuring IT value. Proactively examining IT efficiency and effectiveness and communicating the results to business leaders are preferable to responding to criticisms.

Use business metrics to demonstrate IT value. It takes time and effort to put together the metrics that will help demonstrate the value of IT. In particular, IT leaders will need to reach out to line-of-business managers and find out which business metrics they are looking at. Are they trying to reduce the sales cycle? Are they trying to streamline the product development process? Are they seeking to speed up the order-to-cash process? These business metrics often become the metrics that IT organizations can use to show their value to the organization. The connection between IT and the attainment of these business goals is the root of IT value in the organization.

Be creative when you tell your story. Scenarios, user testimonials and narratives can enhance your presentation. For instance, one CIO with whom I recently worked was dealing with a business leadership team that was very unaware of technology. She had to explain why it cost the company more than $1,000 a year to own and maintain a PC. It seems that many of the business people felt that PCs should cost no more than current retail purchase prices. She developed a short tutorial that showed the vast amount of infrastructure (read: cost) that is behind every PC.

Increasingly, IT organizations will be asked to prove their value to the business. Proceed with caution, but be assured that it is possible to tell a compelling story of how IT enhances your company. 50351

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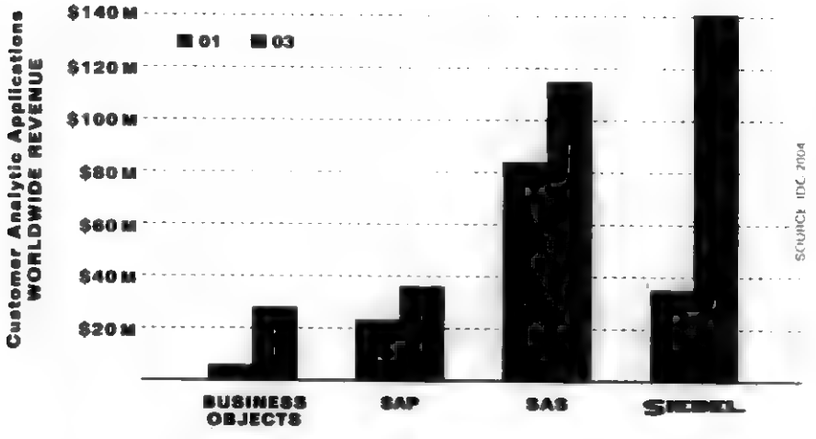
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Fiscal Red Flags
IT managers who know what to look for in their outsourcers' financial records can uncover early signs of trouble. PAGE 40



Trade Secret Theft
Locked-down facilities and rigorous employee screening can reduce the risk of intellectual property loss. PAGE 44



OPINION
Unfair Treatment
Uncle Sam treats IT workers who lose their jobs to cheaper overseas labor differently from other laid-off workers. Columnist Mark Hall thinks that's wrong. PAGE 52

EDITOR'S NOTE

YOU KNOW about offshoring's political and employee backlash [QuickLink 47609]. You know about the security and privacy concerns over outsourcing IT [QuickLink 49098]. But there are other dangers, too, that typically get superficial treatment in the press, such as the risk of having corporate intellectual property in third-party hands. How do you keep customer data, or the powerful algorithms that give your systems a competitive edge, from being sold to the highest bidder?

Plus, there's the risk of the contractor going out of business. I don't mean to imply that IBM Global Services or any of the top Indian firms are in trouble — far from it — but I know it wasn't any fun for users when some of the early application service providers went belly-up a few years ago, or when Cable & Wireless exited the Web hosting business.



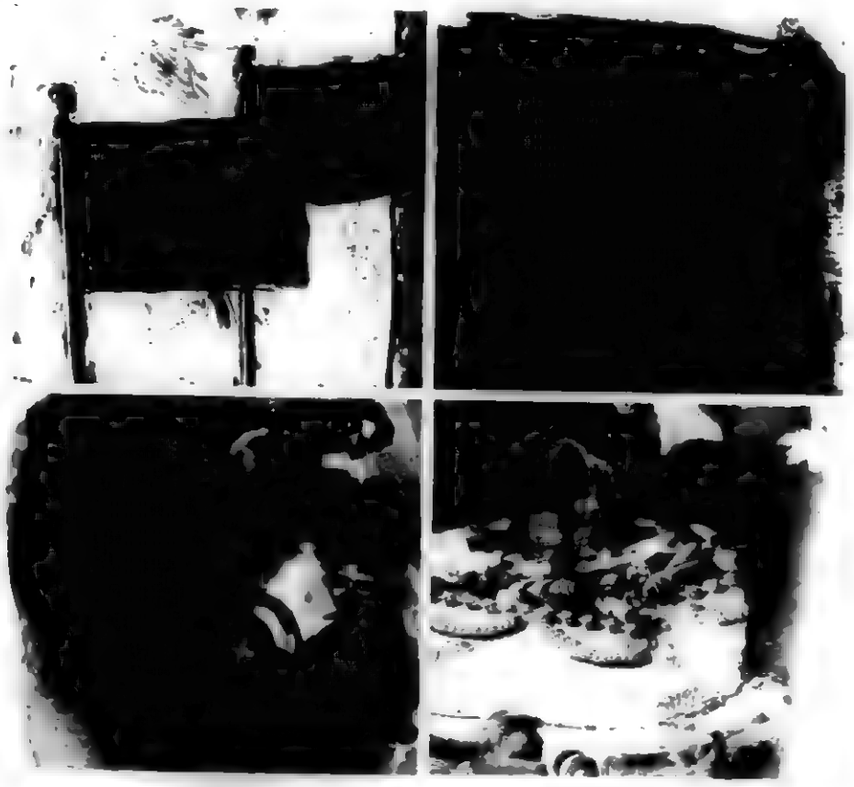
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That's why this special report delves deeply into these often overlooked problems and provides useful advice about the financial red flags you should look for and how to protect your trade secrets. Other stories will help you effectively monitor your contractors and make sure you have the in-house skills left to do so.

You can't say we didn't warn you about the risks — or help you manage them.
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Mitch Betts is Computerworld's executive editor. You can contact him at mitch_betts@computerworld.com.

DAVID HOLLENBACH



Outsourcing Dangers

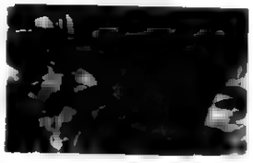
SPECIAL REPORT

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Outsourcing Dangers

SPECIAL REPORT

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DAVID HOLLENBACH

Fiscal Red Flags

Know what to look for in your outsourcer's financial statements.

By Steve Ulfelder

WHETHER a potential outsourcer is headquartered right down the street or in Bangalore, you need to do plenty of due diligence to ensure that your company's needs will be met by a stable, fiscally healthy partner.

Lawyers, analysts, consultants, insurance firms and others offer this advice: IT managers can make better outsourcing decisions if they're conversant in fiscal terms. "Today, I'm seeing more CIOs who really understand this [due diligence] process," says Dan Smolnik, senior partner at The Smolnik Law Office, a West Simsbury, Conn.-based firm specializing in corporate law.

The appropriate role for IT managers has its limits, however. Just as you wouldn't want a plumber removing your spleen, you need to confer with your company's financial specialists before committing to any outsourcing deal. Robert Zahler, a partner at Shaw Pittman LLP, who heads the law firm's outsourcing practice in Washington, urges CIOs, "Don't do it yourself. Turn to your corporate finance people — ask them to do the analysis."

Nonetheless, an educated consumer is a wiser one.

Nail Down the Numbers

Before you analyze financial data, you need to find it. In the case of publicly owned companies, especially those in the U.S., this is easy — you can find the information on the investor relations page of the company's Web site or look it up at sites like CBS MarketWatch (*http://cbsmarketwatch.com*) or Yahoo Finance (*http://finance.yahoo.com*). Digging up financial information for publicly held companies based overseas isn't much harder. One source is Standard & Poor's (*www.standardandpoors.com*).

Private companies present a bigger challenge. Gordon Brooks is CEO of Symphony Services Corp., a Palo Alto, Calif.-based outsourcer with operations in Bangalore, India. "We just generally don't share full financials," he says, noting that private companies' agreements with their financial backers often forbid this. However, Brooks says, "we do share key metrics, and we do talk extensively with CFOs [of prospective clients]."

That's a reasonable position, but experts say that it raises a red flag if an outsourcer balks at sharing metrics. "If my [corporate counsel] counterpart is not aggressively getting me this in-

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Continued from page 40

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Here are four metrics to analyze when gauging the fiscal health of outsourcers from RampRate LLC, an IT outsourcing consultancy in Santa Monica, Calif., as well as other experts:

1 LIQUIDITY.

Liquidity is the ability of a business to meet its short-term obligations; this is where early warning signs of financial difficulty will reveal themselves.

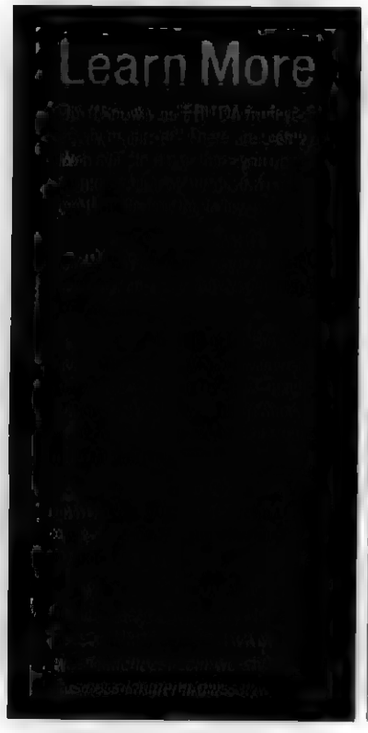
METRIC A. To measure an outsourcer's liquidity, find its current ratio. Here's the formula: Divide current assets by current liabilities.

■ **What you're looking for.** What's considered a healthy current ratio varies by industry. According to financial analysts, a figure of 1.5 is generally reasonable, and a figure above 2 is desirable. A current ratio less then 1.5 indicates that any company's ability to meet its short-term obligations is stressed.

METRIC B. There's a more stringent measure of liquidity called the quick ratio. The formula: Add accounts receivable and cash and then divide by current liabilities.

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Why is the quick ratio considered a tougher test than the current ratio? It excludes nonliquid current assets such as inventory from the equation, thus presenting a more accurate picture.



While the raw quick or current ratio is important, experts caution that such figures should always be compared against those of industry peers. That means that if you're considering a tiny Indian start-up for a portion of your IT outsourcing, you should compare it against competitors of similar size — not against the Electronic Data Systems and Wipros of the world.

Mark Smialowicz, the chief financial officer at RampRate, says trends are vital, too. That is, check to see whether the outsourcer's current ratio is holding steady, shrinking or growing. "If it's trending toward 1, that's a big red flag," he says.

2 CAPITAL STRUCTURE AND SOLVENCY.

The next step in determining a potential outsourcer's fiscal health is to learn its debt-to-equity ratio.

METRIC A. To find a company's debt-to-equity ratio, simply divide its total liabilities by its equity.

METRIC B. To extend the time horizon — which is a good idea if you seek an outsourcing contract with a five- to seven-year life span, as is often the case — tweak the equation and find the outsourcer's long-term-debt-to-equity ratio by dividing long-term liabilities by equity.

■ **What you're looking for.** A low number is a good thing, but keep in mind that debt isn't necessarily a bad thing; it may merely reflect a heavy investment in the infrastructure needed to meet your company's needs. As with virtually all financial metrics, the key is to compare similar companies against one another. "Does [a potential partner's] level of debt as a percentage of assets top that of its peers? If so, you need to find out why," Smialowicz says. "They may have been burning a lot of cash lately, or they may have had to borrow a lot of money."

Keep in mind that an outsourcer with an unusually high debt ratio may use more capital servicing its debt and less servicing your account.

3 STATEMENT OF CASH FLOWS.

It's easy to grasp a company's income statement and balance sheet, but few IT pros realize there's a third side in this triangle — called a statement of cash flows — that ties the other two together, presenting a more detailed snapshot of an outsourcer's cash position.

THE METRIC. A statement of cash flows is a sophisticated measure with three tiers: operations, investment and financing. To calculate it, start with a company's net income. Then add (or subtract) funds provided (or used) from operations, investments and financing. The sum tells you the net increase (or decrease) in a firm's cash position in a given period. This is critical because a company's performance isn't accurately reflected by the income statement alone, Smialowicz says.

Many CIOs and other nonexperts attempt to measure performance merely by studying an outsourcer's income statement for earnings before interest, taxes, depreciation and amortization, known as EBITDA. This can be misleading, because on the income statement, capital expenditures on facilities and equipment are reflected only in terms of depreciation. To see true operating performance and any cash drains, the statement of cash flows is key.

Some companies have great EBITDA even when they're at death's door. As examples, Smialowicz points to the 2001 collapses of several competitive local exchange carriers (CLEC). Practically until the minute they filed for bankruptcy, CLECs like NorthPoint Communications Group Inc. and Covad Communications Group Inc. could boast healthy EBITDAs. "But they had to buy $100 million or so in new equipment over the next three years," Smialowicz says. The investment portion of CLECs' statements of cash flows served as warning signs — to those who studied them.

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Experts say an outsourcer's size, measured in both revenue and customers, as well as trends in its gross margins, are important signposts.

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An Insured Thing

A CRASHED PUBLIC WEB SITE or an inaccessible CRM system can cost you plenty. To mitigate this risk, many companies demand that their outsourcers carry errors and omissions insurance.

The policies, called E&O in the insurance industry, are straightforward. Procured by the outsourcer (usually when stipulated by the customer as a condition of the contract), they state that if the outsourcer's work leads to a problem for the client, the client can file a claim with the insurer up to an agreed-upon figure.

Aaron Latto, market solutions director in the Global Technology Underwriting division of St. Paul Travelers Cos., offers two tips for companies discussing E&O insurance with prospective outsourcers.

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BIG DEALS

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Continued from page 40

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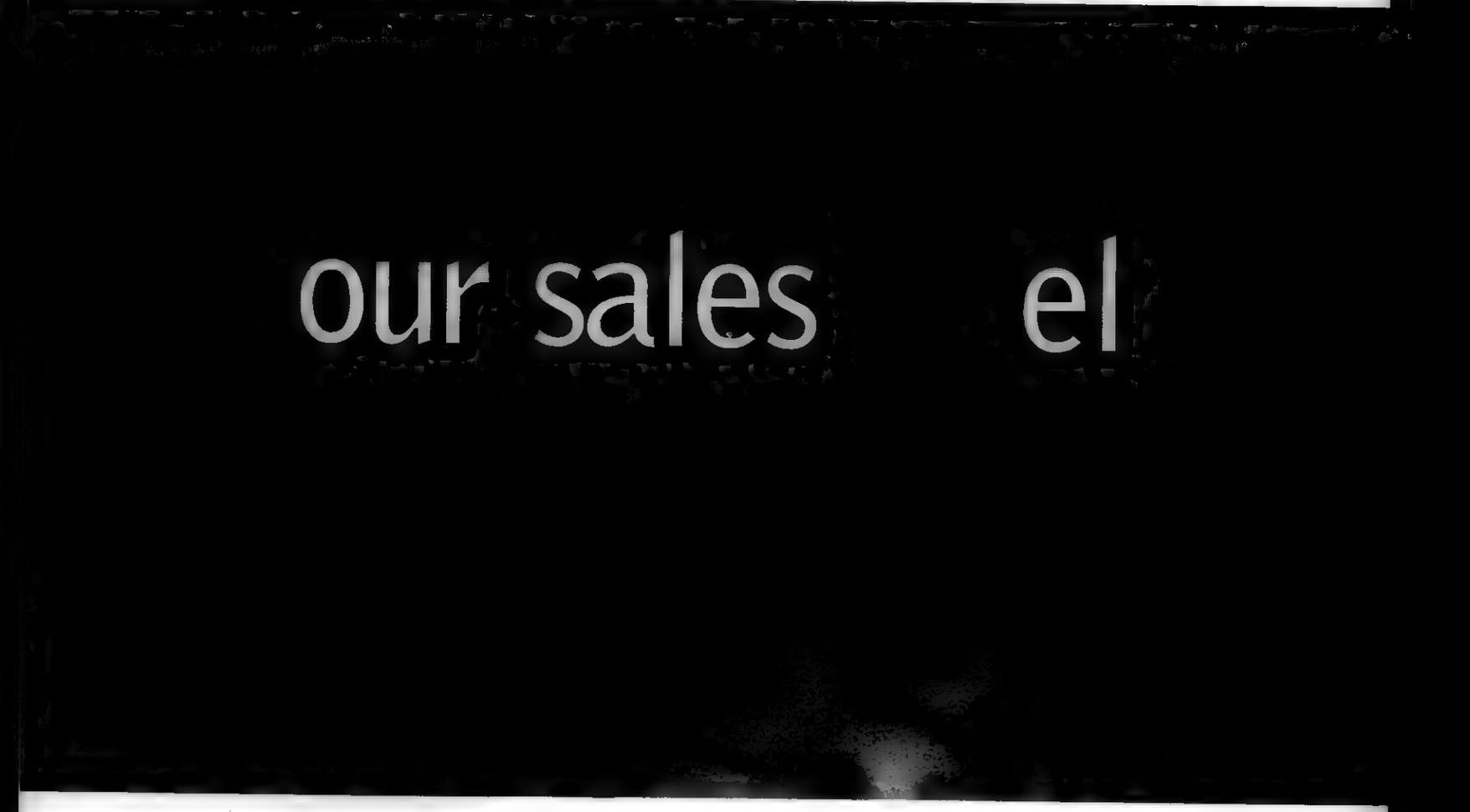
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Trade Secret Theft

Secured facilities and rigorous employee screening can cut the risk.

By Patrick Thibodeau

TAKING work offshore may cut costs, but it still comes with a not-so-hidden price. Asian countries, including the No. 1 outsourcing destination, India, have weak or untested intellectual property laws, inefficient courts, and financial and public records mechanisms that make it difficult to conduct employee background checks.

That doesn't mean that intellectual property sent to reputable offshore developers is more likely to be stolen and sold than it is here. Sophisticated U.S. and Canadian companies have lost valuable intellectual property in their home countries because of dishonest employees and hackers. Employees in India and elsewhere aren't any more dishonest than workers here. But because overseas court systems and laws aren't as strong as in those the U.S. and evaluating potential employees is more difficult overseas, the odds of intellectual property theft could be higher.

U.S. businesses are also sending valuable code to regions of the world with high piracy rates. In China, for instance, 92% of the software installed on computers is pirated, according to a recent study by IDC and the Business Software Alliance. (But China is trying to overcome the piracy stigma; see QuickLink 49092.) In India, the piracy rate is 73%, and in the U.S., it's 22%, the lowest rate in the global study.

Physical Lockdown

Imagining the ways a company can lose intellectual property is similar to playing a war game. The possibilities for physical and network-based thefts are endless. Even in protected environments, employees can memorize credit card data and sell it. Product development work can reveal a company's plan for new services. Back doors can be built into programs.

This issue has given rise to a practice by outsourcing firms, particularly in India, to create walled compounds that resemble government intelligence agencies [QuickLink 49098]. The compounds have guards and gates, multiple levels of security checks and locked-down information systems without any ports or drives.

U.S. companies couple those physical protections with development methodologies that make sure no one person sees all the code. "The code, in the aggregate, is not at risk," says Nate Lentz, president and CEO of Verticalnet Software Inc., a maker of sourcing and supply chain software in Malvern, Pa.

But Lentz says he also wants to minimize the risk that his outsourcer's employees will leave the company. High turnover can hurt productivity and add risks as well. Lentz treats the outsourcers' employees as "dual employees," by including them in company-wide e-mail distributions and town hall meetings. "It's our belief that that kind of structure makes them feel much more a part of the whole," he says.

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"The reality is [intellectual property] has to be protected no matter where you are. Whether you are in Cleveland, Ohio, or Bangalore, your risks are pretty much the same," says Gordon Brooks, Symphony's president and CEO. "And I take exception to people who would infer that Indian and Chinese people are inherently dishonest and more likely to steal from you."

Symphony's Bangalore facility has 47 guards on duty at all times. Guards at its client centers, where work is performed, can conduct physical searches. There are surveillance cameras and biometric palm readers at every door. In addition, clients have the right to conduct security audits. Workstations don't have external drives and USB ports, and employees can't have cell phones with cameras. Since Symphony is based in the U.S., disputes are settled in U.S. courts, says Brooks.

Safety Nets

RESTRICT each employee's access to data by dividing up the work.

CONDUCT regular security audits. Vendor security standards may slip over time.

DOCUMENT code ownership through carefully crafted legal agreements.

LIMIT turnover of offshore workers by making them part of a team.

TAKE nothing for granted. If a vendor says background checks were conducted, take steps to confirm it yourself.

Rating the Risk

Gartner rates the level of intellectual property protection in various countries as either low, medium or high. The security ratings measure the strength of a country's laws, its security standards and its track record of adherence to both. Among the factors examined are encryption controls and the stability of the government. Also measured are a country's intellectual property protections, including patent laws and enforcement of trade secrets.

HIGH LEVEL OF PROTECTION: Ireland, Canada, Australia and New Zealand

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But U.S. companies that take work overseas still face risks. Companies can conduct background checks of prospective U.S.-based employees through credit histories and public records, but India doesn't have the credit agencies that can pull that information together. "The infrastructure doesn't exist in the financial community," says Partha Iyengar, a Gartner Inc. analyst based in India. Some U.S. companies in India hire security firms to investigate job candidates, but the reliability and honesty of some of those firms is questionable, he says.

Cultural differences also play a role. Indian employees routinely share salary information with their co-workers, and an employee's raise is often public knowledge in a company. For a U.S. company, this cultural difference may increase the risk that payroll processing information will be shared, says Iyengar.

Measure of Risk

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Legal protections vary from country to country. India's legal system is closest to that of the U.S., but the courts often take many years to resolve issues, and their reliability can vary from region to region.

U.S. companies have to be particularly careful when negotiating contracts to protect copyrighted work. It's possible for an offshore provider to assert ownership of development work and even demand royalties, says Peter Chen, an outsourcing expert at McDermott Will & Emery in Palo Alto.

"Companies have to be mindful how much access they are giving to any third-party contractor, whether they are down the street or around the world," says Chen. "Once the access is given, it's hard to reverse that." **50183**



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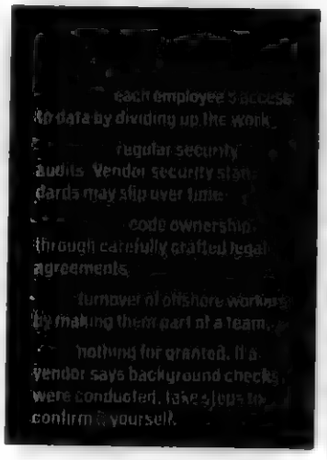
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DAVID HOLLENBACH

Prevent contractor performance from slipping after the honeymoon is over. **By Mary Brandel**

Sinking Quality

THERE PROBABLY isn't a support group for them yet, but many people who sign outsourcing deals experience a similar trajectory of emotion — first euphoria, then six months to a year later, a mix of buyer's remorse and posthoneymoon blues. Expectations aren't met, costs aren't cut, and performance levels aren't achieved.

Whatever the case, nearly half of the people who sign an outsourcing contract are dissatisfied at the end of the first year, says Bart Perkins, managing partner at Leverage Partners Inc. in Louisville, Ky., and a *Computerworld* columnist. Perkins acknowledges that those percentages aren't based on scientific surveys, but, he says, "I've never had anyone refute me, and I've seen studies that put those numbers higher."

Some argue that very experienced outsourcing clients report high satisfaction rates (see story, next page). But considering that Gartner Inc. expects the worldwide outsourcing market to grow by 7.9% annually to $429.2 billion by 2008, there's still room for a lot of unhappy relationships.

The challenge for companies that plan to outsource, then, is to know the problems that tend to occur and try to avoid them or at least recognize them early so they can be resolved. "Anytime a major organizational change occurs, there's a period of time before performance gets back to where it used to be or higher," says Wendell Jones, a senior consultant at Cutter Consortium in Arlington, Mass. "The challenge is to shorten that gap."

With that in mind, here's a list of the most common problems that can crop up after the honeymoon is over.

PROBLEM NO. 1: Unrealistic Expectations

A common misconception that leads to dissatisfaction is that changes will be dramatic, particularly in the areas of cost reduction and improved performance. But as Dan Laffin, director of application outsourcing at Keane Inc. in Boston, explains, it might take an outsourcer three to four months just to install new work processes and methodologies. "They think it's like a light switch going on and the world changes," Laffin says, but with the transition period, service improvements only become visible downstream.

Companies also overlook the amount of time it takes to transfer "tribal knowledge" to the outsourcer, says Pavan Nigam, who co-founded Healtheon (now WebMD.com) and is now CEO of Cendura Corp., a Mountain View, Calif.-based application management solutions firm. "Outsourcing requires a lot of documentation, but what hurts is what you can't get out of people's heads," he says. "All this software and IT processes have been going on for a long time, and when you pass it along to someone else, you discover there's a lot of context that's missing." In most IT shops, about 50% of knowledge is undocumented, Nigam estimates.

Sharing knowledge and coordinating IT activities among system architects, project managers and the development team takes even more time when working with an offshore provider. Even coordinating software releases and replicating the IT environment between offshore developers and internal IT can become time-consuming without the proper infrastructure in place.

PROBLEM NO. 2: Poor Communication

Communication isn't a strong suit in most organizations, so it's not surprising that a lack of it is a common reason for disappointment. "When you see engagements get in trouble quickly, it's often because there isn't a common

Continued on page 48

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HOW TO SPOT TROUBLE



Continued from page 46

understanding of what the goals were," Laffin says.

The problem is most acute when the procurement process is closely controlled by IT and doesn't involve business leaders. In one instance, Jones recalls, users didn't realize that the IT group had been outsourced until they noticed longtime IT employees wearing noncompany badges. "They wondered whether it would cost money to ask them questions," Jones says. "It's very important to keep users informed as to what's going on."

When the main goal is to drive down costs, misperceptions can worsen if input isn't gathered from the people whose day-to-day jobs will be affected by the deal. In such cases, those employees may not understand the goals, parameters and limitations of the deal. "We sometimes spend the first three, four, six months educating people who have to live with us on a day-to-day basis," Laffin says.

Problems also arise when the contract doesn't reflect business objectives. Consider a deal based on lowered cost of service and the introduction of standard operating procedures in an environment where business users are accustomed to flexible procedures and quick response times. "The service provider might perform close to the deal, but it's not what the business customers are used to getting," says Lorrie Scardino, a Gartner analyst. "So IT ends up doing a lot of backpedaling and potentially changing service levels and the scope of the contract."

Ideally, the outsourcing evaluation and decision-making process should involve the CIO, business representatives and the major stakeholders of the company so that a balance can be struck among saving money, improving performance and determining the objectives of the deal, Laffin says.

PROBLEM NO. 3:
Oversold Promises

Let's not kid ourselves — outsourcing sales teams are working in competitive situations, and they are capable of making promises they can't keep about what they will provide or how fast they will provide it, Scardino says.

In other cases, salespeople may not spell out low-level requirements — such as the need to conform to certain procedures or use certain tool sets — that are necessary to achieve the promised cost savings. But what if the tools or methodologies don't fit into the client's existing environment? Or what if they actually add another layer of work that adds cost? That may not be recognized until the people who do the actual work get involved.

"You have a disconnect between the people brokering the deal and the ones making the deal work," Scardino points out.

To reduce this disconnect, Perkins suggests writing into the contract the names of people you worked with and gained confidence in while negotiating the deal. "Get it in writing that he or she has to work *x* number of hours per month with your company and be a part of the team," Perkins says.

And in case you run into trouble, also get in writing a clear escalation process, Perkins suggests. Include the name of a senior individual who is responsible for doing quality assurance on a periodic basis. "Someone at the VP level has to do the right thing for the customer," Perkins points out.

The escalation process is tougher with offshore providers because it's not always clear who the decision-maker is. "There are oceans, cultures and time zones in the way, so you don't have the same transparency," Perkins says.

PROBLEM NO. 4:
Imprecise Contracts

During the contract negotiation phase, the outsourcer and client are usually seeing eye to eye and feeling very agreeable toward each other. Unfortunately, this can result in a casual attitude toward getting the necessary details in writing — such as how upgrades will be handled — and more reliance on "the spirit of the contract," says Janice Co, a principal at A.T. Kearney Inc., a Chicago-based management consulting firm.

"Nailing down the contract involves conflict, and people don't like conflict," Co says. "There's also a natural resistance because they want to get the contract signed before anybody changes their mind."

The problem is, as staffing changes and the contract originators are no longer there, the contract itself doesn't always provide the specifics that the new people need. This results in a general feeling that the outsourcer isn't providing something, even if it's living up to the contract.

"If I conducted a quality survey and asked, 'Does the outsourcer provide you with exactly what's in the contract?' the score would be high," Co says. "But if the question was, 'Are you getting what you want?' you'd say no. The trouble is, you're scoring something that's not contractually obligated."

While it may be impossible to get everything into the original contract, Paul Garcy, a manager at A.T. Kearney, suggests spelling out formal procedures while the original participants are still involved for previously undocumented things such as governance and change management processes. "You need to turn the tribal knowledge into formal processes," he says.

PROBLEM NO. 5:
Revolving-Door Syndrome

When Nigam was at Healtheon, he says, he was frustrated by the rapid turnover and the low skill levels of the offshore developers assigned to his company's projects. "They were like transient nomads, and I wanted people who belonged to a team," Nigam says. But he soon learned how to take preventive measures.

Nigam began stipulating in his contracts that he had the right to interview everyone who worked on his company's projects and approve or reject them and that he'd accept only a certain percentage of mobility within the company. "It was clear they couldn't shuffle people around," Nigam says.

Of course, all this dissatisfaction may stem from a source that's completely unrelated to the outsourcing provider: chronic complainers. "Sometimes, when we're getting complaints about our level of service, it turns out to be a user element that has never liked the services from the IT department," Jones says. "It's easy to blame the new guy on the block." **50324**

Brandel is a Computerworld contributing writer in Grand Rapids, Mich. Contact her at mary.brandel@comcast.net.

The Voice of Experience

IN A 2004 STUDY by Accenture Ltd., 74% of experienced outsourcing clients said they're satisfied with the results they achieve in the first year of an outsourcing arrangement. Those experienced practitioners also said the benefits and satisfaction they achieve increase over time.

The consulting firm defined experienced outsourcing clients as those that had seven or more years of experience with outsourcing. Of the 565 executives surveyed, 39% said their companies fell into that category. The rest said their companies had two to seven years of experience. Here are some of the study's findings:

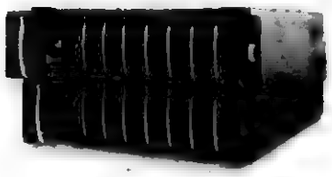
- The experienced outsourcers consistently gained more benefits than those with two to seven years of experience.
- Veteran outsourcers focus on three top objectives: reduced costs, improved processes and the ability to focus on their core business. A large portion of them meet those objectives.
- Most veteran outsourcers define what they really want from the outsourcing arrangement at the outset; virtually all introduce this by the third year of an arrangement.
- Beyond attractive pricing, companies require a variety of things from outsourcing partners, including process expertise and industry knowledge.
- After three years of outsourcing, performance measures and the quality of the outsourcing relationship are more important than the contract as a primary management tool. Since the majority of outsourcing deals must be renegotiated before the end of the contract, respondents said that it's wise to accept and plan for the change in advance.
- A majority (59%) of the respondents said they use risk/reward incentives to spur high performance from their outsourcing partners. Incentives may reward extraordinary performance or encourage higher levels of risk.
- Almost three quarters (74%) of those surveyed said their companies use moderate to extensive governance; 69% said they have an executive dedicated to the management of the outsourcing relationship.

—*Mary Brandel*



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DAVID MOLLENBACH

Talent Drain

How to avoid losing your best and brightest in an outsourcing deal. By Thomas Hoffman

WHEN CRAFTING an outsourcing plan, companies frequently make three workforce mistakes: They don't pay enough attention to the types of technical skills being transferred to the service provider, they don't plan for the potential loss of institutional knowledge within their own companies, and they don't pick the right IT staffers to manage the outsourcing relationship.

"One of the key problem areas is talent drain," says John Kennedy, a partner in the technology transactions group at Morrison & Foerster LLP in New York. "In their rush to rid themselves of noncore functions, some companies later realize they are shedding core knowledge." A lack of in-depth knowledge about a company's IT and business requirements can become problematic if senior management later decides to restore those activities in-house, Kennedy adds.

How do you avoid losing all your best technical workers? Robert Zahler, a partner at Shaw Pittman LLP, who heads the law firm's outsourcing practice in Washington, advises clients to focus on retaining technologists who have a rich knowledge of the organization's IT architecture, design and platform standards. "What you outsource are the arms and legs" of the IT department, says Zahler. "Console operators and tape hangers are fungible."

Still, he acknowledges that companies have a tough task choosing which personnel to retain. "We advise our clients not to cherry-pick the best people and send over the bottom two-thirds, because you want the supplier to be successful," Zahler says.

Another talent-retention tactic can be built right into an outsourcing contract. According to Shawn McCray, a partner at Technology Partners International Inc. in The Woodlands, Texas, some of the firms he represents include in contracts the right to hire back former IT workers or even hire specific vendor employees once the outsourcing deal has concluded. "That's one way that companies try to hedge their bets when transferring out this talent," he says.

The Emotional Component

Talent can be lost in other ways as well: Top performers left behind during an outsourcing deal could quit because they no longer feel loyalty to the company. According to a June 2004 Gartner Inc. offshore outsourcing report, organizations should be careful not to neglect the IT staffers who remain. They will be under stress as they watch their co-workers lose their jobs. Some companies use incentive programs to ensure that valued staffers are taken care of [QuickLink 50236].

Institutional knowledge — those nuggets of information about how a certain program was written or how that cranky machine works — is important to hold on to. The hard part is figuring out which staffers have it.

Commoditized IT operations such as desktop support require little institutional knowledge. But strategic insights about the steps that a company takes to harness business intelligence about its customers should be carefully documented, says Stan Lepeak, an analyst at Meta Group Inc. in Stamford, Conn. For example, business analysts who have insights into how a company obtains competitive information about its customers' purchasing habits are valuable.

"You shouldn't allow that institutional knowledge to reside in just a few heads," he says. And prior to outsourcing, senior IT managers should ensure that they document as much as they can about the processes that support business performance, such as data mining efforts, adds Lepeak.

McCray also advises companies to ensure that their outsourcing vendors provide ongoing training and job shadowing so that critical institutional knowledge isn't lost if an IT worker were to leave the outsourcer.

It's also important to make sure that the outsourcing vendor keeps IT workers who retain cultural knowledge about the work that individual employees perform, says Gartner Inc. analyst Diane Morello. "Outsourcing customers tend to think about the knowledge being about technology, but it's much broader than that," she says. For instance, some Gartner clients that outsource IT activities "come to the sharp realization that they've wrapped up and packaged away people who were central to critical decision-making."

Watching the Outsourcer

When companies outsource a big chunk of their IT operations, they typically retain a handful of senior IT executives to manage those relationships. The problem is, the people who are kept rarely have the skills to manage outsourcing relationships that are laden with contractual, service-level requirements, says Lepeak.

"We suggest that you should be spending 5% to 7% of the outsourcing spend on managing the relationship. But it's hard to get that across" to cost-focused senior executives, he says.

The skills needed to manage an outsourcing relationship are different from those needed to manage relationships with product vendors, says Morello. "It's a different animal," she says. "You need people with service delivery experience." Indeed, project managers of offshore outsourcing efforts should have strong contract management skills, as well as international experience and language and human resources skills, according to a May 2004 IDC report.

It's also a mistake to assign people with experience managing functions such as application development or data center operations to manage outsourcing relationships, says Zahler. "Many times they become micromanagers," he says. Instead, Shaw Pittman advises clients to give the job of managing the outsourcer to someone with corporate expertise or to someone who has experience managing relationships with third-party services firms.

But sometimes, all the worrying about workforce issues is for naught. Some organizations outsource after benchmarking or other metrics help confirm that an in-house IT activity, such as data center operations, is performing below expectations. "In some cases, there isn't that much knowledge to lose," says Lepeak. **QuickLink 50439**

IT'S ALL ABOUT THE PEOPLE

Columnist Bart Perkins says people are a key part of any outsourcing effort. To proceed successfully, you should carefully consider both the benefits and the damaging side effects on the workforce.

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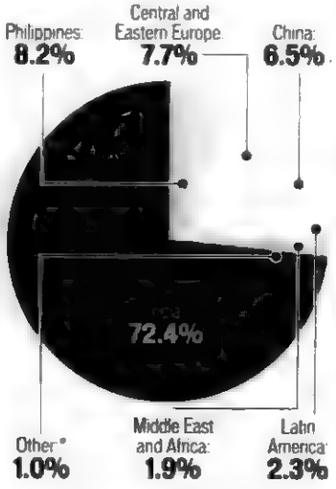
U.S. Spending for Offshore IT Services

Top three functions, 2004

Custom application development	$2.8B
Systems integration	$2.4B
Application management	$1.5B

Worldwide Offshore IT Services Market

Regional or country market share, 2003



Total market = $6.87B

*Includes Malaysia, Singapore and New Zealand, among others

Backlash Concerns

Customers are more concerned about politics than publicity, according to a survey of IT offshoring customers.

Concerned about legislation or political pressure preventing IT offshoring:	
Concerned about employee backlash over IT offshoring:	
Concerned about bad corporate publicity about IT offshoring:	

Base: 182 buyers of offshore IT services; multiple responses allowed

MARK HALL

Unfair Treatment

LET'S SAY your colleague, Winthrope, does quality assurance testing on Java code in the production process of your company's widgets. You, on the other hand, run QA tests on J2EE applications for your CFO's customized ERP systems. One day, the CFO unveils a plan to outsource the making of widgets to a Chinese manufacturer and offshore all software QA work to India. Bummer for you and Winthrope, dude. Well, for you, anyway.

You see, the CFO arranged for workers affected by the Chinese deal to qualify for benefits from the Trade Adjustment Assistance Act (TAAA), which is administered by the U.S. Department of Labor. Because Winthrope's layoff can be pegged to the company's sending widget-making skills overseas, he qualifies for some righteous benefits. How does 104 weeks of new job training, relocation assistance, income support, health benefits and much more sound? Pretty good. For Winthrope.

Oh, you'll get to go to the unemployment office to receive temporary benefits. And you'll likely run into Winthrope, because he also gets the same benefits you do. In fact, you're likely to encounter quite a few colleagues, given that the Brookings Institution in Washington estimates that through much of this decade, "offshoring could result in roughly 250,000 layoffs a year." This at a time when the Department of Commerce has reported a historic decline in IT jobs, from 6.24 million in 1999 to 5.95 million in 2002.



It was 1962 when the Kennedy administration signed off on the first TAAA. The act's passage acknowledged that the government owed workers extra assistance when their jobs were lost because of national trade policies. The catch in 1962, as it still is today, is that you qualify for TAAA goodies only if you're involved in the making of a thing. In 1962, according to the Bureau of Labor Statistics, about 40% of working Americans were engaged in manufacturing; they were the mighty core of a U.S. economy that was opening its doors to cheaper imports.

That has changed. Services are the mighty core of today's economy. According to *The CIA World Factbook*, 72.5% of the $10 trillion-plus U.S. GDP is generated in the service sector, which includes call center workers, software developers, sysadmins and every other IT professional whose job is going overseas. There have been bipartisan attempts to get TAAA-like benefits to workers laid off because of offshore outsourcing, but they haven't succeeded. So if you lose your job to a worker in Bangalore, you won't see a nickel of the $220 million in the Labor Department's job training budget — unless, like Winthrope, you can show how your job directly contributed to making the thing the company now produces in Shanghai.

This situation is simply not fair. Why is Winthrope's job deserving of TAAA benefits and not yours? Both have been lost as a result of trade policies promulgated by both Democrats and Republicans in the White House and Congress. As we open our borders to importing service work, we must include among TAAA beneficiaries those adversely affected U.S. workers too.

Josh Bivens, an economist at the Economic Policy Institute in Washington, says part of the problem is that the government does "a bad job of measuring the effect of trade in the service sector." An assembly-line worker "can point to data that shows a flood of imports leading to a lost job," he says. An IT worker can't.

Trying to measure the effect of imported services on a single sector, such as IT, isn't going to be easy. Indeed, a Government Accountability Office study released in September was inconclusive about whether an IT service-sector labor problem exists (*www.gao.gov/new.items/d04932.pdf*).

Well, the GAO may still think more research needs to be done, but I know and you know and even Winthrope knows that IT jobs are being lost because of national trade policies — such as those that dictate how foreign operations are taxed — that encourage moving jobs overseas. And I think the government should treat IT workers as fairly as it treats those who lose their jobs making things.

Bivens says the only way to be truly fair is to make TAAA benefits available to any worker in any sector whose job is eliminated. I agree. Alas, the budget deficits projected from now until eternity make such largess unlikely. But targeted lobbying can work.

So if your job is in jeopardy, or if you've already lost it to an offshore operation, tell your elected officials to change TAAA so that it applies to IT workers. It won't do much to stop offshoring, but it'll help stop the unfairness of this government program. **50007**

SNAPSHOTS

U.S. Spending for Offshore IT Services

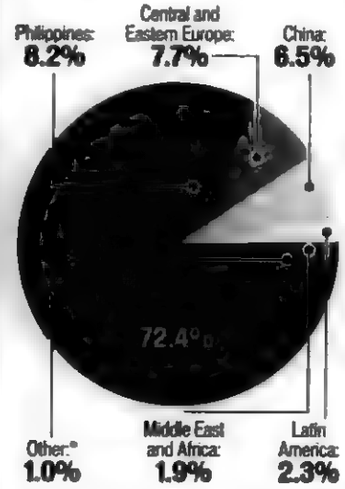
Top three functions, 2004



SOURCE IDC, FRAMINGHAM, MASS., OCTOBER 2004

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Concerned about bad corporate publicity about IT offshoring:	62%

Base: 182 buyers of offshore IT services; multiple responses allowed.

SOURCE DIAMONDCLUSTER INTERNATIONAL INC., CHICAGO, MARCH 2004

MARK HALL

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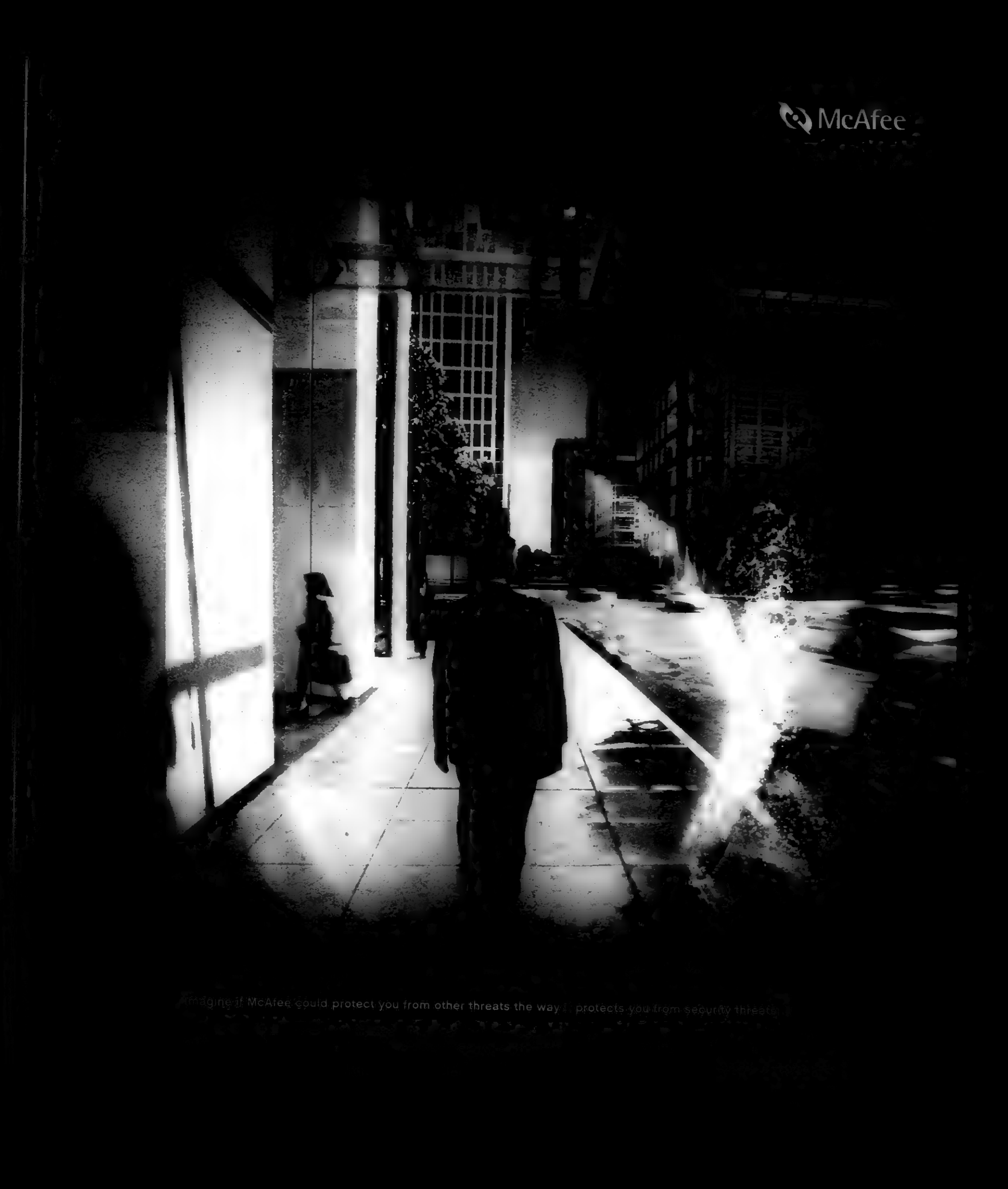
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Technical Consultant: Write code, program and test Client/Server Oracle and ecommerce application using Test Directory, Win Runner, Load Runner, and Rational Suite. Perform Requirement analyses. Design and write test scripts, test cases and test plans and Perform unit, system, functional, integration, regression and whitebox testing. QA testing. Must have extensive knowledge of C, C++, Unix Shell scripting and Perl. Must have good knowledge of oracle database, PL/SQL and sql queries. Must have good knowledge of Internet based tools like Java/J2EE, Java Swing, Javascript, HTML, JSP, ASP etc. Willing to relocate anywhere in the US for Zenith's clients. B.S in Comp Science or other quantative field and 2 years experience in Software Development. 40hrs/wk (9:00 a.m. to 5:00 pm) $80,878.00/yr. 40hrs/wk (9:00 a.m. to 5:00 pm) $80,878.00/yr. Please send two (2) copies of resume/letters to Job Order #2004-1387. P.O. Box 989, Concord, NH 03302-0989

COMPUTER PROFESSIONALS: Radiant Systems, Inc. a Nationwide Technology provider located in NJ, CT, TX & FL req Professionals w/ Hardware &/or Software skills incl: C, C++, Java, JavaScript, XML, UML, Perl, HTML, SQL,Pro*C, VB,PB, VC++, MFC, SDK, Gupta-SQL, Informix, Crystal Reports, Sybase, Dev 2000, Lotus Notes, Unix, Win NT/98/XP, RTOS, Sun OS, Help Desk/PC-Support, SAP, R/2-R/3, ABAP/4, SAP Scripts, PeopleSoft, IDMS, AS/400, COBOL/CICS/DB2, MVS, RPG/400, SQA, WinrLoad Runner, SNMP, COBRA, ASP, Active-X, DTM/TDMA, FDMA, Routers, DSP/ATM, FRAME RELAY, TCP/IP, ISDN, DCOM, COM, PL/1, SAS, Vx-Works, VHDL, SONET/SDH, SNMP, HP OpenView, Proj Mgr, Tech Writers. Candidates wlo BS (or equiv) & 2 yrs exp as P/A and/or MS (or equiv) & 1yr exp. as S/E. Travel & relocation req to anywhere in USA as assigned. Excel Benefits. E-Mail radiants@radiants.com Attn: H.R. Dept. 109-A Corporate Blvd., S. Plainfield, NJ 07080

Firmware Engineer

To develop and test firmware for SmartSynch's current and future SmartMeters using C/C++ and assembly languages in Real-Time Operating System (RTOS) environment. Req. M.S. in EE, CPE or equivalent, 1-yr industrial exp. in development/testing of telecomm software in RTOS environment, proficiency in using C/C++ and assembly languages and ability to debug firmware issues. 40hrs/wk. Send resume to Mr. Daniel L. Finan, SmartSynch Inc. 4400 Old Canton Rd. # 300, Jackson, MS 39211 or dfinan@smartsynch.com.

Director SAP Consulting Technology, Tampa, FL Directs tech consulting expansion of Globals SAP practice in service sector worldwide. Requirements: BS Computer Sci/equiv., 8 yrs SAP tech. experience, 5 yrs SAP formal certification, 6 yrs global full life cycle implementations, experience in at least 1 multi country implementation, proven global recognition w/i SAP arena. Globsl, Inc, 400 Madison Ave, Ste. 5D, NY, NY 10017, Attn: D. Brink.



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Senior Software Engineer - Research dsgn & lead dev of comp s/w dev. srvcs for Co's J2EE apps. s/w using Oracle. Antiz s/w reqs. to determine feas., best practices, sys. arch. & set Java s/w dev stds. Dsgn, classes & dev models. Estb & lead coding & s/w dev. methods, use of tools, perf meas., reporting proc. & code revs. Coach & train jr. s/w developers. Advise appropriate Java integrated s/w dev envirn (IDE). Estb. Best practices for source code control. Set appropriate rdbms perf. stds. Dev & set Apache/Tomcat web server perf stds. Dev best practices for web apps. deployment. Lead sys. testing, process improvement, maint. & prob. resolution. 40 hrs. wk. 8am-5pm; pay is $80,000 per yr. Miami, Springs, FL. Requires Bach. in Comp Sci., Inf Sys., or Comp. Egr. (any field) or equiv. + 5 yrs. exp. in dsgn, dev & impl. of s/w using Oracle, incl. 1 yr. of exp. using Java related tech. Send resume to Job #2568068, Agency for Workforce Innovation, P.O. Box 10869, Tallahassee, FL 32302.

Technical Consultant: Analyze, design and develop client/server application using Visual Basic 5/6 with Access/Oracle/SQL Server, VBA (Excel & Outlook) and Crystal reports. Develop multi tier web based systems with ASP, XHTML, DHTML, JavaScript, VBScript, COM, DCOM, C++, XML, XSLT, IIS, MTS, Visual Studio 6, Oracle/SQLServer programming, .NET, C#, Java, Servlets, JSP and WebLogic. Must have knowledge of Multi-tier web based systems. Must have knowledge of ASP, COM, DCOM, XML, Java and WebLogic. Willing to relocate anywhere in the US for Zenith's clients. B.S in Comp Science/Engrin or Quantative Field and 2 years experience in Software Development. 40hrs/wk (9:00 a.m. to 5:00 pm) $80,878.00/yr.Please send two (2) copies of resume/letters to Job Order #2005-048. P.O Box 989, Concord, NH 03302-0989

COMPUTER

PricewaterhouseCoopers LLP's Advisory practice has opportunities available for experienced professionals in the area of Security Integration and Identity Management. Positions require a bachelor's degree (master's preferred) in CS, CE or MIS and 1 to 5 yrs of related exp. Must have hands-on-technical experience with Directory and Meta-directory technologies, Access Management, User Management, Critical Path, Netegrity, Oblix, Microsoft, and Sun. Knowledge and/or experience with programming languages such as Perl, Visual Basic, Java, and Web Services Technology. Will be required to travel. Job site/location: Chicago, IL. Interested candidates please reference job code SOPTBA & fax resume to GL at 813-329-3919. No phone calls please. Employer will only consider applicants authorized to work for any employer in the U.S.

Software Engineer with experience in designing and developing computer software systems for supply chain planning to work in our Burlington, MA plant. Send resume to Jay R. Smith Mfg. Co., 2781 Gunter Park Drive East, P.O. Box 3237, Montgomery, AL 36109, Attn: HR. Must reference job code #111. EOE.

Senior Software Developer sought by Fairfax, VA based software development company. Must possess Masters degree or the foreign equivalent in Computer Science or Information Systems or the equivalent related professional experience. Must also possess at least one (1) year of experience in systems analysis and software development and design, specifically creation of n-tier applications using Microsoft tools. Respond to: Megan Morgan, Advanced Solutions International Inc., 4035 Ridge Top Road, Suite 400, Fairfax, VA 22030

Technical Recruiters needed. Seeking candidates possessing BS or equiv and relevant work exp. Part of rel work exp must include 2 yrs working w/ ASP, Oracle & VB. Duties include: Analyze prospective employers/employees to determine employment/business needs, Assess cands ability to use technical programs/software. Mail resume & refs to: Management Recruiters of Woodbridge, Inc., One Woodbridge Center, #700, Woodbridge, NJ 07095.

Systems Engineer/Java Developer. Provide Yantra OMS and WMS application, installation and development skills in support of business objectives. Develop and ensure compliance with coding standards. Provide support for QA process. Participate in design and technical meetings. EOE.

Requirements: Bachelor degree in Engineering and five years of experience using Yantra.

Please send to: Stonepath Group, 1600 Market Street, Suite #1515, Philadelphia, PA 19103.

Seeking qualified applicants for the following positions in Orlando, FL: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent* in computer science, engineering, MIS or related field; plus 5 years of experience in systems/applications development. Experience with C++, Unix and transportation revenue processing systems also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to LaWanda Thompson, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V

Sr. Software Engineer wanted to mntn software dvlpmt. prgs. for n-tier, web-based CRM apps. for use by the invest. mngmt. & energy indust. Must have B.S. deg. in Comp. Sc., Eng. or relatd field & min. 3 yrs. exper. developing n-tier, web-based apps. using Microsoft.NET framework (including ASP.NET, Visual C#.NET & Visual Basic.NET), XML & Web Services, COM/ActiveX components, incl. COM+ & SQL programming + object-oriented analysis, design & programming exper., incl. UML, & exper. developing & integrating CRM apps & developing commercial apps. Send resume to Steven Nothern, CFO, Satuit Technologies, Inc., 80 Washington St., Unit M-50, Norwell, MA 02061.

Senior Oracle Database Administrator: Systems Adminis-tration; Database management of enterprise wide Oracle Syst-ems. Extensive experience handling large volume databases, system & database tuning & working with RS 6000, J40/J50, AIX, SCO, Sun Solaris, Win-dows NT & Unix is required. BS in Computer Science or equiv. Edu. & exp; 3 yrs exp in job offered; Job located in Fort Lauderdale, FL; $75,000.00 yr; 9:00am - 6.00pm; 40 hrs per wk. Send resume to Agency of Workforce Innovation, P.O. Box 10869, Tallahassee, FL 32302, Job Order #FL-2578948.

ISTS Worldwide, a global IT/Consulting solutions co. seeks Software Engrs. Prgrms, QA Engrs, DBA's & Business Analysts & Database Dsgn Analysts. BS in Comp. Sci or related field w/3 yrs exp. Envmt: C, C++, C#, Java, J2EE, EJB, Interwoven Teamsite, .Net, VB, ASP, Weblogic, Websphere, Apache, Perl, UNIX, Linux, QA, WinRunner, Loadrunner Windows, Oracle, Sybase, MySql, DB2 & SQL Server. Resume to HR Dept., 38930 Blacow Rd, Ste. E, Fremont, CA 94536

Informatica is looking for system analysts, DBA, software engineers & computer consultants working at different sites (travel maybe required) Require min. BS/MS with IT exp. Good salary with full benefits. We sponsor H1B & Green Card. Send resumes to info@informaticainc.com EOE.

Data Warehouse Specialists, Inc. is looking IT professionals. Duties include design applications for Business Intelligence, On-Line Analytical Processing (OLAP) & Datawarehousing using various tools. Competitive wage with full benefits. Please send resumes to info@dwspecialists.com. EOE.

Computer Systems Analysts/Software Engs. needed. Seeking qual. candidates with MS or equiv. &/or rel. work exp. Duties include: software design, modification & testing, working w/Winrunner (Mercury Products). Power MHS, AS400/Mainframe & DB2. Fwd. resume & ref. & sal. req. to Maxroute Professional Services, Inc., 28 Gilford Road, Somerset, NJ 08873.

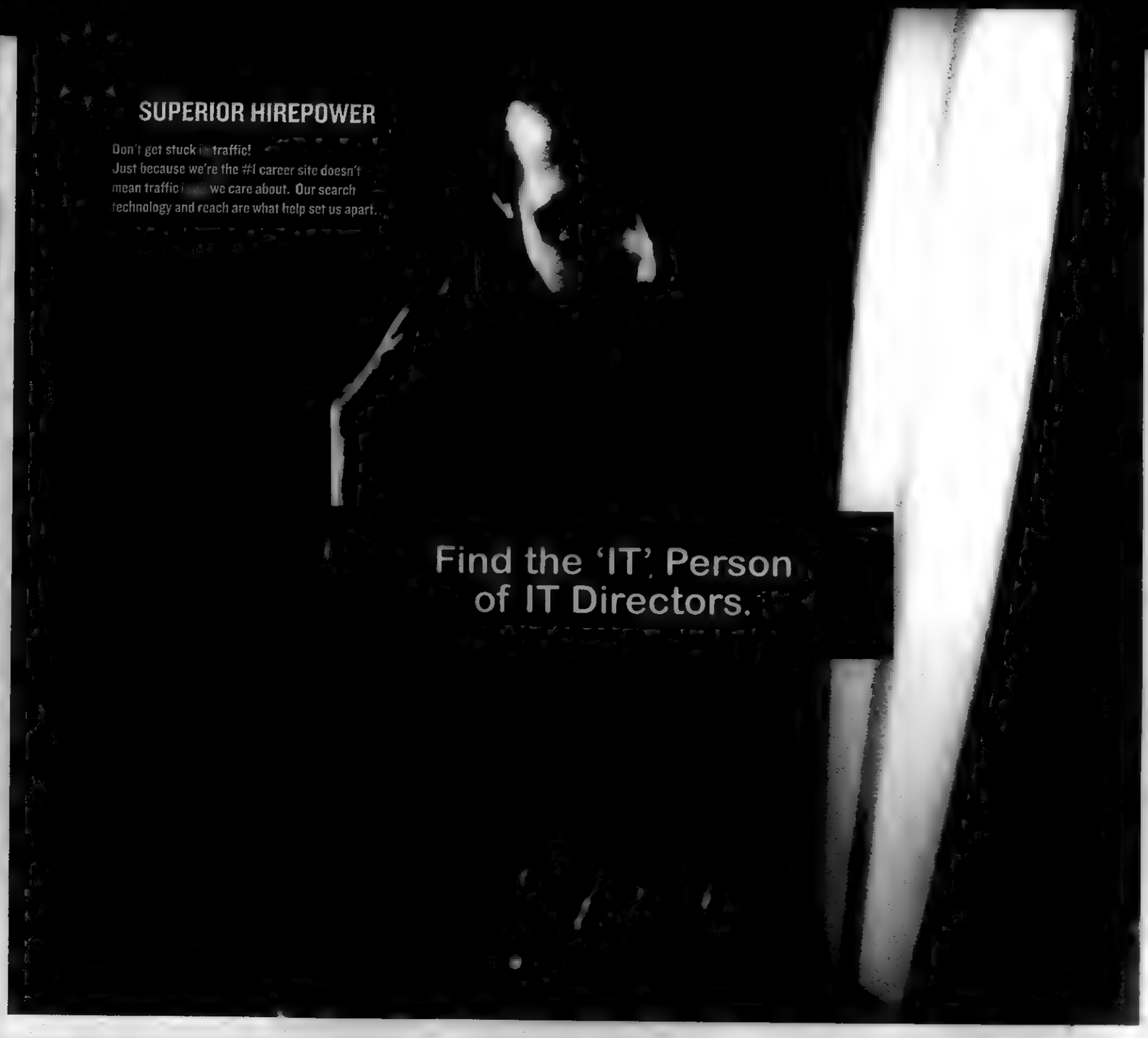
Computers: SAP FICO Functional Consultants needed. Seeking qual. candidates with MS or eqiv. &/or rel. work exp. Part of req. rel. work exp must include 3 yrs working w/ SAP FICO. Duties include: map business reqs. & design IT solutions to meet business reqs. & configure finance & accounting modules w/in SAP functions. Fwd. resume & ref. to USM Business Systems, Inc., Attn: HR, 574 Mammoth Rd, 9B, Suite 12, Londonderry, NH 03053.

CAD/CAM Software Developer

To research new CAD/CAM technologies and develop new features for the BobCAD-CAM software. CNC machine tool path generation algorithm development and implementation, and conduct programming work. Req. MS or above or foreign equiv. in Comp. Sci., Manufacturing or Mechanical Engineering, or related field, proficiency in using C++, MFC, OpenGL and 3D geometry modeling and familiar with advanced manufacturing technologies and CNC machine. 40 hrs/wk. Send resume to Lori Pendleton, BobCAD-CAM, Inc. 417 Plaza Drive, Dunedin, FL 34698. Fax: (727)442-1773

IP.com, Inc. is seeking a Computer Programmer Coordinator experienced within the Intellectual Property field using VB 6.0 and Java, MS Office & Acrobat Object Libraries, DB2, XML & XSL. Interested degreed, experienced professionals, please respond to: Human Resources, 150 Lucius Gordon Dr., W. Henrietta, NY 14586.

Software Engineer. Several Sr. and Mid Level positions available for qualified candidates possessing MS/BS or equivalent in Comp Sci or in Engineering field & relevant work experience in Java, Oracle 9i,WebMethods IS 4.6/6.0.1, Trading Networks,JDBC Adapter, EDI, with Windows, Unix and/or platforms. Jobs are in PORTLAND, ME. Please send the resume to resv@uspcorp.com or fax to 800-753-1717.



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Sr Software Developer Responsible for analyzing, developing, testing & debugging server-based application solutions. Will perform the following job duties: (1) work w/design team members & project managers to understand client business specifications, (2) create technical specifications based on business needs & the targeted application components, (3) assist in creating component architecture & design, (4) analyze technical specifications for the purpose of coding & unit testing, (5) identify design & performance issues, (6) design, develop, test & debug application components & objects that are developed in either PowerBuilder SQL, Sybase stored procedures, Sybase Triggers, Sy-Perl or Unix Shell Script, (7) code application events, cases, & steps using application specific setup tools and utilities, (8) develop unit test scripts & test data, (9) conduct unit test application & component modifications, (10) participate in object & code walkthroughs, (11) assist in guiding & mentoring peers, & (12) assist in identifying & determining improved departmental standards & procedures. Min reqts: Associate degree or foreign equivt in any field plus 10 yrs exp in job offered position or 10 yrs exp in closely related IT position w/software and/or system development & DBA in Sybase. Must have 3 yrs concurrent exp with PERL& Unix shell script; DBArtisan; PowerBuilder GUI, and Intersolv Version Control. Job Site: Jacksonville, FL. Salary: $68,000/year. Hours: Monday through Friday, 9-5, 40 hours a week. To apply send 2 copies of resume to: Job Order # FL-2574467, Workforce Program Support, P.O. Box 10669, Tallahassee, FL 32302-0669.

Assistant DBA/Report Writer: Installation and maintenance of databases (Oracle for OLTP/DSS) on UNIX/LINUX systems. Provide Oracle DBA/Reporting support for an n-tier Java based application set as part of application team. Work with software development, hardware/network administrators and other IT staff. EOE. Requirements: Bachelor degree in Engineering or related field and six years of experience working as a DBA/Developer.

Database Architect: Manage, maintain, administer and provide Oracle DBA support for an n-tier Java based application set as part of the IT application team. Work with software development, hardware/network administrators, and other IT staff to support deployment and maintenance of UNIX systems, database maintenance, data loading, and administer system users. EOE. Requirements: Bachelor degree in Computer Science or related field, eight years of experience as a Database Professional, experience with Oracle 9i/10G, Oracle Designer, and experience with data warehousing.

Please send to: Stonepath Group, 1600 Market Street, Suite #1515, Philadelphia, PA 19103.

Multiple openings for IT professionals by Z3 Technologies to design and customize applications using Oracle, Sybase SQL, C/C++, Visual C++, OOD, Java, Web Tech, SAP, VB. Travel may be required. Candidates must have BS/MS with exp. Please contact info@z3technologies.com. EOE.

OTS (Object Technology Solutions) has multiple openings for IT professionals (software engineers, system/program analysts, DBA, etc) to design and develop applications using various skills such as VB, Oracle, Java, WebSphere, SQL, SAP. Req MS/BS with exp. Contact resumes@ots-usa.com. EOE.

Software Engineer/ Programmer Analyst/ Systems Analyst/ Database Administrator/ Quality Analysts (Multiple Openings)

Must have bachelors degree or equivalent and experience in some of the following skills: ERP (SAP, JD Edwards, PeopleSoft, Oracle Apps, Baan), CRM (Seibel, Clarify, Vantive), C/C++, C#, Java, J2EE, J2SE, XML, UML, Microsoft Technologies (Visual Basic, .Net, ASP), Data Warehousing Tools (Informatica, Data Stage, Abinitio, Business Objects, Cognos, Micro Strategy Bmo, SAS), Document Management Tools like Documentum Mainframe (Cobol, CICS, JCL, VSAM) AS400, Databases (SQL Server /Oracle /DB2 / Sybase), Enterprise Security/SSO using products like Netegrity, Siteminder, Identityminder, Waveset and Lighthouse, QA (Win Runner, Load Runner, Rational Products & Silk) in Windows (95/98/2000/NT/XP) and/or UNIX (Sun Solaris/HP/AIX) and/or Linux operating systems. Must be able to travel or relocate nationwide. Attractive compensation package.

Mail your resume to:
gayathri@wrinfo.com
Or
Human Resources Director
ISR INFO WAY INC
559 D'Onofrio Drive,
Suite # 101
Madison, WI - 53719
Only email/mailed resumes accepted (No Walk Ins)

Software Engineer sought by laser cutting/marking machine manufacturer in Golden, CO to work in Golden Design, develop and maintain embedded real-time system for laser engraving and cutting machines by using Object-Oriented designing technology and C++. Develop and maintain printing device drivers for 16 bit and 32 bit Windows operating system using C and computer graphic technologies. Debug, maintain and enhance Eptog legacy software. Manage source code of all Eptog software. Provide technical support for Customer Service Dept. Requires B.S or B.Eng. in engineering or computer science; working knowledge of C/C++ programming. Object-oriented development and development of embedded real-time systems. (Working knowledge may be gained in an academic or employment setting.) M-F, 8am-5pm, $55,000/yr. Respond by resume to Employment Programs, PO Box 46547, Denver, CO 80202 and respond to JOB CO5092502.

Bioinformatics Programmer wanted to oversee all aspects of comp. network functions in Center for Cancer Systems Biology (CCSB) incl. admin. of multi-platform network & mgmt. of IT infrastructure & oper. syst. for all databases. Will also supervise bioinform. analysts, create & implement bioinform. tools for analyses of functional genomics & proteomics, & dvlp web-based methods for accessing biological datasets. Must have MS deg. in Bioinform. or Comp. Sc. & 2 yrs. Bioinform. dvlpmt. exper., incl. exper. working on multiple platforms (Unix/Linux, PC, Mac), & exper. in genomic or proteomic data analysis using AceDB, MYSQL +/or Oracle, Perl, C++ & Java. Send resume to Lorraine J. Barnes, International Services, Dana Farber Cancer Institute, 44 Binney St., Boston, MA 02115.

IT Technical Lead, Project Manager, Boston, MA. Evergreen Investments. Lead software dev team & manage the design, implem. & maintenance of IT projects. Reqs. BA in Computer Science, Eng. or a rel. disc. & 4 yrs exp. in pos. offered or as a Web Developer or Software Eng. The 4 yrs reqd. exp. must incl. work w/ eng., managing & designing computer apps. using tech. such as Java, Java Script, WebLogic, Servlets, HTML/DHTML, Oracle PL/SQL, Windows & OOAD & dev. & IT project mgmt. w/ a WebLogic server in a Windows or Solaris OS. 3 yrs of reqd exp. must incl. work w/ XML and XSL. M-F, 40hrs/wk. Send resume and cvr ltr to Geri Henderson, Wachovia Corp., 401 S. Tryon Street, 15th Floor, Charlotte, NC 28288. No phone calls.

Project Director in Mesa, AZ to direct & id. manageable onsite/offshore elearning & applications development projects. Must have MS deg., or foreign equiv., in Eng., Comp. Sc. or rel. field & 3 yrs. proj. eng. exper., incl. proj. design, implementation, planning, reqts. analysis & execution, 2 yrs. exper. in software proj. eng. for comp. or web-based training & proj. mgmt. exper. Bach. deg., or foreign equiv., in Eng., Comp. Sc. or rel. field & 5 yrs. progressive proj. eng. exper., incl. proj. design, implementation, planning, reqts. analysis & execution, plus 2 yrs. exper. software proj. eng. for comp. or web-based training & 1 yr. proj. mgmt. exper. can substit. for MS deg. & required exper. Send resume to Hilary Gosselin, HR Manager, Leonbridge Technologies, Inc., 492 Old Connecticut Path, Framingham, MA 01701.

Product Engineer sought by IT Mgmt & Consulting Co. for dsgn & applic of VoIP applics & web based solutions. Exp reqd. Bach or foreign equiv reqd. Comp sal. Resume to Corpotel, Inc., 13798 NW 4th St., Ste 306, Sunrise, FL 33325 or fax (954)949-0503

System Administrator: Several Sr. level positions available for qualified candidates with MS/BS degree in CS or equivalent and 8+ years of UNIX experience which must include a minimum 5 years of Solaris OS and Sun hardware experience along with Shell, Perl, Java Enterprise System Directory, Messaging, Calendar, Web & Identity Management Suite. Sun ONE Directory Server certification is preferable. Job in Portland, ME.

Database Administrator. Oracle DBA, development & production database support, etc. Design database configuration, triggers stored procedures, data mappings & scripts for legacy data conversion. Req M.S. in Math or Related Field & 2 yrs exp in job or 2 yrs exp as a Sr. Database Admin. Send Resume: Garner Bennett, Total Resources Management, Inc., 2820 Camino Del Rio S., Ste. 210, San Diego, CA 92108 (jobsite).

Cooper Lighting seeks applicants for the position of MIS Assistant in Denver, CO to engage in moderately complex tasks regarding computer and network maintenance as well as participating in the design, development, enhancement and modification of custom software applications. Requires bachelor's in computer science, information technology or related field and working knowledge of computer and network maintenance, designing and developing custom software applications, SQL-based Relational Database Management Systems and MS/Access, and Statistical analysis software to analyze data. Respond by resume to Katrina Moore, Cooper Lighting, 4675 A Holly St., Denver, CO 80216. EOE.

Thomson, Inc. is seeking a Member of Technical Staff (Computer Software Engineer) for their Princeton, NJ facility to research and design the scheduled delivery of multimedia content over a hybrid digital network, conduct independent research and development to enable multimedia content delivery over evolving 3G networks; and apply knowledge of IPv4, IPv6 and QOS software programs and ATM protocols towards system design. Must have a Bachelor's degree or foreign equivalent in Electrical Engineering or a related field, plus 3 years of experience in the job offered or 3 years of experience as a Software Engineer. Salary commensurate with experience. Please send cover letter and resume to: Thomson Inc., Attn: HR Recruiting, Job # 9000, 10330 N. Meridian St., Indianapolis, IN 46290.

Program Manager for IT outsourcing projects. Position requires solid background in IT project management. Send resume to SAIC, 10003 Woodloch Forest Dr., Ste. 800, The Woodlands, TX 77380, Attn: HR. Must reference job code #112. EOE.

Sr Systems Engineer wanted by legal services info co. in NYC to analyze, develop, implement system solutions using PeopleSoft EnterpriseOne Xe (former JDE OneWorld), PeopleSoft XPIe, Optio eComIntegrate, OptioFAX, Crystal Enterprise, Oracle Enterprise 9i DB, MS SQL Server 2000, IBM DB2 and AIX UNIX. Resumes to HR Dept., CT Corporation Systems, 111 8th Ave., NY, NY 10011.

Systems Analyst for lead project team position. Extensive configuration experience and technical skills a must. Send resume to Swagelok, 6262 Cochran Rd., Solon, OH 44139. Attn: Len Miller. Must reference job code #556. EOE.

Programmer Analyst w/2 yrs exp to develop & test enterprise web application in three tier environment on Unix & Windows. Use JSP, HTML, XML, Servlets, EJB, JDBC & ODBC. Develop stored procedures & triggers using SQL & PL/SQL. Model business using Rational Rose & UML. Create test plans, test scripts & set up QA environment & perform Unit, Integration & User Acceptance testing. Perform client side validation using JavaScript. Mail res to: Soft Tech Source - A Division of Ramesh Sarva CPA, P.C., 18 Murray Guard Dr., Jackson, TN 38305.

Matrix Management Systems, Inc. is looking for: Programmer Analyst. Should have a bachelor's degree in computer science /related field with 3+ years of experience in the following: Star-Team, Documentum, .Net Architect, VB.NET, ASP.NET, C# Architect, VB6.0, ASP, XML, XSL, VB Script, SQL SERVER 7.0/2000, Oracle, Cold Fusion, Clear Quest, C, C++, VC++, DB2, CICS, COBOL, Rational Rose, Abinitio, WinRunner and LoadRunner. **We accept foreign education equivalent of the degree, or the degree equivalent in education and experience.** Send Resume to Attn: HR, 932D, Atlantic Ave, Hoffman Estates, IL 60194.

Systems Engineer, Database in Cambridge, MA. Must have BS in Computer Sci and 1 yr exp. Fluency in Japanese reqd. Send resume to: Mr. Koga, Oriental Connections, LLC, 274 Broadway, Cambridge, MA 02138.

IT consulting serv co seeks Sr. Tech. Developer to create, write, update & maintain web based tax/bookkeeping sys & prgms. Knowl of Quickbooks, Excel, W2s, Peachtree. Exp rqrd. Comp sal. Resume to SMX Services & Consulting, Inc., 7220 NW 36 St, Ste 421, Miami, FL 33166 or fax to (305)463-7991



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PROGRAMMER/ANALYST to analyze, design, develop and implement application software using Java/J2EE, IBM WSAD, XML, JSP, Servlets, HTML, JavaScript, MS VSS, Oracle, JBuilder, Visual Cafe, Java IDE send OOAD on Windows and UNIX platforms Require B.S. degree in Computer Science/Info Systems,or a closely related field with 2 yrs of exp in the job offered or as a Systems Analyst, Software Engineer or Programmer. Competitive salary offered. Apply by resume to: Dave Bloomquist, Global Software Development Services, Inc.,10South 5th St., Ste 700, Minneapolis, MN 55402; Attn: Job KB

Infotech Software Solutions, Inc., an International company, has opening in East Hartford, CT or Riverside, CA for following positions: Programmer/Analyst, Business Analyst, Sales Engineer, Operations Manager. These positions may require travel throughout the U.S. with expenses paid by employer. Please send resume to: 1700 Iowa Avenue, #100, Riverside, CA 92506, attn: Rajan or email to eshr@infotechsw.com

Software Engineer. Job location: Heathrow, FL Duties Resp for maintaining & enhancing Vectus appls. Design, research & analyze Vectus appls using SQL Server. Perform complex prog. tasks for new & existing Vectus appls. Prepare tech. specs. & documentation. Conduct unit testing of implem of Vectus software. Provide tech. spt. of appls. Develop Quality Assur (QA) test plans. Research problems discovered by QA & perform bug verification. Requires: B.S. (or foreign equiv.) in Comp. Sci., Eng. or 4 related field. Mail resume (no calls) to: Massy Kassinger, London Bridge Phoenix Software, Inc., 900 Intl Pkwy., Heathrow FL 32746

SOFTWARE ENGINEER, NETWORK ENGINEER, SALES MANAGER, AND BUSINESS ANALYST

Glendale based IT Company has multiple openings for Software Engineers, Network Engineers, Sales Managers, and Business Analysts. These positions may require travel throughout the U.S. For consideration please send resume and salary history to:

Trinus Corporation
330 North Brand Blvd.
Suite 324
Glendale, CA 91203

SOFT. ENG. - R'sch, dsgn, & d'lp comp. soft. Using VB, ASP, & SQL. Req'd: MS in CS, 3 yrs. exp. in job/as Prog./Anal., exp. w/ VB, ASP, & SQL, & exp. in publishing industry. Resumes: Kaplan, Inc. 888 Seventh Avenue, NY, NY 10106. Attn: P. Torres.

SENIOR SOFTWARE ENGINEER to design, develop, test and implement Data Warehousing / Business Intelligence applications using Informatica, Oracle, DB2, SQL Server, TOAD, ERWIN, Rational, Cognos-Impromptu, Business Objects, Crystal Reports, MQ-Series, UNIX Shell Scripts, PerlScripts, Syncsort and PL/SQL on UNIX, IBM Mainframe, SUN Solaris and Windows platforms. Require B.S. degree in Computer Science/Engineering, or a closely related field with 5 yrs of progressively responsible exp in the job offered or as a Programmer/Systems Analyst. Competitive salary offered. Apply by resume to: Dave Bloomquist, Global Software Development Services, Inc.,10 South 5th St., Ste 700, Minneapolis, MN 55402. Attn: Job JP

American Cybersystems, Inc., seeks exp'd. IT professionals & business analysts to analyze, design, develop, implement & deploy business systems/applications using CM-VC, CB, LISP, UDB DB2, sed, JDBC-ODBC, UML, Sun Solaris, etc. Associate Degree or B.S. or equiv. C/S or Eng'g. or MIS or Bus Admin. Please send resumes to 100 Crescent Center Pkwy., suite 200, Tucker, GA 30084.

Programmer - Analyst - Develop/document comp programs using know of C++/COM/3D Geometry designs/SQL server database, eval user req for new/modified prog, outline steps to dev prog, replace/delete/modify code to correct errors; write documentation describing prog dev/logic/coding/corrections; assist internal users to solve operating prob. Req: Bach in Engineering or Comp Sci & 2 yrs exp in job, or as Software Engineer. Resume C Piedra, Alpine Engineered Products, Inc., 1200 Park Central Blvd So. Pompano Bch, FL 33064. No calls.

Internet company seeks Ph.D. Research Engineers responsible for innovative research. Interested applicants should send resumes to: K. Wolfe; 1600 Ampitheatre Parkway; Mt. View, CA 94043. Visit www.google.com for additional information.

Abbott Laboratories in Illinois seeks qualified Systems Analysts, Database Administrators, Software Engineers, Software Specialists and Applications Programmers with experience in one or more of the following technologies: SAP, ABAP BASIS, RDBMS, SUN UNIX, Solaris, Seibel, Oracle, AS/400, PL/SQL, Visual Basic, C/C++, Windows, UNIX, SAS, HTML, XML, Java, JSP, JavaScript, Documentum, LAN, Lotus Notes Respond by mail to Abbott Laboratories, Dept. 323, Bldg. AP6D2, 100 Abbott Park Road, Abbott Park, IL 60064-32537. An EOE. Refer to ad code: IT-KE

Internet Systems Analyst: Design & develop multi-threaded, highly portable software to standardize & centralize all online news/classifieds utilizing Java, JSP, JDBC & Web Logic technologies under Visual Cafe IDE. Implement network protocols (NNTP, FTP, HTTP, TELNET, integrate & convert legacy software systems to modern shared platform in which online news/ads can be managed & shared across all company markets. perform C/C++ & Java object-oriented programming for the Internet & XML/XSL, JSP, Perl-Shell programming, perform system analyses & critical problem shooting by applying operating system knowledge of resource management, deadlock prevention & avoidance, process synchronization, network security control & resource sharing; evaluate & recommend solutions to improve system performance & functionality, provide & manage source control & code review support utilizing Star Team & Visual Cafe. Bachelor's degree in Software Engineering or Computer Science and one year experience in the position offered or one year of experience as a Software Engineer required. Experience in related occupation must include C++ & Java, object-oriented programming for the Internet, XML/XSL, JSP, Perl/Shell programming, implementing network protocols (NNTP, FTP, TELNET, HTTP); provide source control & code review support. 40 hrs./wk. 8:00am - 5:00 pm. $57450/ year. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, Florida 32302-0869. Please refer to JOFL #2573107

Consultant, Cary, NC - Provide web application programming and support using Java, JavaScript, JSP, EJB, XML, HTML and Oracle; collect and analyze data, responsible for requirements gathering, analysis, design, development, testing and implementation of web-based solution plans, schedule and monitor phases using established procedures, apply most current technological solutions to business problems, communicate with clients, support business development and proposal initiatives, apply diverse web and industry expertise in providing consulting services. Requires a Bachelors degree in Computer Science and either 2 years experience in the job offered or 2 years experience in web application development using Java, Javascript, JSP, EJB, XML, HTML and Oracle. Salary $67,860/yr. 8 AM to 5 PM, Mon-Fri. Send resume to nearest Employment Security Office or submit resume to: Employment Security Commission, 742-F East Chatham Street, Cary, NC 27511; refer to job order #NC5708164 and DOT code 030.162-014. All resumes must include applicant's social security #.

Millennium Software, Inc. has opportunities: Programmers, Systems Analysts, Software Engineers, Consultants, DBAs, Architects and Project Managers with 4 or more skills in following environments: Java, J2EE, COM/DCOM, EJB, Shell Scripts, SAS, PLC, Teatra, XML, SQL, mqPCX, PowerBuilder, Rational Rose, Relational Databases, Perl, SAP, Primavera Team Play / P3e, Teradata, MQ-Series, IMS, Adabase, Natural, Websphere, Oracle Workflow, Filenet eprocess, Flowware Workflow engine, C/C++, HTML, VisualBasic, COBOL, DCE/DFS, AutoCAD, Six-Sigma, ASP.net, Mercury Test Tools, SMS, TCP/IP, Veritas, Tivoli @ S. or M.S. degree & 1-2 yrs exp reqd depending on position. We also accept the foreign edu. equiv. Or any suitable combination of edu, training or exp. Frequent travel and relocation. Send confidential resume and salary requirements to: 2000 Town Center, Ste 300, Southfield, MI 48075. Visit our website at www.millenn.com

Computer - IT Systems Engineer, Denver, Colorado. Assist in providing systems engineering support and ensure availability of midrange Unix based, NT, and Data communications hardware platforms and environments using C, C++, COBOL, Shell, Visual Basic, Java and Pascal Programming languages. Assist in problem identification and resolution, benchmarking, monitoring, analyzing, vendor management, documenting problems, and client interface. Provide technical support relevant to Midrange and Data Communications hardware environments using knowledge of HTML, ManageX, IIS, WTS, SQL, Citrix, Cisco, TCP/IP network, and Cold Fusion network administration tools and Unix O/S, IT/O, and NT operating systems. This is an entry level systems engineering position working under close supervision of the IT Manager. Requires Bachelor of Science Degree in Computer Science, Engineering, or a related field plus one (1) year experience in the job offered or one (1)/ year of experience in the related occupation of System Administrator, IT Specialist, or Associate Systems Engineer. Working and/or theoretical knowledge of the following: C, C++, COBOL, Shell Programming, Visual Basic, Java and Pascal programming languages, HTML, ManageX, IIS, WTS, SQL, Citrix, Cisco, TCP/IP network, and Cold Fusion network administration tools. Unix O/S, IT/O, and Windows NT operating systems. $55,500.00 per year. 40 hours per week, 8:00am-5:00pm. Must have proof of legal authority to work permanently in the U.S. Application by resume only to Workforce Development Programs, P.O. Box 46547, Denver, CO 80202. Ref job # CI5097562.

Software Engineer, Temple Terrace, FL - Manage, develop and deploy distributed, transactional components in J2EE environments, design and implement workforce automation web-based applications using MVC framework, MQ Series middleware, J2EE and UNIX, configure and manage MQ Series based asynchronous applications, use UML to design applications and create use-cases, class and activity diagrams, manage Relational Databases, including DB2 and Oracle, develop applications in RMI, EJB, JSP, and Servlets on Websphere 5.0 application server, implement single sign-on technology to provide secure log-in functionality using Netegrity Siteminder. Requires Masters degree in Computer Science and either 1 yr. exp. in the job offered or 1 yr. exp. in designing and implementing web-based applications using MQ Series, middleware, J2EE and UNIX, and implementing single sign-on using Netegrity Siteminder. Salary $84,800/yr, 40 hrs/wk, 8 AM to 5 PM, Mon-Fri. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869 refer to Job Order #FL-2575510

Pegasus Consulting Group, Inc. a software consulting company in NJ has openings for Computer Professionals including Programmer/Systems Analysts, Software Engineers/Consultants, Program/Project Managers in various levels. Duties will include but not be limited to developing/designing s/w systems using various h/w, operating system tools software packages, developing web technology, client/server, ERP CRM applications using various software applications and systems. Relevant degree required or equiv of degree by way of exp. also considered. Exp candidates preferred. Send resumes to Attn: Dan Pacelli, Pegasus Consulting Group, Inc. 100 Matawan Road Suite 410 Matawan, NJ 07747.

MEGS GLOBAL SERVICES, Inc.

Multiple positions available.

Programmer - Convert project specifications & statements of problems & procedures to detailed logical flow charts for coding into computer language. Develop & write computer programs to store, locate & retrieve specific documents, data & information. May program websites. BS/BA in Comp. Sci., Engineering or related field + 1-2 yrs exp in IT industry. Will use a variety of software/hardware tools.

Programmer Analyst - Plan, develop, test & document computer programs. Evaluate user request for new or modified program, formulate plan outlining steps required to develop program, analyze review & alter program to increase operating efficiency. BS/BA in Comp Sci, Engineering or related field + 1-2 yrs. exp in IT industry. Use a variety of software/hardware tools.

Software Engineer - Research, design, develop & test operating system-level software, compilers & network distribution software. Set operational specifications and formulate & analyze software requirements. Apply principles & techniques of computer science, engineering & mathematical analysis. Analyze information to determine, recommend & plan installation of a new system or modification of an existing system. Master's degree in Comp Sci, Engineering or a related IT field + 1-2 yrs exp. Will use a variety of software/hardware tools.

Systems Analyst - Analyze science engineering, business & all other data processing problems for application to electronic data processing systems. Analyze user requirements, procedures & problems to automate or improve existing systems & review computer system capabilities, workflow & scheduling limitations. Writes & revises program and system design procedures, test procedures & quality standards. BS in Comp Sci or related field + 1-2 yrs exp in IT industry. Will use a variety of software/hardware tools.

Market Research Analyst - Research market conditions in local, regional & national areas to determine potential sales of our products and services. Collect & analyze data on customer demographics, preferences, and needs. Develop and implement procedures for identifying advertising needs. Measure & assess customer and employee satisfaction. Monitor industry statistics & follow trends in trade literature. BS/BA in Marketing, Management, Business Admin or related field + 1 yr exp.

Technical Recruiter - Seek out, interview & screen applicants to fill existing and future job openings & promote career opportunities within company. Identify & analyze market for services in software consulting, resource provisions & information technology projects. Use computer systems & ERP, RDBMS to recruit, interview & select technical staff. Negotiate contracts with software consulting companies to identify & subcontract candidates. BS/BA in Business, Management, Personnel Management, Commerce, Business Administration + 2yrs exp.

For all positions we will accept the foreign educational equivalent or any suitable combination of education, training or experience in lieu of the stated education.

ONLY QUALIFIED U.S. CITIZENS AND LAWFUL PERMANENT RESIDENTS OF THE U.S. should submit a resume & cover letter indicating position applying to. Recruit Mgr. REF. CODE CW1104, Mega Global Services Inc., 160 Technology Drive Canonsburg, PA 15317. (724) 745-7100 Website: www.megs.com Email: recruiter.cw04@megs-gsg.com

SOFTWARE ENGINEER

Lightningcast, an IT firm located in D.C., is looking for a Software Engineer to be responsible for dvlpt./support of an internet-based advertising mgmt. software system, which provides customers with web-based user interface to manage advertising campaigns. This includes campaign creation/modification, ad inventory prediction from historical data & reporting of historical data. Must also support/enhance "Dashboard" system. System dvlpt. is done in Java using Struts Framework. B.S. in Comp Sci or Computer/Electrical/Electronics Engrg. & 3 yrs. software engrg exp required. Must know C++, Java, Java Web Applications, Apache Tomcat, Struts Framework database modeling/design, database admin./tuning, Oracle, MySQL, Windows, Linux & Windows Media Technology (server encoder & client programming). 40 hr/wk, OT as required. 8am-6pm. $77,995/yr. Qualified applicants, mail resume to Rhonda Weller, Lightningcast, 1000 Potomac St. NW, Suite 125, Washington, DC 20007

Software Development Engineer (4 openings) - Ft. Lauderdale, FL. Req: Bach's degree or equiv. foreign educ. in Computer Science, Engineering, CIS or Distributed Systems. Education or exp. must include at least 3 of the following: Java, C++, XML, JavaScript, ASP.NET, Visual C++ or Windows NT operating system. Must pass company's technical review. Design and develop key elements of multi-user software enterprise applications based on Windows NT/2000 or web technology using a Sun-client or browser architecture. Design, code, test, debug and localize Windows and web applications. In a Windows environment, use Java, C++ and XML to develop GUIs, DLLs and executables. In a web environment, use JavaScript, ASP.NET and Visual C++ to develop web interfaces and applications. 40 hrs/wk. Sal. $68,000-$95,900/year. Forward resume to Workforce Program Support, PO Box 10869, Tallahassee, FL 32302-0869, Job Order #FL-2572980. EEO/AA Employer

American Information Technology Corp has several openings nationwide for Computer Professionals with at least two years of experience in the following: Power Builder, AS/400, RPG/400, Syncin, JDEdwards, PVCS, Documentum, Teradata, Webmethods, Progress, Java, Java Servlets, Bourne/C Shell Scripting, ANT, XML, Web Services on UNIX (Solaris 2.7/8/9), COM, DCOM, Suse/Red Hat Linux, J2EE, HTML, WebSphere, WSAD, JSP, Struts/Tiles, CVS, Visual Studio.net, .net XML, XML Schema API, Xpath, DOM, Visual Basic, Crystal Reports, ASP.net, ADO.net, C#, .net Enterprise Services, .net Remoting, Windows Services, LDAP, JINI, RMI, Weblogic, JavaScript, Flash 4.0, C, C++, VC++, Latus notes, CORBA, EDI/Mercator, Gentran, CGI, Perl, iPlanet Web Application Server, IIS, Net Dynamics 5.0, Weblogic Application Server, Cobol, SAS, JCL, NATURAL, Cognos, Erwin, ETL, ACTA, Segent, Informatica, Peoplesoft and its modules, SAP and its modules, BO, ColdFusion, T&CO, Oracle Financials, Datastage, Data-warehousing techniques/ tools, Informatica Powercenter, Unix shell scripts, Designer Discoverer, PL/SQL, Oracle, SQL*PLUS, SQL Loader, SQL Navigator, Source Safe, Xbase, Abinitio, CRM, Siebel Actuate, WinRunner, Load Runner, Silk, Ingress, MS Access, Informix, Oracle, Sybase, MS SQL Server, DB2, ADABAS, Easytrieve, IDMS, IMS/DB, UNIX (SUN, HP-UX, AIX, LINUX), Windows, MVS. Some positions require a Bachelors Degree; others Masters Degree. Equivalent degree and experience is also accepted. Relocation may be required. Excellent Pay & Benefits. Please indicate the position you are applying. Mail resume to: HR Dept., 222, 3rd Street SE, Ste 233, Cedar Rapids, IA 52401

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Xerox 30
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PC Rollout

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- Lotus Notes
- Macromedia and Adobe tools

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- Pentium III processor or equivalent, running at 800 MHz
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Electric Utilities Eye Broadband Rollouts

Weigh IT, business benefits against technology risks

BY THOMAS HOFFMAN
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Potential business gains cited by BPL proponents include the ability to tap existing power distribution infrastructures for new services and a steep reduction in equipment costs.

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For example, since the four hurricanes that hit Florida in August and September, Florida Power & Light Co. has replaced 2,000 miles of power lines and 13,000 poles, said Phil Slack, BPL project manager at the Juno Beach-based utility. "You have to factor that into your thinking," he said.

Slack has other concerns, too, such as the chance that above-ground power equipment may rust within months because of exposure to saltwater and humidity along the coast. "The technology isn't ready yet for Florida, but it's getting close," Slack said.

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BPA ABM

FRANK HAYES ■ FRANKLY SPEAKING

It's Your Money

LET'S SEE IF I UNDERSTAND Microsoft's new intellectual property indemnification program correctly: According to Microsoft's announcement last week, the folks in Redmond will cover the cost of litigation when any of its customers are sued because of any Microsoft products that contain copyright, patent, trademark or trade secret infringement (see story, page 18). In other words, if Microsoft breaks an intellectual property law and someone decides to sue a Microsoft customer because of it, Microsoft will pay the legal bills.

That seems fair. After all, customers have been paying Microsoft's legal bills for years.

Where did the money come from to pay the lawyers in Microsoft's losing antitrust battle with the U.S. Justice Department and 18 states? And the $3 billion that Microsoft has paid out just this year to settle various lawsuits? It all came out of the pockets of customers.

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Oh, it could happen. Suppose some litigation-happy intellectual property company like Eolas Technologies were to decide that Microsoft had violated one of its patents.

Eolas might decide that instead of suing the obvious target — the company that actually infringed on its patent, a gigantic company with hugely deep pockets that would have to pay damages on every product unit sold that infringed on Eolas' patent — it should sue some small customer, using a highly risky legal theory and with no chance of a big payoff.

How likely is that? Whoops, we already know the answer: Eolas sued Microsoft, not a customer, and won a half-billion-dollar judgment. No one knows if Eolas will ever collect, but there's no question whom Eolas is trying to collect *from*.

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FRANK HAYES. *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

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Who says Microsoft doesn't know how to invest in a new market? 50703

SHARK TANK

Not a Complete Idiot, Anyhow

This IT executive tells support pilot fish that his laptop starts booting but shuts down before Windows can load. Sounds like you're not plugged in, fish says. "I am not an idiot!" exec bellows. "I checked to make sure the laptop was plugged in at the wall and at the back of the laptop!" Fish calmly crawls under the desk, finds both those cords – and plugs them together. "Later, my boss forwarded an e-mail from the user," fish reports, "complimenting me on my technical knowledge and professional demeanor."

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User leaves exasperated voice mail for help desk pilot fish: She can't fit a CD into her CD-ROM drive, she says, and it must be defective. "When I get around to visiting her office, I find that she has one of the new small, low-profile desktop computers," says fish, "which are very sleek and symmetrical on the outside. I look at it for a few seconds, then I walk up and turn the computer over. The entire thing was sitting there upside down!"

Space: The Final Frontier

Central IT has just upgraded this site's e-mail server with a much bigger hard drive – it's big enough to give each user an extra 50MB of storage. So how could it possibly run out of space and crash a few days later? "There was no free space," grumbles local IT pilot fish. "They had created a file share for the help desk, where everyone was storing their games and personal files, leaving the mail system with even less storage than before. I destroyed the file share, and magically my mail server returned to life – but not before I changed the admin password on the box."

Of Course Not

User brings his laptop to IT pilot fish with a complaint: "It suddenly stopped working over the weekend." Fish notices that there's a big dent on one end of the case. Did you happen to drop the laptop? he asks the user, because I can see this big dent right here. "Well, I did drop it," user says. "But not on that end!"

Wonder Why?

When users report that they can no longer access the Internet, IT pilot fish checks the proxy server named, appropriately, Proxy. It checks out OK, but when he pings Proxy, he gets a response from a *different* machine. "About this time, a user who knows too much – or too little – asked how to get his new Linux box online," fish sighs. "He said, 'I know you said we need to use a proxy server to get to the Internet, so I named it Proxy. But it still doesn't work.' "

MY NAME IS STILL SHARKY. Send me your true tale of IT life at sharky@computerworld.com, and you'll get a snazzy Shark shirt if I use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at computerworld.com/sharky.

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Space: The Final Frontier

Control IT has just upgraded the e-mail server with a much bigger hard drive – it's big enough to store well over an entire DVD of storage. So how could it possibly run out of space and crash a few days later? "There was no free space," grumbles Wired IT pilot fish. "They had emailed a file about the help desk, where everyone was sending their queries and pictures of files, turning the mail system into even more slow-motion than before. I downgraded the file share, and magically my mail server returned to life – but not before I changed the admin password on the box."

Of Course Not

User brings his laptop to IT pilot fish with a complaint: "It suddenly stopped working over the weekend." Fish notices that there's a big dent on one end of the case. Did you happen to drop the laptop? he asks the user. Answer: I can see the big dent right here. "Well, I did drop it," user says. "But not on that end!"

Where? Why?

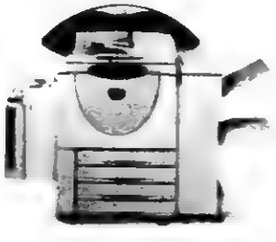
When users report that they can no longer access the Internet, IT pilot fish checks the proxy server manual, logs on to the proxy server, pings the gateway and DNS, and when the pings Pong, he gets a response from a different machine. "About this time, a user who knows how much – or too little – about how the Internet works," fish sighs, "will ask, 'I know you said we need to use a proxy server to get to the Internet, so I entered it. Pong. But it still doesn't work.'"

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Best Buy Hit With Lawsuit Over Layoffs of IT Workers

Retailer denies claims of age discrimination by 44 ex-employees

BY CAROL SLIWA

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Walstrom was one of 44 former Best Buy IT workers who filed a class-action lawsuit last Wednesday claiming that the Richfield, Minn.-based electronics retailer engaged in a pattern of age discrimination in terminating their jobs. The plaintiffs range from 40 to 71 years old, and their average age is 51, according to the lawsuit, which was filed in U.S. District Court in Minnesota.

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FTC Charges Firms Over Web Breaches

Action may portend further security, privacy crackdowns

BY JAIKUMAR VIJAYAN

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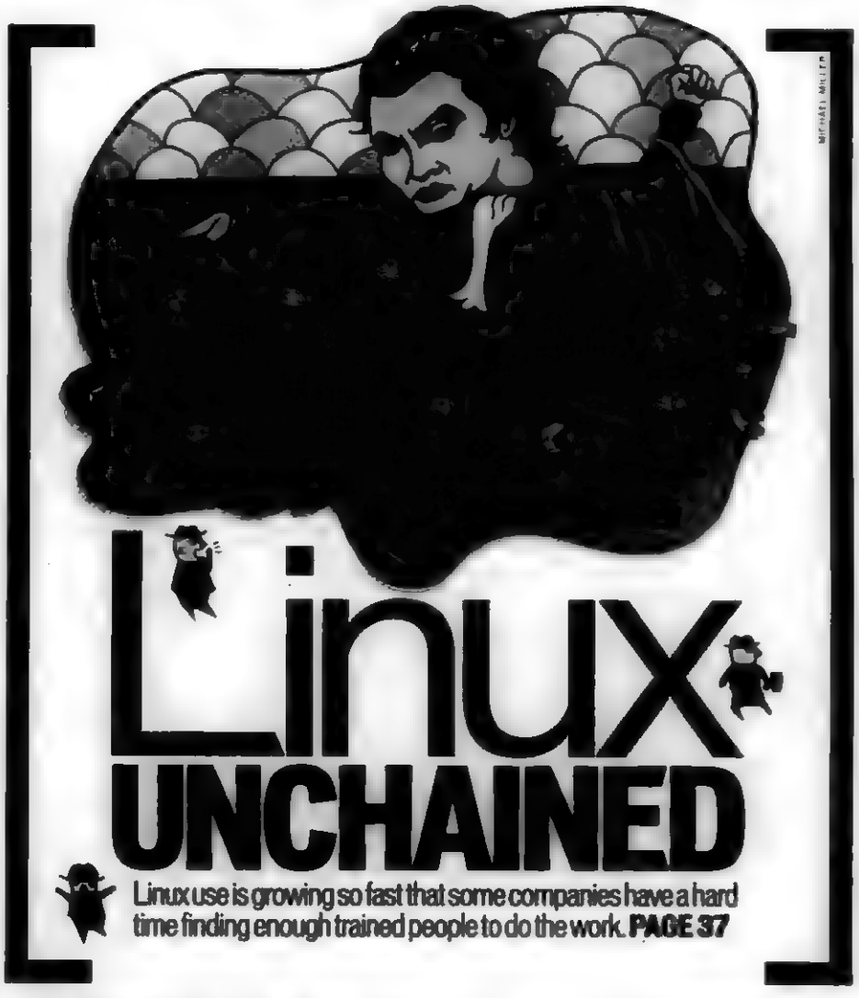
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The charge against Petco

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Linux UNCHAINED

Linux use is growing so fast that some companies have a hard time finding enough trained people to do the work. **PAGE 37**

$50M SAP Rollout Runs Into Trouble in Tacoma

Added costs, snafus mar big-bang project

BY MARC L. SONGINI

Cost overruns, glitches and other bumps hit during a $50 million-plus rollout of SAP AG's ERP, CRM and other business applications in the city of Tacoma, Wash., have generated a storm of bad press and end-user complaints, and a call from a city councilor for an audit to determine the causes of the problems.

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Some Tacoma administrators said they believe that overall, the year-old implementation of SAP R/3 has been successful. But they acknowledged that complaints about the system's payroll, billing, budgeting and customer service performance have proved to be a thorny problem.

Moreover, the city has had to pay nearly $700,000 to Tacoma-based integrator TUI

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David Moschella pinpoints the forces threatening IT's long period of relative stability. PAGE 22



Jerry McElhatton, MasterCard's retiring IT chief, says it's OK to have some fun while staying on top of technology. PAGE 14

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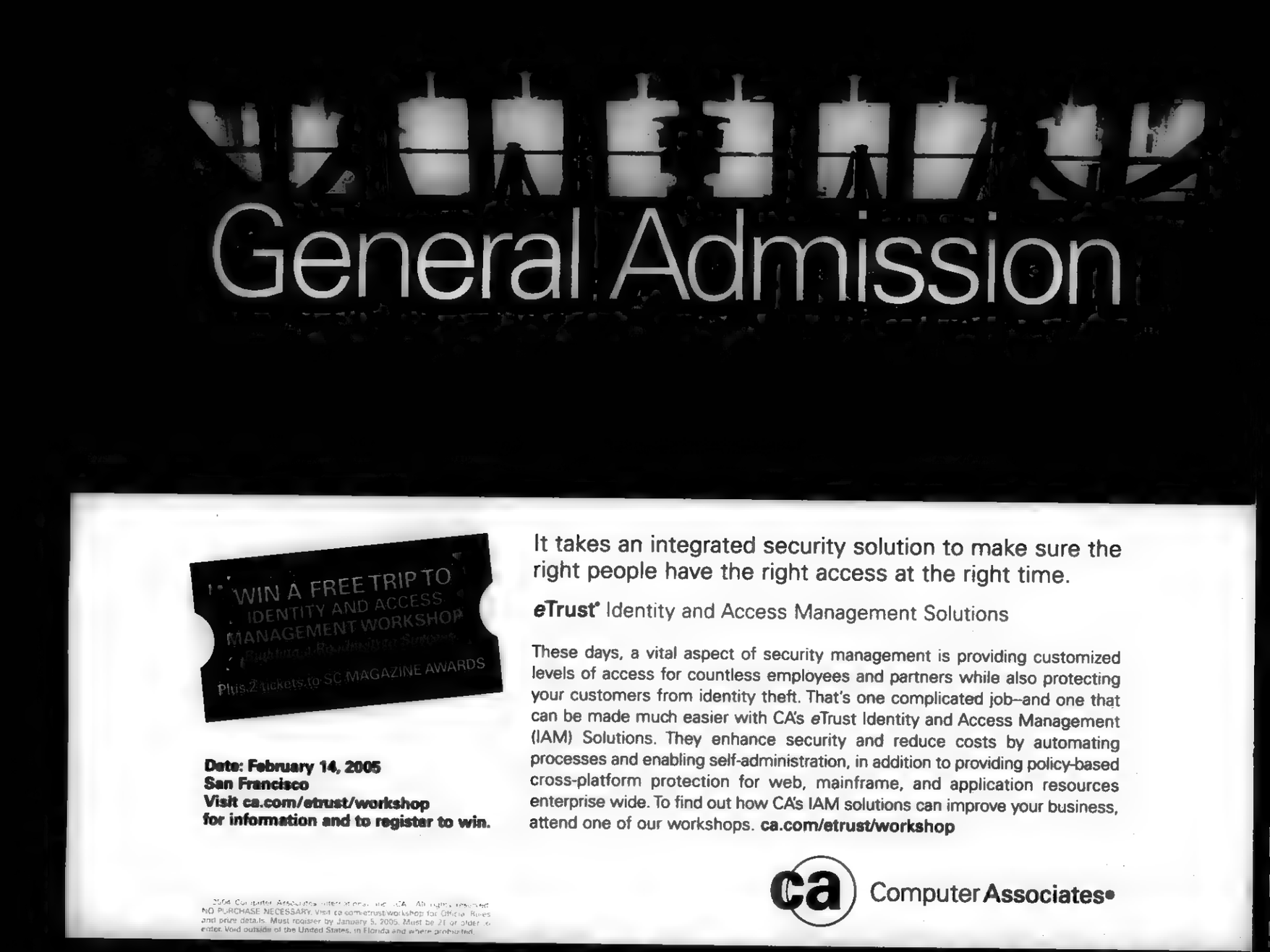
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The 21st Century CIO

CAREERS: Korn/Ferry International's Mark Polansky discusses 10 key issues CIOs will be dealing with in the years ahead as their role continues to evolve within the corporate structure. **QuickLink 50030**

Convenience or Security?

E-BUSINESS: Consumers want easy access *and* safety, but more of one usually means less of the other. Columnist Larry Ponemon delves into survey results to help you strike a balance your customers will accept. **QuickLink 50068**

VoIP Checklist

SECURITY: Voice over IP opens voice communications to the same types of security threats that expose data transfer to attacks, says Sharon Besser of Check Point Software Technologies. But there are steps you can take to safeguard your network. **QuickLink 49988**

Pitfalls of Storage Management

STORAGE: Systems architect Mark W. Bradley takes a look at tools that can help administrators avoid common data management errors. **QuickLink 49836**

Hands On: Streaming Media To 2.5/3G Cell Phones

MOBILE/WIRELESS: During a consulting project, columnist Yuval Kossovsky evaluates and sets up streaming servers and their accompanying systems. **QuickLink 50070**

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AT DEADLINE

SAP Backtracks From Profit Promise

SAP AG Chief Financial Officer Werner Brandt last week backtracked from earlier statements that margins would reach 30% by 2006. Brandt told a gathering of financial analysts in Barcelona, Spain, that SAP "may need an additional year" to focus on growing market share and sales.

Linux Sales Boost Novell Results

Novell Inc. credited improved Linux sales and favorable exchange rates for improved financial results during the fourth quarter that ended Oct. 31. CEO Jack Messman said he expects Linux sales to "counterbalance" a decline in NetWare sales next year.

NOVELL BY THE NUMBERS

Q4 '04	$301M	$13M
Q4 '03	$287M	($109M)

U.K. May Scrap EDS Project

Continuous failures in an ill-fated $800 million welfare case management and telephony system developed in large part by Electronic Data Systems Corp. forced the head of the U.K.'s Child Support Agency to step down from his job last week. U.K. officials will make a "quick decision" on whether to scrap the problematic project [QuickLink 49246].

Ballmer Warns Asia Leaders on Linux

Microsoft Corp. CEO Steve Ballmer last week warned Asian governments that they could face patent lawsuits for using Linux instead of Windows to run systems. The speech to government leaders in Singapore came after Singapore's Ministry of Defense switched 20,000 PCs from Windows to open-source software, and China, Japan and South Korea agreed to jointly develop applications for Linux.

Solaris 10 Tests Yield Performance Gains

Users rave; FedEx says OS rekindles interest in Sun

BY PATRICK THIBODEAU
SAN JOSE

WHILE SUN Microsystems Inc. officially launched Solaris 10 here last week, the future prospects of the operating system — and perhaps of Sun itself — were being judged many miles away by early users such as the Philadelphia Stock Exchange and FedEx Corp.

Those organizations, which are longtime Sun shops, have been testing Solaris 10. And IT managers at both FedEx and the stock exchange said they're pleased with what the operating system has delivered thus far.

Prior to the development of Solaris 10, interest in Sun's systems "was somewhat dwindling" at FedEx, said Don Fike, the Memphis-based company's technical director. But now that FedEx's IT staffers have evaluated the new software, "interest is extremely high — a major shift here," he said.

Fike added that as a result of Solaris 10, FedEx's use of Sun servers, which run many of its mission-critical systems, would at least stay the same and might even expand.

Many of the major features built into Solaris 10 have been available for testing for some time. Over the past 18 months, Sun has gradually released large parts of the operating system, and the initial version is already available in full to users who participate in Sun's Software Express preview program. Commercial shipments are due by the end of January.

Key improvements include faster networking technology that Sun has built into the TCP/IP stack. Fike said the networking enhancements have "dramatically improved" the performance of network-intensive applications that run on Solaris-based systems at FedEx.



Another feature that Fike said is particularly valuable is a tool called Solaris Dynamic Tracing, or DTrace for short. DTrace lets users examine how applications interact with Solaris 10, and Fike said he has been able to identify performance problems in live code within 15 minutes by using the tool — regardless of which third-party application may be running.

IT executives at Philadelphia Stock Exchange Inc. said the networking improvements, coupled with the application-tuning capabilities of DTrace, have increased performance on their servers to such an extent that they expect to be able to reduce the amount of Sun hardware they need to maintain.

For instance, a trading application that currently runs on a 12-CPU Sun Fire 6800 server performed better when it was tested on a four-CPU Sun Fire 4800 equipped with Solaris 10.

Without the performance gains made possible by Solaris 10, the exchange faced the prospect of buying additional Sun machines to help support a new electronic options-trading system, said Thomas Wittman, senior vice president of trading system development. It was either that or "take a look at something else, whatever that something else might be," he said.

The exchange also plans to test new Solaris 10 features, such as a partitioning technology called Solaris Containers that's designed to boost system utilization.



"We think all that has a lot of promise for us," CIO Bill Morgan said of Solaris 10 as a whole.

Sun is addressing performance deficiencies that the software had when users tried to run it on smaller systems, said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H. "Sun was very focused on big-iron performance and scalability," he noted.

But not every new feature will be ready when Solaris 10 is released. Sun said a technology code-named Janus, which will let Linux applications run natively on Solaris-based systems, and a 128-bit file system called ZFS are due to be added later in the first quarter. **50944**

Sun to Indemnify Open-Source Solaris Users

SAN JOSE

Sun last week said it will indemnify customers who use its upcoming open-source Solaris 10 code from any legal claims. Indemnification is a particularly pointed issue for Sun, which last month agreed to pay $92 million to settle a patent infringement lawsuit filed by Eastman Kodak Co. in 2002.

Sun settled the case shortly after a federal jury in New York ruled that the company's Java technology violated three patents held by Kodak [QuickLink 49832]. But open-source Solaris users won't face their own "Kodak moment," Scott McNealy, Sun's chairman and CEO, said at the Solaris 10 launch announcement here.

Indeed, both McNealy and Jonathan Schwartz, Sun's president and chief operating officer, were adamant on the issue and said they have heard from corporate CIOs who are concerned that open-source Solaris could create some legal risks or somehow affect customer service and support. "We're saying, 'Don't worry,'" McNealy said.

Sun plans to detail its open-source licensing model within 45 to 60 days, and Schwartz said two weeks ago that the open-source code will become fully available in next year's first quarter [QuickLink 50749].

Sun is attempting to drive more interest in the x86 version of Solaris by allowing users and software developers to directly compare it with Linux via the open-source plan.

Illuminata analyst Gordon Haff said he's not sure that an open-source Solaris will be enough to slow down migrations to Linux. But, he noted, Solaris offers tools that aren't built into Linux, such as Sun's virtualization and file management capabilities.

– Patrick Thibodeau

Kmart, Sears Expect to Gain IT Efficiencies From Merger

But reconciling IT systems will be tall order, analysts say

BY CAROL SLIWA

Kmart Holding Corp. and Sears, Roebuck and Co. claimed that the planned merger they announced last week will broaden their retail presence and make their procurement, marketing, IT and supply chain management operations more efficient.

But the marriage could require a daunting amount of IT work, depending on the degree to which the retailers decide to go to common systems, said several retail technology analysts.

One key part of the strategic plan, for instance, calls for many of Kmart's retail locations to be converted to Sears stores as the latter operation tries to branch out from its base in shopping malls.

Sears previously agreed to buy 50 stores from Kmart, and Sears CEO Alan Lacy, who will be vice chairman and CEO of the new Sears Holdings Corp., said last week that "several hundred" Kmart stores could be switched over altogether.

But the conversion could require "dramatic" IT changes, said Stephen Smith, an analyst at Gartner Inc. "We could find that they're more compatible than is often the case [with retailers], but there is a big risk that this will be far more challenging than they're promoting today," he said.

Not surprisingly, the two companies have accumulated plenty of different systems. At the store level, Kmart in 2001 announced that it was buying IBM SurePOS 700 cash registers running the vendor's point-of-sale operating system.

Earlier this year, Sears said it planned to install newer SurePOS machines running 360Commerce Inc.'s POS software on Microsoft Corp.'s Windows XP Embedded operating system.

But the greatest challenge won't lie with the in-store IT systems, according to John Fontanella, an analyst at The Yankee Group in Boston. He said the real problem will be with back-office applications at headquarters, including the merchandising, inventory planning and supply chain software. "From a process perspective, if you're going to start saving money, you've got to standardize on one distribution network," Fontanella said.

Kmart and Sears, which expect to complete the stock-swap transaction by March, declined to comment on their future IT plans. A spokesman for Sears said only that the two companies will "do a thorough analysis of both organizations and determine the best path toward integration."



When it merged with Lands' End Inc. in 2002, Sears decided not to combine IT operations.

Sears has been more aggressive then Kmart in pursuing new IT initiatives during the past two years. Last spring, Sears CIO Gerald Kelly Jr. orchestrated a 10-year, $1.6 billion IT outsourcing deal with Computer Sciences Corp. And during the third quarter, Sears signed a licensing deal with JDA Software Group Inc. for an integrated set of tools to assist with merchandise management as well as planning and forecasting.

Kmart last week launched a redesigned Web site that its e-commerce team built with Fry Inc. But other than that, major IT initiatives have been sparse for Karen Austin, who became Kmart's CIO in April 2002. "We were in bankruptcy for a lot of Karen's tenure," a Kmart spokeswoman said. She added that Kmart is "getting back to business" after emerging from bankruptcy protection in May.

Long-standing IT woes contributed to Kmart's business problems. The company tried to reverse years of constrained IT spending with a two-year, $1.4 billion investment in May 2000. But by the time it filed for bankruptcy protection in January 2002, Kmart found itself without a CIO and struggling to fix its supply chain system and replace an extensively modified warehouse management system.

"Kmart has really been in survival mode," said Rob Garf, an analyst at AMR Research Inc. He and other analysts said it would make sense for the retailers to head in the IT direction of Sears. "The combined entity needs to continue the momentum that Sears has gained over the last couple of years," Garf said. "It's important for them not to slow that process down." ● 50043

Oracle Sets Quarterly Software Patching Plan

BY JAIKUMAR VIJAYAN

Oracle Corp. last week said it's moving to a quarterly patch release schedule in response to demands from users for a more predictable process of applying security fixes to its software.

The move comes amid continuing criticism by consulting firm Gartner Inc. of the way Oracle handled a major security update for its database and application server software in August. But an Oracle spokeswoman said the company's announcement was only "tangentially related" to Gartner's release two weeks ago of a research note that blasted Oracle over the August patch.

The first set of patches under the quarterly approach is scheduled to be released in January. New patches will be issued every three months and will include all previous fixes for the same products.

Mary Ann Davidson, Oracle's chief security officer, said during a teleconference that the new Critical Patch Update program should let users better plan for security fixes while not exposing them to undue risks. "Based on a lot of discussions [with users], we feel confident that this will strike a good balance," Davidson said, adding that all of Oracle's major products will be covered under the program.

Oracle's adoption of a regular patching schedule "is going to make it a lot easier for companies to plan for these [fixes]," said Rich Niemiec, a former president of the International Oracle Users Group and the CEO of TUSC, a Chicago-based Oracle technology consulting firm.

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Lindstrom concurred with Oracle's reasoning. He said Gartner is assuming that "bad guys always know more than the good guys" about software vulnerabilities, when that's not necessarily the case. ● 50041

AT DEADLINE

SAP Backtracks From Profit Promise

SAP AG Chief Financial Officer Werner Brandt last week backtracked from earlier statements that margins would reach 30% by 2006. Brandt told a gathering of financial analysts in Barcelona, Spain, that SAP "may need an additional year" to focus on growing market share and sales.

Linux Sales Boost Novell Results

Novell Inc. credited improved Linux sales and favorable exchange rates for improved financial results during the fourth quarter that ended Oct. 31. CEO Jack Messman said he expects Linux sales to "counterbalance" a decline in NetWare sales next year.

NOVELL BY THE NUMBERS

REVENUE	[redacted]
Q4 '04	
Q4 '03	

U.K. May Scrap EDS Project

Continuous failures in an ill-fated $800 million welfare case management and telephony system developed in large part by Electronic Data Systems Corp. forced the head of the U.K.'s Child Support Agency to step down from his job last week. U.K. officials will make a "quick decision" on whether to scrap the problematic project [QuickLink 49246].

Ballmer Warns Asia Leaders on Linux

Microsoft Corp. CEO Steve Ballmer last week warned Asian governments that they could face patent lawsuits for using Linux instead of Windows to run systems. The speech to government leaders in Singapore came after Singapore's Ministry of Defense switched 20,000 PCs from Windows to open-source software, and China, Japan and South Korea agreed to jointly develop applications for Linux.

Solaris 10 Tests Yield Performance Gains

Users rave; FedEx says OS rekindles interest in Sun

BY PATRICK THIBODEAU
SAN JOSE

WHILE SUN Microsystems Inc. officially launched Solaris 10 here last week, the future prospects of the operating system — and perhaps of Sun itself — were being judged many miles away by early users such as the Philadelphia Stock Exchange and FedEx Corp.

Those organizations, which are longtime Sun shops, have been testing Solaris 10. And IT managers at both FedEx and the stock exchange said they're pleased with what the operating system has delivered thus far.

Prior to the development of Solaris 10, interest in Sun's systems "was somewhat dwindling" at FedEx, said Don Fike, the Memphis-based company's technical director. But now that FedEx's IT staffers have evaluated the new software, "interest is extremely high — a major shift here," he said.

Fike added that as a result of Solaris 10, FedEx's use of Sun servers, which run many of its mission-critical systems, would at least stay the same and might even expand.

Many of the major features built into Solaris 10 have been available for testing for some time. Over the past 18 months, Sun has gradually released large parts of the operating system, and the initial version is already available in full to users who participate in Sun's Software Express preview program. Commercial shipments are due by the end of January.

Key improvements include faster networking technology that Sun has built into the TCP/IP stack. Fike said the networking enhancements have "dramatically improved" the performance of network-intensive applications that run on Solaris-based systems at FedEx.



MORGAN says Solaris 10 "has a lot of promise" for the exchange.

Another feature that Fike said is particularly valuable is a tool called Solaris Dynamic Tracing, or DTrace for short. DTrace lets users examine how applications interact with Solaris 10, and Fike said he has been able to identify performance problems in live code within 15 minutes by using the tool — regardless of which third-party application may be running.

IT executives at Philadelphia Stock Exchange Inc. said the networking improvements, coupled with the application-tuning capabilities of DTrace, have increased performance on their servers to such an extent that they expect to be able to reduce the amount of Sun hardware they need to maintain.

For instance, a trading application that currently runs on a 12-CPU Sun Fire 6800 server performed better when it was tested on a four-CPU Sun Fire 4800 equipped with Solaris 10.

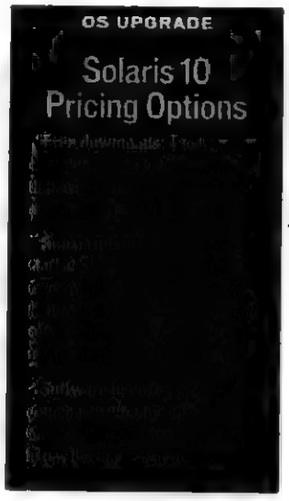
Without the performance gains made possible by Solaris 10, the exchange faced the prospect of buying additional Sun machines to help support a new electronic options-trading system, said Thomas Wittman, senior vice president of trading system development. It was either that or "take a look at something else, whatever that something else might be," he said.

The exchange also plans to test new Solaris 10 features, such as a partitioning technology called Solaris Containers that's designed to boost system utilization.

"We think all that has a lot of promise for us," CIO Bill Morgan said of Solaris 10 as a whole.

Sun is addressing performance deficiencies that the software had when users tried to run it on smaller systems, said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H. "Sun was very focused on big-iron performance and scalability," he noted.

But not every new feature will be ready when Solaris 10 is released. Sun said a technology code-named Janus, which will let Linux applications run natively on Solaris-based systems, and a 128-bit file system called ZFS are due to be added later in the first quarter. **50944**



Sun to Indemnify Open-Source Solaris Users

SAN JOSE

SUN last week said it will indemnify customers who use its upcoming open-source Solaris 10 code from any legal claims. Indemnification is a particularly pointed issue for Sun, which last month agreed to pay $92 million to settle a patent infringement lawsuit filed by Eastman Kodak Co. in 2002.

Sun settled the case shortly after a federal jury in New York ruled that the company's Java technology violated three patents held by Kodak [QuickLink 49832]. But open-source Solaris users won't face their own "Kodak moment," Scott McNealy, Sun's chairman and CEO, said at the Solaris 10 launch announcement here.

Indeed, both McNealy and Jonathan Schwartz, Sun's president and chief operating officer, were adamant on the issue and said they have heard from corporate CIOs who are concerned that open-source Solaris could create some legal risks or somehow affect customer service and support. "We're saying, 'Don't worry,'" McNealy said.

Sun plans to detail its open-source licensing model within 45 to 60 days, and Schwartz said two weeks ago that the open-source code will become fully available in next year's first quarter [QuickLink 50749].

Sun is attempting to drive more interest in the x86 version of Solaris by allowing users and software developers to directly compare it with Linux via the open-source plan.

Illuminata analyst Gordon Haff said he's not sure that an open-source Solaris will be enough to slow down migrations to Linux. But, he noted, Solaris offers tools that aren't built into Linux, such as Sun's virtualization and file management capabilities.

- Patrick Thibodeau

Kmart, Sears Expect to Gain IT Efficiencies From Merger

But reconciling IT systems will be tall order, analysts say

BY CAROL SLIWA

Kmart Holding Corp. and Sears, Roebuck and Co. claimed that the planned merger they announced last week will broaden their retail presence and make their procurement, marketing, IT and supply chain management operations more efficient.

But the marriage could require a daunting amount of IT work, depending on the degree to which the retailers decide to go to common systems, said several retail technology analysts.

One key part of the strategic plan, for instance, calls for many of Kmart's retail locations to be converted to Sears stores as the latter operation tries to branch out from its base in shopping malls.

Sears previously agreed to buy 50 stores from Kmart, and Sears CEO Alan Lacy, who will be vice chairman and CEO of the new Sears Holdings Corp., said last week that "several hundred" Kmart stores could be switched over altogether.

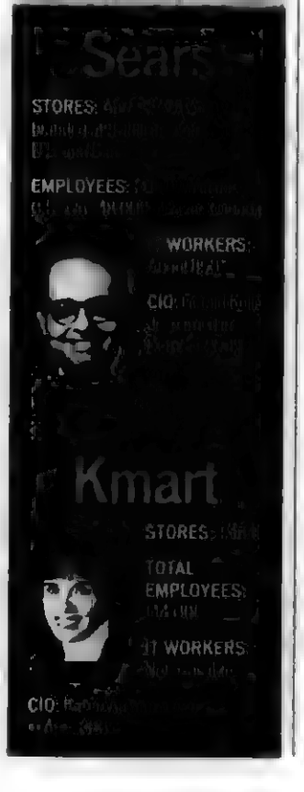
But the conversion could require "dramatic" IT changes, said Stephen Smith, an analyst at Gartner Inc. "We could find that they're more compatible than is often the case [with retailers], but there is a big risk that this will be far more challenging than they're promoting today," he said.

Not surprisingly, the two companies have accumulated plenty of different systems. At the store level, Kmart in 2001 announced that it was buying IBM SurePOS 700 cash registers running the vendor's point-of-sale operating system.

Earlier this year, Sears said it planned to install newer SurePOS machines running 360Commerce Inc.'s POS software on Microsoft Corp.'s Windows XP Embedded operating system.

But the greatest challenge won't lie with the in-store IT systems, according to John Fontanella, an analyst at The Yankee Group in Boston. He said the real problem will be with back-office applications at headquarters, including the merchandising, inventory planning and supply chain software. "From a process perspective, if you're going to start saving money, you've got to standardize on one distribution network," Fontanella said.

Kmart and Sears, which expect to complete the stock-swap transaction by March, declined to comment on their future IT plans. A spokesman for Sears said only that the two companies will "do a thorough analysis of both organizations and determine the best path toward integration."



When it merged with Lands' End Inc. in 2002, Sears decided not to combine IT operations.

Sears has been more aggressive then Kmart in pursuing new IT initiatives during the past two years. Last spring, Sears CIO Gerald Kelly Jr. orchestrated a 10-year, $1.6 billion IT outsourcing deal with Computer Sciences Corp. And during the third quarter, Sears signed a licensing deal with JDA Software Group Inc. for an integrated set of tools to assist with merchandise management as well as planning and forecasting.

Kmart last week launched a redesigned Web site that its e-commerce team built with Fry Inc. But other than that, major IT initiatives have been sparse for Karen Austin, who became Kmart's CIO in April 2002. "We were in bankruptcy for a lot of Karen's tenure," a Kmart spokeswoman said. She added that Kmart is "getting back to business" after emerging from bankruptcy protection in May.

Long-standing IT woes contributed to Kmart's business problems. The company tried to reverse years of constrained IT spending with a two-year, $1.4 billion investment in May 2000. But by the time it filed for bankruptcy protection in January 2002, Kmart found itself without a CIO and struggling to fix its supply chain system and replace an extensively modified warehouse management system.

"Kmart has really been in survival mode," said Rob Garf, an analyst at AMR Research Inc. He and other analysts said it would make sense for the retailers to head in the IT direction of Sears. "The combined entity needs to continue the momentum that Sears has gained over the last couple of years," Garf said. "It's important for them not to slow that process down." 50943

Oracle Sets Quarterly Software Patching Plan

BY JAIKUMAR VIJAYAN

Oracle Corp. last week said it's moving to a quarterly patch release schedule in response to demands from users for a more predictable process of applying security fixes to its software.

The move comes amid continuing criticism by consulting firm Gartner Inc. of the way Oracle handled a major security update for its database and application server software in August. But an Oracle spokeswoman said the company's announcement was only "tangentially related" to Gartner's release two weeks ago of a research note that blasted Oracle over the August patch.

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BRIEFS

EDS Reports Weak Results for Q3

Electronic Data Systems Corp. blamed the delayed Navy/Marine Corps intranet project and other woes for the weak third-quarter financial results it reported last week. The report was delayed several times because of accounting issues. EDS is also restating its third and fourth quarters of 2003.

EDS BY THE NUMBERS

REVENUE	
Q3 '04	$5BBM
Q3 '03	$5BM

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Retek Buys Syncra To Extend CRM Line

Retek Inc. in Minneapolis last week acquired the assets of Syncra Systems Inc. in Waltham, Mass., for less than $5 million in cash in order to expand its line of supply chain management tools. The Syncra tools let retailers work with suppliers on promotion planning, consumer demand forecasting and inventory management.

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Seagate Technology LLC last week released a 400GB hard disk drive targeted at PCs. The drive is the fourth member of Seagate's Barracuda 7200.8 series and includes versions with an Ultra ATA/100 interface and a Serial ATA interface. The speed of the disc is 7,200 rpm, with an average seek time of 8 milliseconds. Pricing wasn't disclosed.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



Open-Source Vendor Sweetens CRM Pot . . .

. . . with Sugar Cubes – two, to be precise. SugarCRM Inc. in Cupertino, Calif., began shipping the alpha version of its open-source Sugar Sales Professional software in the spring, released the product commercially in September [QuickLink 49314] and made Version 2.0 available last month. This week the speedy vendor delivers a pair of preconfigured, Linux-based appliances called Sugar Cubes. The 1005 costs $4,495 and can handle up to 100 users, and the 3005 starts at $7,995 and can support up to 400 people. SugarCRM's software runs on the "LAMP stack" of Linux, Apache, MySQL and PHP. The entire application was written in PHP, which gives it exceptional performance, says Jacob Taylor, SugarCRM's vice president of engineering and co-founder. In fact, the company is so proud of the software's performance that with each page refresh, it displays the response time. If you get tired of paying the annual support fee of $239 per user for Sugar Sales Professional, you can simply stop — and keep your data, the application and, of course, the source code, which can be customized by your own PHP gurus to your heart's content. Tara Smith, SugarCRM's director of marketing, claims that gives her company a big edge over Salesforce.com Inc. "If you leave Salesforce, you get your data but not the app to run it," she says.


Sugar Cube: One lump or two?

Security tool's link to Remedy . . .

. . . can help IT staffers manage and fix network vulnerabilities. By year's end, Solutionary Inc. in Omaha plans to complete pilot tests of integration hooks to BMC Software Inc.'s Remedy IT help desk tools. The hooks are being built into an upgrade of its ActiveGuard Security Management service, which monitors systems for security vulnerabilities. Remedy users will be able to get a prioritized list of security problems that ActiveGuard finds and then use the information to issue trouble tickets to the appropriate IT workers. IT security personnel don't always know who's the best choice to fix a problem, says Mike Hrabik, Solutionary's chief technology officer. So, he argues, it's essential to correct known security problems through an established IT management process, such as Remedy-generated trouble tickets. That can be particularly important after a company does a large-scale vulnerability assessment, which often reveals thousands of security holes. "How do you bubble up the things you need to do first?" Hrabik asks. "And how do get the right people to fix them?" ActiveGuard will answer the first question, he says, and the second can be resolved through the integration with Remedy. Shipments are expected to begin in the first half of next year.


HRABIK: Link security tools to help desk apps.

The more (variables), the merrier . . .

. . . the results will be for users of business intelligence tools. But that's difficult to achieve with BI models that can take weeks to create and still include only a handful of variables. And most users find themselves having to rely on such models now, claims Joerg Rathenberg, vice president of marketing and communications at San Francisco-based KXEN Inc. In contrast, he says, his company's KXEN Analytic Framework tools use advanced modeling techniques based on the statistical learning theories of Vladimir Vapnik, a Russian-born mathematician who is now a research fellow at NEC Laboratories America Inc. and a professor of computer science at Columbia University in New York. KXEN's software can automatically build predictive models with hundreds or even thousands of variables, according to Rathenberg. He says it can take up to three weeks for a statistician using conventional tools to create a working model that business analysts can use to find "rules" among the information in a data warehouse. "We can do three or four models a day," he says. Release 3.11 is due next month with new association capabilities that rank the most relevant rules divined from BI queries.

Antispam software market heats up . . .

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$1.7B
Radicati Group Inc.'s estimate of 2008 antispam market

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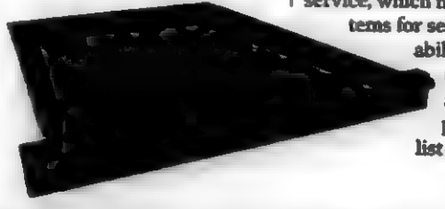


MATTHEW FAULKNER

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$1.7B
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Users Say Nortel Continues To Deliver, Despite Problems

Financial review raises concerns but isn't seen as reason to abandon vendor

BY MATT HAMBLEN

TEN LONGTIME customers of Nortel Networks Corp. said last week that they want the networking equipment vendor to wrap up its yearlong internal accounting probe as soon as possible. But they all said they're still committed to using its products.

On Nov. 11, Nortel again delayed the release of its financial results for 2003 and the first half of this year, saying it would need another 30 to 60 days to complete its review of revenue recognition issues and other matters dating back to 1999. Financial analysts reacted sharply, with some of them warning that the continuing delays could cause Nortel to be delisted by stock exchanges in Toronto and New York.

Users such as Mike Hazdra, telecommunications manager at Benedictine University in Lisle, Ill., said they are well aware of the latest financial update from Nortel. Hazdra described the new delay as "a fiasco" for Nortel and said it makes him "wonder what's going on" at the Brampton, Ontario-based vendor.

"It has made me a less-staunch Nortel supporter, even though their technology is really good," Hazdra said. But he added that Nortel still offers "the best phone system you can buy" and that a stock delisting or even more dire developments at Nortel likely wouldn't affect him immediately. "If that happens, I'll still have a Nortel switch and can still get replacement parts for it," he said. "I'll have it sitting here until it rusts."

Grant Eberlin, manager of IT at NRI Industries Inc., a maker of recycled rubber products in Toronto, said he also has grown more concerned about Nortel as the accounting probe has been prolonged.

"These circumstances must be distracting the company from carrying out its business strategy," said Eberlin, who has used the company's Meridian voice switch and other gear since 1992. "How can you have your eyes on the ball of getting out there with products when you're fighting your financials?"

Potential Fallout

Caren Hart, a board member of the Chicagoland Nortel Networks Users Association, said she worries about reduced support from Nortel if there is further fallout from the probe. Hart is a telecom manager at an insurance company that she asked not be identified. It uses Nortel products in 54 offices nationwide.

> **"We feel [Nortel is] a strong engineering company, and the proof is that they continue to deliver, even during this difficult time."**
>
> GREG BRITZ, MANAGER OF TELECOM ENGINEERING, BNSF

On the other hand, Margaret Rettig, a telecommunications manager at a global manufacturing company, said the internal probe hasn't had any adverse impact on the level of service she receives from the company.

"If anything, Nortel has been much more attentive to us," added Rettig, who also asked that her company not be named. She is a board member of the Chicago-based International Nortel Networks Users Association, which includes the Chicagoland chapter and 69 other regional groups.

The Burlington Northern and Santa Fe Railway Co. uses Nortel products throughout its networks. Greg Britz, BNSF's manager of telecom engineering, said IT executives at the Fort Worth, Texas-based company recently were told by outside technology analysts that Nortel is still a solid vendor.

The analysts did say that if Nortel's revenue fell significantly, it could affect the company's ability to develop new products. "But our experience over the last two years with Nortel has been quite good," Britz said. "We feel they're a strong engineering company, and the proof is that they continue to deliver, even during this difficult time." **50906**

MORE ONLINE

Nortel says that despite its financial troubles, customers aren't pulling contracts:
QuickLink 50910
www.computerworld.com

Four Vendors Team Up On Standardized Linux

Red Hat and Novell decline to join with second-tier firms

BY TODD R. WEISS

Four small Linux vendors last week said they're joining together to create a common code base in an effort to attract more independent software vendors and hardware makers to support their versions of the open-source operating system.

The four companies are Conectiva SA, MandrakeSoft SA, Progeny Linux Systems Inc. and Turbolinux Inc. Progeny has headquarters in Indianapolis, while Conectiva, Mandrakesoft and Turbolinux are based in Brazil, France and Japan, respectively.

Linux market leaders Red Hat Inc. and Novell Inc. both declined invitations to take part in the joint initiative. A Novell spokesman said company officials are supportive of the new group, but "at this point, we're simply giving them moral support."

Ian Murdock, chief strategist and co-founder of Progeny and a founder of the Debian open-source project, said the idea behind the Linux Core Consortium is to help reduce incompatibilities for users and independent software vendors by building a single code base that's compliant with the Linux Standard Base 2.0 specifications.

Individually, the four companies don't have the clout or customer base to attract strong interest from software and server makers, Murdock said. They hope to change that by developing the common set of core binaries, which is due to be available for incorporation into their operating systems in next year's first quarter.

But the vendor group has its work cut out for it, said Stacey Quandt, an analyst at Robert Frances Group Inc. in Westport, Conn. "I understand what they're doing," Quandt said. She predicted, though, that the effort "will have limited success" because Red Hat and Novell's SUSE Linux unit already offer independent software vendors the Linux platforms they need to support.

Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H., said he also doesn't expect the Linux consortium to attract a huge amount of interest from the software vendors. "I'm skeptical it's going to make a big difference," he said, noting that many of the vendors don't want to support more than one or two Linux brands.

Different Outlooks

Murdock acknowledged that the presence of Red Hat and Novell would "make the result of the initiative stronger." But he said it's understandable that they don't feel the same need to join in as the other vendors do. "They're probably happier with the current situation than the rest of us," he said. "But we firmly believe that situation isn't in the best interest of the industry in the long haul. We hope they come to thinking the same way."

The Linux Core Consortium is reminiscent of UnitedLinux, a joint initiative that was set up in May 2002 by Conectiva, Turbolinux, Caldera International Inc. and SUSE Linux AG prior to its acquisition by Novell. Caldera has since renamed itself The SCO Group Inc.

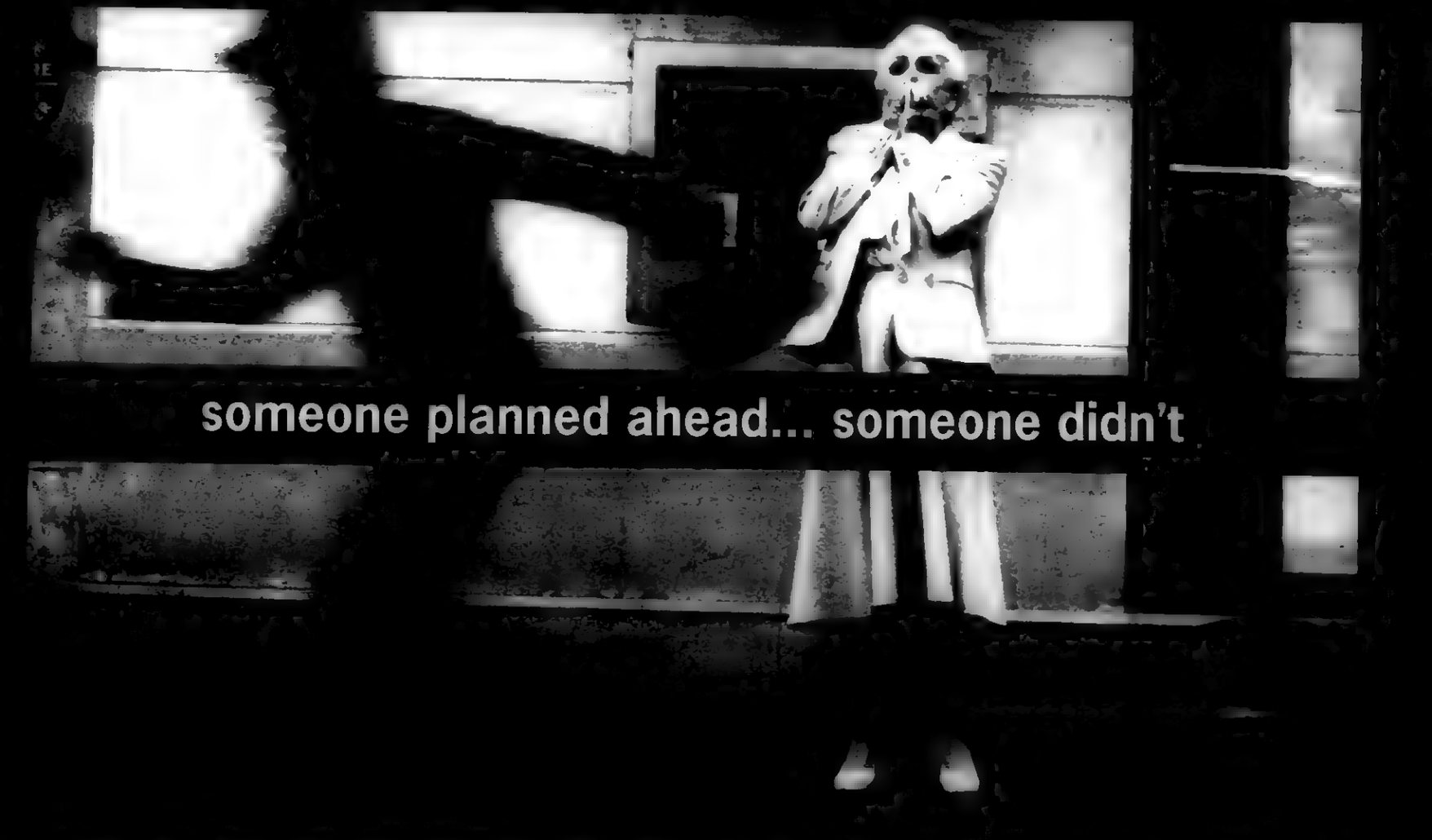
UnitedLinux largely came undone after Lindon, Utah-based SCO began its legal campaign against Linux vendors and users in March 2003.

Murdock said the new effort will incorporate some of the lessons learned from UnitedLinux. "It was a great idea that was badly executed," he said. "In a lot of ways, we're trying to realize the potential UnitedLinux had." **50946**

Reporter Carol Sliwa contributed to this story.

LINUX NEWS

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BRIEFS

Sun Offers Mustang Betas to Developers

Sun Microsystems Inc. last week opened the next version of its Java 2 Platform Standard Edition (J2SE 6.0, code-named Mustang) to developers. The move represents the first time Sun has made source and binary code bundles available for a J2SE release still in development, Sun said. The company plans to release source code weekly. The J2SE version is slated to ship by mid-2006.

Symantec, MX Join On E-mail Defense

Symantec Corp. and MX Logic Inc. unveiled a managed e-mail defense service that they said can help businesses reduce bandwidth and storage costs. The service joins Symantec's Brightmail AntiSpam 6.0 and the MX Logic Email Defense Service into two packages sold by MX Logic.

NetApp Reports Improved Results

Networked storage supplier Network Appliance Inc. reported improved results last week as a result of growth across all product lines, segments and geographies, said CEO Dan Warmenhoven. Revenue for its second quarter of 2005 increased 36% over the previous year. Profits grew 14%.

BY THE NUMBERS

Q2 '05	$375M	$55.3M
Q2 '04	$276M	$48.4M

Niku Releases Governance Tools

Niku Corp. in Redwood City, Calif., last week introduced a version of its Clarity IT management software with new features supporting global IT governance activities. Clarity Version 7.5 provides central oversight over regional IT activities, including analytics to help determine IT worker costs. The software runs on a variety of Unix platforms and Windows 2000 and is priced from $100,000. It ships next month.

HP's AlphaServer Sales Continue Steep Decline

The vendor's expected OpenVMS Itanium version should be death knell

BY PATRICK THIBODEAU

THE VENERABLE AlphaServer is fading as a source of revenue for Hewlett-Packard Co. as the company readies the general release of OpenVMS, one of Alpha's primary operating systems, for its Integrity server line.

In HP's fourth quarter, which ended Oct. 31, AlphaServer revenue fell 27%, the vendor reported last week. That followed a 32% revenue decrease in the prior quarter. An HP spokeswoman blamed the decline on users moving to the Integrity line, which is based on Intel Corp.'s Itanium processors.

HP plans to stop making the AlphaServer at the end of 2006 but will support the systems through 2011. The company said Integrity sales are up 5% from a year ago and represent 16% of its business-critical server revenue.

Varied Responses

Customers appear to be responding in a number of ways — not simply by buying Integrity servers. David Turner, sales manager at Island Computers US Corp., an AlphaServer reseller in Savannah, Ga., said sales of refurbished systems by his company are up 150% from last year.

Used AlphaSevers are gaining ground over new systems because users "don't want to spend three times the money for a system that might be obsolete in three years," said Turner. Sales of spare-parts kits are also rising, he said.

Nevertheless, some users are still buying new systems. Lee Mah, an OpenVMS systems administrator at a Canadian health care provider, said his employer recently purchased two 16-processor GS1280 AlphaServers. Mah said the health care provider couldn't wait for the Itanium version of OpenVMS, because it needed additional server capacity right away.

Mah expects to use his new AlphaServers for about three years before growth of the 29,000-employee organization forces an upgrade. At that point, his employer will have to decide whether to stay with OpenVMS, he said. But "other platforms don't have the reliability that OpenVMS has had for our applications," which include mostly custom-built software and third-party payroll processing, said Mah.

HP is expected to announce the availability of an OpenVMS implementation for Itanium as early as next month.

Tru64 Unix, also used on AlphaServers, is being phased out, and some of its features, such as TruCluster, are being added to HP-UX, another bad sign for AlphaServer users. "If you are running Tru64 Unix, you are dependent on Alpha," said Terry Shannon, an Amarillo, Texas-based consultant and publisher of the newsletter "Shannon Knows High Performance Computing."

HP's latest financial results showed a rebound after a dismal enterprise server revenue performance in the quarter that ended in July, when sales declined by 5%. Following those results, CEO Carly Fiorina fired three executives.

HP customers at HP World in August reported late deliveries and other supply problems. The company blamed the problems partially on an internal systems migration.

One of the users who had problems was Kees denHartigh, a systems and network analyst at the University of Alberta in Edmonton. He said the university ordered one storage array, but two were delivered.

But the university was happy with the initial storage array and "decided we could probably use two anyway," said denHartigh. "We ended up buying it." 50939

HP Results

- Overall revenues at HP increased 8% to $21.4 billion in the quarter that ended Oct. 31.
- Enterprise storage and server revenues:
  - Q4: $4.1 billion; up 7% year over year
  - Q3: $3.4 billion; down 5% year over year

Air Force Consolidates Contracts, Software

Microsoft deal will standardize servers, desktops

BY DAN VERTON

The U.S. Air Force last week announced an enterprisewide software licensing agreement with Microsoft Corp. that's expected to save it more than $100 million over the next six years and help secure its PCs and Windows-based servers.

Air Force CIO John Gilligan was scheduled to detail the licensing and software standardization initiative late Friday afternoon. In an advance statement, the Air Force said the deal with Microsoft will consolidate 38 software purchasing contracts and nine support pacts into two contracts that all of its operations will be required to adopt.

The Air Force will also mandate the worldwide use of standard configurations of all Microsoft desktop and server software products.

Officials said that "rigorous security profiles" will be implemented and that security patches and software updates will be distributed to systems online. In addition, security, performance and software feature settings will be designed specifically for the Air Force.

Similar Government Pact

Some analysts said the deal appears to be similar to one the U.S. Department of Energy signed with Oracle Corp. in September 2003 that required Oracle to deliver software configured for optimal security [QuickLink 41700].

Clint Kreitner, president and CEO of the Center for Internet Security in Hershey, Pa., called the Air Force's move "a terrific example" of how large users can leverage their overall buying power to require vendors to deliver software configured to meet their functionality and security needs.

But John Pescatore, an analyst at Gartner Inc., said the new agreements with Microsoft may not be that big of a step forward. "It will force the Air Force to have more-secure configurations of Microsoft software by limiting how many versions they use and having configuration guidelines," he said. "But it sounds like they're building in a lot of patch management functions, and that doesn't force the vendor to deliver software with fewer patches."

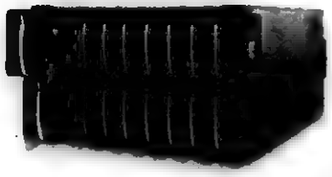
Alan Salisbury, chairman of the Center for National Software Studies in Upper Marlboro, Md., said standardization usually reduces costs.

"The name of the game continues to be total cost of operations, which is dominated by maintenance and support," he said. "Fewer configurations equals lower costs." 50947



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GLOBAL DISPATCHES

An International IT News Digest

South Korea Allocates Spectrum for WiBro

TOKYO

SOUTH KOREA's government last week allocated spectrum in the 2.3-GHz band for a new breed of wireless Internet service called WiBro that's expected to deliver 1Mbit/sec. connections to mobile devices.

WiBro, short for wireless broadband, is similar to WiMax, another emerging wireless broadband technology. Both are part of the IEEE 802.16 family of wireless standards. But South Korea's homegrown WiBro technology can work with devices, such as laptops and handhelds, that are traveling at up to 70 kilometers per hour, whereas WiMax was designed for stationary receivers.

South Korea's Ministry of Information and Communication, which set aside the spectrum for WiBro, said that it plans to offer licenses to three vendors in March and that it expects commercial services to start being offered in 2006.

But industry observers are worried about dueling technologies. Last week, the CEOs of Intel Corp. and Korea-based LG Electronics Inc. met in Seoul to discuss ways to merge the WiBro and WiMax technologies and avoid market segmentation.

■ MARTYN WILLIAMS, IDG NEWS SERVICE

Australian Territory Plans VoIP Network

SYDNEY, AUSTRALIA

AUSTRALIA'S Northern Territory government plans to introduce IP telephony as part of a voice and data network overhaul that's expected to cost about $108 million (U.S.) over five years. The government is seeking bids from vendors for a contract that will cover all voice, data and Internet services for about 16,000 end users at 250 agency sites and 180 schools.

Brad Irvine, director of IT services management for the Northern Territory government, said the primary goal for implementing voice over IP is reducing the cost of long-distance carrier charges. "We feel we've picked a good time to go to market with VoIP, which is maturing and is a leading option for delivering more value for the money," he said. "Also, our consultants advise us that this is the way of the future."

■ RODNEY GEDDA, COMPUTERWORLD TODAY (AUSTRALIA)



The number of multinational corporate customers in China served by Equant NV, a global networking carrier in Amsterdam.

Microsoft Beefs Up India Connections

BANGALORE, INDIA

MICROSOFT CORP. will hire several hundred staffers over the next 12 months for the software development and support operations at its new 28-acre campus near Hyderabad, India, CEO Steve Ballmer said last week during a three-day trip to the country. But Ballmer said the additional hiring won't lead to job losses in the U.S.

Microsoft also announced separate partnerships with Bangalore-based IT outsourcing firms Infosys Technologies Ltd. and Wipro Ltd.

Microsoft and Infosys signed an $8 million pact to combine Microsoft's .Net software with consulting services from Infosys to help companies implement product development, retail and radio frequency identification projects. **50894**

Compiled by Mitch Betts.

Briefly Noted

Iberbanda SA, a wireless operator in Madrid, has begun to install WiMax wireless broadband technology supplied by Alvarion Ltd., according to a spokeswoman for Tel Aviv-based Alvarion. Iberbanda is targeting business and residential customers in the Andalusia and Catalonia regions of Spain.

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Retiring MasterCard IT Chief Talks About Challenges

BY LUCAS MEARIAN

Jerry McElhatton *started out as a police officer in Columbus, Ohio, and ended up as the chief technologist at MasterCard International Inc., overseeing 2,700 IT employees and a $100 million payroll. McElhatton, 65, MasterCard's senior executive vice president of global technology and operations, is retiring next month, a year after completing a five-year, $200 million rewrite of the company's processing systems and opening a $135 million operations center in O'Fallon, Mo.*

Now looking to join the consulting world, McElhatton spoke with Computerworld last week about the MasterCard project, IT trends, his management style, and finishing projects on time and within budget.

What are some of the bigger challenges you've faced at MasterCard over the years? When I came in, there had been attempts to rewrite these systems. They hadn't been successful, so one of the challenges was to get the talent and organization [to rally around a plan] to rewrite these systems in a meaningful way while keeping the other systems in place. It's like changing an airplane engine in flight.

What did you do differently from past IT managers there? We organized the effort into manageable segments. I recruited people who had a lot of experience both inside and outside of the industry. I can teach people the industry, but I need people who have confidence in terms of their delivery skills. One of the big challenges was not only to develop [relationships] internally, but to establish and make sure relationships with our members were such that we could get them on schedule to convert to the new software.



McELHATTON went from police officer to MasterCard's IT chief.

How has the job of CIO changed over your career? There's more and more value extraction [that] people are looking for the CIO/CTO to give. You have to be a good business person. I've seen a lot of technology introduced that can help people do things better, faster, cheaper. But I've also seen a change that successful people in this industry have really extracted business value and manage IT as a business.

You have an open-door policy where anyone can e-mail or call you to voice concerns. Has that always been your style? I've done that throughout my career. In order to motivate people, you have to establish the right culture, and the right culture is to have an open and honest and direct culture. We've got a big job to do, and our customers, members and internal users expect us to be right at the top of that pile all the time, but that doesn't mean you can't have fun doing it.

What are some of the bigger challenges coming down the pike? We have lot of leading-edge technology, but we're not bleeding-edge. No one likes to have a problem with a financial transaction. The challenge we have is to take this infrastructure technology and new product technology and make sure it's fully integrated and fully tested, so when it's used we're 100% sure that it's going to be a successful transaction.

How do you manage vendor relationships? You have to have a partnership with your vendors, and they have to understand your expectations. Do we have problems with vendors from time to time? You bet. But if you have good communication and coordinate with them, you're going to get a lot better results.

What are some exciting emerging technologies? I get excited about grid computing. I don't think it's ready for commercial use yet, but we're excited about it. [Linux has] got potential to again drive down the economic dynamics of what it is we're doing. **50909**

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Continued from page 1

Best Buy

layoffs that were announced in April, when Best Buy said it planned to outsource its IT operations to Accenture Ltd. [QuickLink 46253], and to a smaller round of cuts that took place in October 2003.

A spokeswoman for Best Buy said it hadn't received the complaint as of Thursday. But the retailer issued a statement saying it was aware of the suit. "We believe these claims are without merit and intend to vigorously defend the action," Best Buy said. It also stated that the average age of its 3,700 corporate employees is 35.

When it announced the outsourcing contract with Accenture, Best Buy said that only 40 of its 820 IT employees would remain with the company. The retailer expected about 650 workers to receive comparable job offers from Accenture and continue working at Best Buy's offices. The other employees were told that they would be let go.

According to the lawsuit, 126 IT workers were terminated in June. Stephen Snyder, the Minneapolis-based lead attorney for the plaintiffs, said that 82 of those workers were at least 40 years old — the minimum age required to file an age-discrimination claim. Thirty-one of the plaintiffs were among the workers who were dismissed in June.

The 13 other plaintiffs lost their jobs when Best Buy laid off a total of 25 IT workers last year, according to the lawsuit. Twenty of them were at least 40 years old, Snyder said. The lawsuit noted that another worker turned 40 the day after he was laid off.

Marshall Tanick, a Minneapolis-based employment lawyer who has handled at least 50 age discrimination complaints over the past 20 years, said the larger a group of plaintiffs is, the greater chance it has of success. The Best Buy suit is "an unusually large case, which makes it particularly potent," he said.

Snyder said the Best Buy suit involves the largest number of plaintiffs that his firm, Gray, Plant, Mooty, Mooty & Bennett PA, has represented in an age discrimination complaint. The previous high was 43 in a case against Monsanto Co. that was settled for $18.25 million in 1996, he said.

> **EXCERPT**
>
> "As part of its pattern or practice of discrimination, Best Buy has failed to provide its older [IT] employees with consideration for employment opportunities, has refused to transfer older employees into open positions for which they were qualified and has refused to re-hire its former employees for positions for which they were qualified."

"Computer industry employees are particularly vulnerable to age discrimination because of this commonly held perception that older individuals can't keep up with new technology," Snyder said. "As with any stereotype, that may apply to some people, but it doesn't apply to others."

He added that the most recent performance reviews for each of the plaintiffs had indicated that he was a "solid performer" or better.

Surprise Termination

"If you're doing your job well, getting good reviews and merit bonuses, you don't expect to get dumped," Walstrom said of his termination. "In that respect, it was a surprise."

Walstrom, who said he had worked at Best Buy for almost seven years, was a technical consultant assigned to special projects when he was let go in April. But he said that until September 2003, he was the manager of the company's database support group, which consisted of 21 employees and seven or eight contractors and was charged with ensuring the health of all corporate-level production databases.

Walstrom's group was then shifted from operations to Best Buy's database development team, he said, adding that he soon learned from his new boss that his job was going to someone else. "The guy picked to replace me had no experience managing databases," Walstrom said. "He had been a project manager. But he was about 20 years my junior. You look at that in hindsight and start figuring things out."

The plaintiffs asked for a jury trial and are seeking back pay and benefits, damages and an order that Best Buy either reinstate them to comparable jobs or give them salaries and benefits until they reach their expected retirement ages.

Not every former employee who was eligible to file an age-discrimination claim against Best Buy did so. Snyder said workers who accepted severance pay were required to sign a document releasing the company from all claims, including age discrimination complaints. **50942**

Continued from page 1

FTC

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As part of its settlement with the FTC, Petco must submit to independent biannual audits of its information security practices for the next 20 years. "The message here is that if a company is making security and privacy representations online, it should take reasonable and appropriate measures to secure sensitive information," said Alain Sheer, an attorney in the FTC's financial practices division.

The FTC has reached similar settlements with four other companies over the past couple of years (see chart).

Meanwhile, the FTC charged that Sunbelt, a Cendant Corp. subsidiary, and Nationwide failed to comply with the Gramm-Leach-Bliley Act's Safeguards Rule, which requires companies to apply reasonable measures for protecting sensitive information. Both were charged with "significant failures" to protect customer names, Social Security numbers, credit histories and other confidential data.

Nationwide Sweep

The action represents the first cases involving the Safeguards Rule. The companies were part of a "nationwide sweep" of auto dealers and mortgage companies, said Jessica Rich, assistant director of consumer protection at the FTC.

She said the FTC hopes the action sends a message that the Safeguards Rule applies not only to typical financial institutions but also to payday lenders, check cashers and tax preparers who handle sensitive personal information when conducting business.

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John Eubank, CEO of Nationwide Mortgage, confirmed the FTC action, but he claimed that his five-person company — which shares the name of the much larger insurance and financial services provider — may have gotten inadvertently caught up in a sweep targeted at big financial institutions. Eubank said the cost involved in bringing his small operation into compliance with the agency's requirements is prohibitive and may force him to shut down his business if no compromise can be found.

The latest FTC action is seen as indicative of the growing determination of federal and state authorities to crack down on security and privacy violations, even in instances where no actual breach may have occurred, said Michael Overly, an attorney at Foley & Lardner LLP in Los Angeles.

"We are seeing a real interest in policing these matters far more closely," Overly said. For instance, Barnesandnoble.com Inc. in April agreed to pay $60,000 and implement a comprehensive information security policy in a deal with the New York attorney general's office over a design vulnerability in the online bookseller's Web site. "In that case, no hack had occurred, and no exposure of data had taken place," Overly said. **50938**

GOVERNMENT CRACKDOWN

The FTC has reached settlements with several companies over security and privacy violations, including the following:

Eli Lilly and Co.	January 2002	Case involved disclosure of the e-mail addresses of 669 subscribers to its Prozac Reminder Service.
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Continued from page 1

Best Buy

layoffs that were announced in April, when Best Buy said it planned to outsource its IT operations to Accenture Ltd. [QuickLink 46253], and to a smaller round of cuts that took place in October 2003.

A spokeswoman for Best Buy said it hadn't received the complaint as of Thursday. But the retailer issued a statement saying it was aware of the suit. "We believe these claims are without merit and intend to vigorously defend the action," Best Buy said. It also stated that the average age of its 3,700 corporate employees is 35.

When it announced the outsourcing contract with Accenture, Best Buy said that only 40 of its 820 IT employees would remain with the company. The retailer expected about 650 workers to receive comparable job offers from Accenture and continue working at Best Buy's offices. The other employees were told that they would be let go.

According to the lawsuit, 126 IT workers were terminated in June. Stephen Snyder, the Minneapolis-based lead attorney for the plaintiffs, said that 82 of those workers were at least 40 years old — the minimum age required to file an age-discrimination claim. Thirty-one of the plaintiffs were among the workers who were dismissed in June.

The 13 other plaintiffs lost their jobs when Best Buy laid off a total of 25 IT workers last year, according to the lawsuit. Twenty of them were at least 40 years old, Snyder said. The lawsuit noted that another worker turned 40 the day after he was laid off.

Marshall Tanick, a Minneapolis-based employment lawyer who has handled at least 50 age discrimination complaints over the past 20 years, said the larger a group of plaintiffs is, the greater chance it has of success. The Best Buy suit is "an unusually large case, which makes it particularly potent," he said.

Snyder said the Best Buy suit involves the largest number of plaintiffs that his firm, Gray, Plant, Mooty, Mooty & Bennett PA, has represented in an age discrimination complaint. The previous high was 43 in a case against Monsanto Co. that was settled for $18.25 million in 1996, he said.

EXCERPT

"As part of the pattern or practice of discrimination, Best Buy has failed to provide its older [IT] employees with consideration for employment opportunities, has refused to transfer older employees into open positions for which they were qualified and has refused to re-hire its former employees for positions for which they were qualified."

"Computer industry employees are particularly vulnerable to age discrimination because of this commonly held perception that older individuals can't keep up with new technology," Snyder said. "As with any stereotype, that may apply to some people, but it doesn't apply to others."

He added that the most recent performance reviews for each of the plaintiffs had indicated that he was a "solid performer" or better.

Surprise Termination

"If you're doing your job well, getting good reviews and merit bonuses, you don't expect to get dumped," Walstrom said of his termination. "In that respect, it was a surprise."

Walstrom, who said he had worked at Best Buy for almost seven years, was a technical consultant assigned to special projects when he was let go in April. But he said that until September 2003, he was the manager of the company's database support group, which consisted of 21 employees and seven or eight contractors and was charged with ensuring the health of all corporate-level production databases.

Walstrom's group was then shifted from operations to Best Buy's database development team, he said, adding that he soon learned from his new boss that his job was going to someone else. "The guy picked to replace me had no experience managing databases," Walstrom said. "He had been a project manager. But he was about 20 years my junior. You look at that in hindsight and start figuring things out."

The plaintiffs asked for a jury trial and are seeking back pay and benefits, damages and an order that Best Buy either reinstate them to comparable jobs or give them salaries and benefits until they reach their expected retirement ages.

Not every former employee who was eligible to file an age-discrimination claim against Best Buy did so. Snyder said workers who accepted severance pay were required to sign a document releasing the company from all claims, including age discrimination complaints. **50942**

Continued from page 1

FTC

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Network Appliance Updates Data ONTAP Storage Platform

New 7G release will virtualize storage resources, vendor says

BY LUCAS MEARIAN

Network Appliance Inc. last week brought out the latest version of its Data ONTAP software, which it said builds a grid storage architecture on its appliances by creating an abstraction layer between application servers, storage controllers and disk arrays.

NetApp's Data ONTAP 7G software uses one global name space to give administrators a single view of storage resources. The system also pools processing power across its network-attached storage (NAS) arrays, said Chris Bennett, director of marketing at the Sunnyvale, Calif.-based company.

Data ONTAP 7G also includes a new tool called FlexVol, which allows volumes or identifiable units of storage to be spread across disk spindles in a logical manner for greater resiliency and higher performance, Bennett said. FlexVol also lets administrators set storage provisioning policies to allow volumes to grow on the fly according to how much space applications need.

Mike Forman, group director of North American IT at Cadence Design Systems Inc. in San Jose, said the flexible volumes will allow him to create more accurate chargeback models to his users. "You can assign a 500GB LUN [logical unit number] to a user, and if he's only using 50GB of the 500GB, you can take the other 450GB and give it to someone else. We've been asking for this for years," he said.

Because there is no preallocation of storage, utilization rates are far higher, Bennett said. Performance is almost doubled because the data is shared across disk array trays, allowing multiple engines to process I/O commands.

'Thin Provisioning'

Tony Asaro, an analyst at Enterprise Strategy Group in Milford, Mass., said NetApp's "thin provisioning" feature has yet to be offered by the other major storage suppliers.

Another new tool in Data ONTAP 7G, called FlexClone, performs snapshots or point-in-time replication of data sets for test, development and simulation scenarios. The snapshots, which require no disk space, can be manipulated and tested without affecting the initial data set.

NetApp also said last week that its NAS engine, the gFiler, can now serve up block-level data either through the Fibre Channel or Internet SCSI protocol. ISCSI allows block-level data transfers to occur over ubiquitous Ethernet.

NetApp said all of the new products are currently shipping. FlexVol is bundled with Data ONTAP at no extra charge. FlexClone is separately licensed from around $6,000. **50659**

Start-up's Java Tool Integrates Open-Source

BY STACY COWLEY

Start-up Gluecode Software Inc. last week brought out a new Java development platform that the company said ties together open-source components into an integrated system.

The new tool set, called Joe, includes pieces from The Apache Software Foundation's portfolio, including portal technology, the Geronimo application server, the Derby database (formerly Cloudscape) and the Agila BPM business process management engine. Joe is aimed at developers who are interested in using the open-source technology but are reluctant to tackle component-integration work. The Joe package includes support services and add-on features. Joe was built to marry the flexibility of Java with the usability of Microsoft Corp.'s development tools, said Winston Damarillo, CEO of El Segundo, Calif.-based Gluecode. He said he expects Joe to compete with Microsoft's .Net tool lineup.

Forrester Research Inc. analyst John Rymer said Joe should help companies that don't have the development expertise needed to pull together an open-source technology stack. Joe is most suitable for projects such as building Web applications, he said.

Technical support and access to Joe source code and updates are now available for an annual subscription fee starting at $3,500. **50677**

Cowley is a reporter for the IDG News Service.

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Dell Unveils Second Blade Server

BY ROBERT McMILLAN

Two years after launching its first blade server, Dell Inc. last week brought out a follow-up product — the PowerEdge 1855 server, based on Intel Corp.'s Xeon EM64T processors.

The blades are designed to slide into a new 7U chassis designed by Dell. (1U equals 1.75-in. high.) The chassis can house as many as 10 of the dual-processor servers and can accommodate emerging 10-Gigabit Ethernet networking technology as well as the power requirements of Intel's next generation of Xeon processors, said Bruce Kornfeld, director of worldwide enterprise marketing at Dell.

The extremely dense blade design lets systems share networking, power and cooling components. Users can squeeze up to 62% more servers into their data center racks than they could with Dell's rack-mounted 1U PowerEdge 1850 server, he said.

Though his company hasn't yet installed Dell's new servers, Darrin Hyrup, director of operations at Mythic Entertainment Inc. in Fairfax, Va., said the 1855 appears to be a viable alternative to rack systems.

With little room for expansion in its data center, Mythic is looking to blades as a way to enhance performance. The company, creator of the online role-playing game Dark Age of Camelot, expects to standardize on a blade architecture by 2006.

While blades have always taken up less space than rack-mounted servers, the extreme density of the blade architecture has forced some blade designs to use cooler, less powerful processors than rack systems do. The 1855, however, uses the same processor as its 1U rack counterpart. "We were waiting for the technology to mature," Hyrup said.

Mythic is also interested in evaluating a low-power version of the 1855, which is expected within a few months. Hyrup said he expects the new blade to have much lower power requirements than the 1855, which draws about 15% less power than the 1850.

One major concern for Dell customers is the fact that the new blade chassis doesn't yet support switching technology from Cisco Systems Inc., said John Enck, an analyst at Gartner Inc. Support for the Cisco technology is expected by early next year. Until then, the systems may be less appealing to enterprise customers, Enck said.

The PowerEdge 1855 chassis is priced from $2,999, and the blade servers from $1,699. Both are shipping now. **50661**

McMillan is a reporter for the IDG News Service.

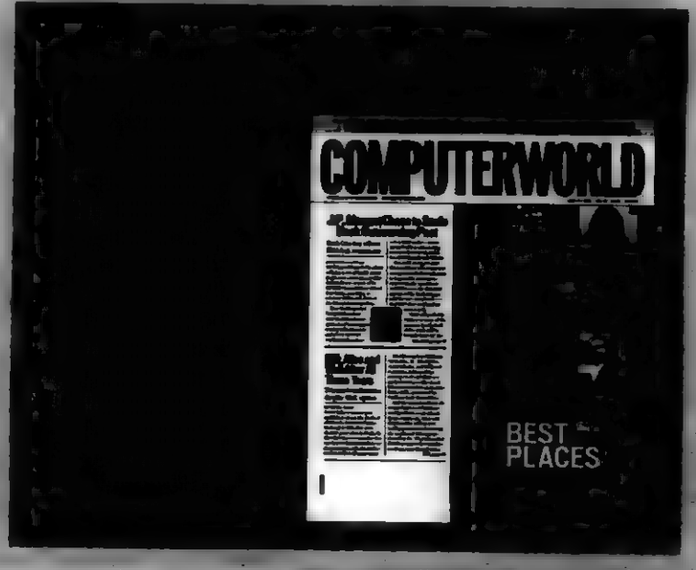
Is your IT department a to work?

COMPUTERWORLD 100 BEST PLACES TO WORK IN IT 2005

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For more information, go to www.computerworld.com/services/research/bestplaces or send e-mail to bestplaces@computerworld.com

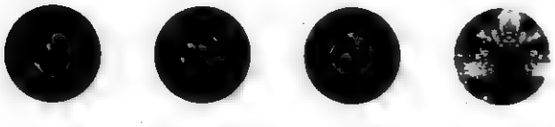


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Cordys Exec Touts Firm's Baan Roots

BY HEATHER HAVENSTEIN
ORLANDO

Cordys Inc., founded almost three years ago by Jan Baan and others from his core team at Baan Software (now part of SSA Global Technologies Inc.), recently began shipping its Web services platform. **Justin Anderson,** *the new president of the company's Americas group, soon to be based in Reston, Va., talked with* Computerworld *last week at the Gartner Application Integration and Web Services Summit here about Cordys' products and strategy.*

With Jan Baan as CEO, you have an IT veteran with a lot of background in ERP. What does that expertise bring to the table? The 22-year heritage there plays a key role in coming out with this next-generation tool. When [Baan veterans] were developing ERP systems, they were dealing with security and scalability issues, and how do you make these businesses unique. We never were able to fulfill the vision with ERP. Companies did big business process re-engineering but found they looked just like their competitors. As ERP was trying to grow, [vendors] would buy a CRM company or an advanced planning solution suite and try to bolt all those together. That compounded the problems. It is the same thing with an application platform suite.

Will your target market be companies trying to build composite applications? Yes. You would use our unified stack to create composite applications in a services-oriented architecture, so [that means] basically exposing all the disparate legacy systems instead of ripping and replacing all those to enable the vision of the CEO or CIO. [Our platform] makes the ERP systems' application infrastructure so there are reusable components, and we can start with business processes to really fulfill making companies unique.

How does your technology differ from integration software? We're open-standards-based, and we have an XML application server and XML containers across that whole stack that we built from the bottom up. It leads to lower cost of ownership.

How does your technology support enterprise efforts to go beyond using Web services for internal integration by building composite applications? We have a component gallery — prebuilt building blocks — to help you start that. For example, we have B to B Express, which helps companies deal with their trading partners, customers and suppliers to build those composite applications. **50692**

COMPUTERWORLD HAS BEEN NAMED
MAGAZINE OF THE YEAR FOR 2004.
COMPUTERWORLD
THE VOICE OF IT MANAGEMENT

Supercomputers Vital for Competitiveness, Say Users

BY TODD R. WEISS
PITTSBURGH

Corporate America must leverage government investments in powerful supercomputers so the technology can economically find its way into the private sector.

U.S. industry needs affordable access to supercomputer systems, which generally cost $10 million or significantly more, in order to better compete globally, concluded a panel on global leadership at the SC2004 Supercomputing Conference here this month. The panel included IT executives from General Motors Corp. and animation company PDI/DreamWorks, who explained how supercomputers have given their companies an edge in their respective industries.

To get the better of competitors in other countries, U.S. businesses need access to more powerful hardware such as supercomputers, said moderator David E. Shaw, chairman of David E. Shaw & Co., a New York-based investment and technology development firm. To keep costs reasonable, companies need to leverage government investments in supercomputers, he said.

Government agencies and business groups are currently looking at ways to amortize government technology investments over a larger group of potential users, Shaw said.

A recent survey by the Council on Competitiveness also found that the private sector lacks trained IT professionals to run such technologies, said Suzy Tichenor, director of the high-performance computing program at the Washington-based nonprofit business advocacy group. Companies could utilize trained government personnel under a public/private partnership.

Business Benefits

The benefits of supercomputers are real, said panelist Sharan Kalwani, manager of high-performance computing infrastructure at GM.

Designing new vehicles and tooling up factories to build them is incredibly expensive and took up to 60 months to complete in the early 1990s, he said. Powerful supercomputers now compress and overlap multiple schedules for design, tooling, research, safety testing and manufacturing, cutting the the process to 18 months, Kalwani said. One area seeing the most effect has been in replacing crash-test cars.

Andy Hendrickson, head of animation technology at PDI/DreamWorks, a Redwood City, Calif.-based unit of DreamWorks LLC, said supercomputers have revolutionized the animation business by allowing complex mathematical calculations to be done more quickly, helping to create more lifelike animation and reducing labor costs. Since labor accounts for the lion's share of the cost of an animated film, the savings can be huge and could slow the trend of sending animation jobs offshore, Hendrickson said. 50005

Windows to Skip Itanium for Supercomputing

MICROSOFT CORP. will support only x86 processors with 64-bit extensions when it releases a version of Windows Server 2003 for high-performance computing (HPC) applications next year, putting off support for Intel Corp.'s Itanium 2 chip to a still-undefined date.

The HPC market is currently dominated by Unix and Linux operating systems. Microsoft is looking to break into the market but feels that Itanium 2-based hardware is too expensive and too powerful for the small clusters that it expects users to build around Windows Server 2003.

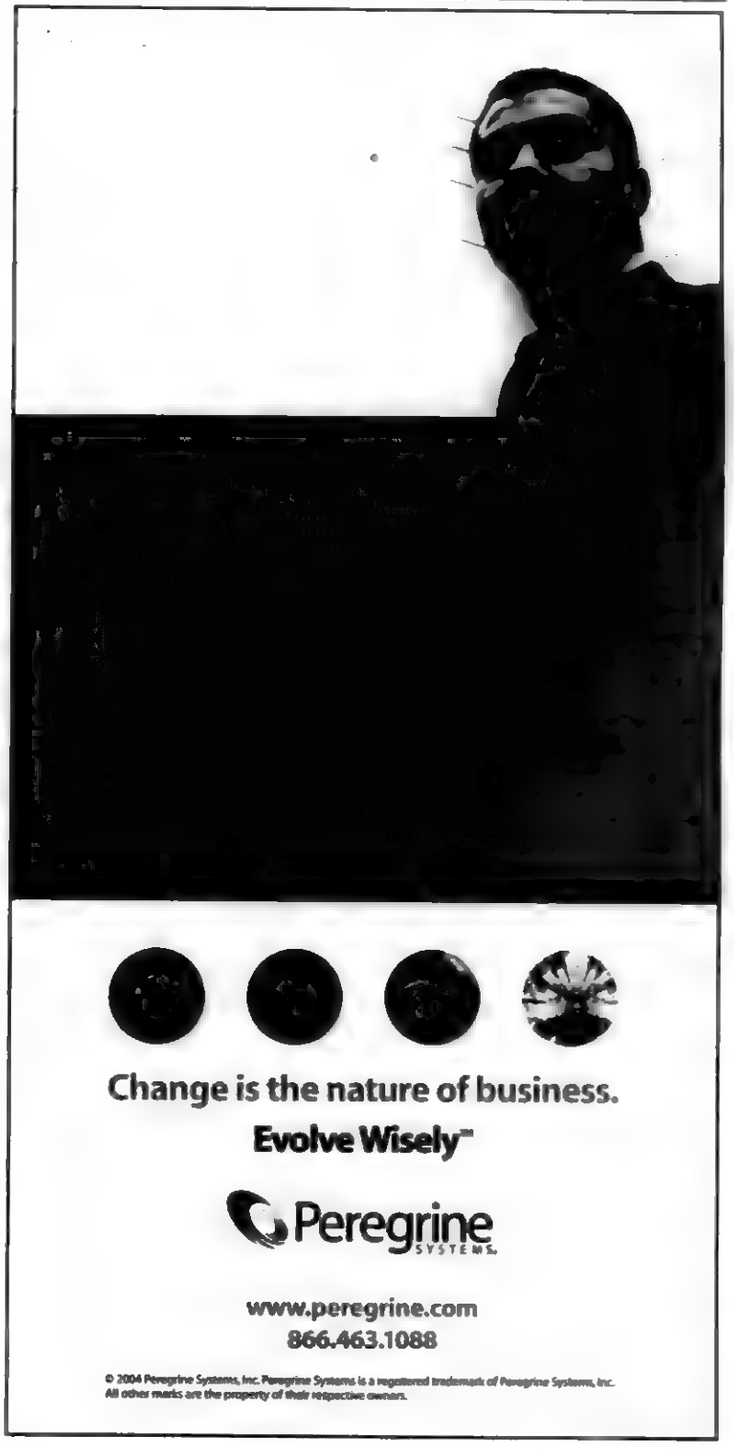
"When you look at our target market – the departmental clusters – Itanium 2 is a bit outside the reach [of users] in terms of budget and in terms of needed computing power," said Greg Rankich, a senior product manager at Microsoft.

Microsoft this month updated its rollout plans for the Windows Server 2003 Compute Cluster Edition, which previously was called the HPC Edition. A first beta release of the software was due this year but has slipped to March or April, Rankich said. The commercial release is still slated for late 2005. Support for Itanium 2 will be added in the second release of the operating system, Rankich said, but a shipment date for it hasn't yet been set.

Officials at Hewlett-Packard Co. understand that Microsoft chose to first support x86 processors because they have higher sales volumes than Itanium 2, said Ed Turkel, manager of product marketing at HP's HPC division. But HP, which uses Itanium 2 in its Integrity line of servers, is pushing Microsoft to add support for the 64-bit chip "as quickly as possible," he said.

Microsoft is clearly aiming for the sweet spot in the HPC market in terms of volume, said Nathan Brookwood, an analyst at Insight 64 in Saratoga, Calif. HPC is one part of the IT industry where Microsoft doesn't enjoy an installed-base advantage over its rivals, Brookwood noted. "Microsoft is going to have to fight tooth and nail for every HPC sale it gets."

– *Joris Evers, IDG News Service*



DON TENNANT

Don't Lose Your Voice

YOU WOULDN'T believe how often this happens: A high-profile IT executive is on stage at a conference doing a presentation on some very cool project his company has just completed. Under the glow of the huge PowerPoint slides that illustrate his message, he discusses the project in explicit detail, providing insights into the problems that had to be overcome and the benefits that were gained. The audience is riveted by the presentation because it provides the kinds of lessons that are solid gold for any IT organization that's looking at undertaking a similar project.



Then after the presentation, a *Computerworld* reporter approaches the speaker to ask for a few points to be clarified or elaborated upon. He's happy to oblige and begins to explain a particular point when he notices that the reporter is taking notes as he listens. And then the presenter drops the bomb. "You know you can't write about this."

Excuse me? You've just spilled your guts in a public forum in which hundreds of people from across the IT spectrum were given detailed knowledge of your project, and we can't write about this? From whom are you trying to withhold the information, and what on earth makes you think it's not already in the public domain? What are you thinking?

That last question was rhetorical. I know what he's thinking. He's thinking that if his company's PR people see comments from him in print that they haven't vetted, he's going to be chastised for failure to adhere to corporate communications policy — regardless of how nonsensical and inconsistent the policy may be.

This is disturbing. The amount of bureaucratic red tape involved in making information from your peers available is threatening to tie our hands to a degree we all need to be concerned about. Ask any corporate IT professional to identify the most credible and most valuable sources of information, and he'll almost invariably name other corporate IT professionals. Not vendors, not analysts, not consultants, as important as all of them may be. So corporate policies that place restrictions on the free flow of information — policies that often require people to get their PR and legal departments to sign off on their comments to the press — limit your exposure to the information you find most valuable in order to do your job.

Especially disturbing is the threat that some government tech workers will be silenced even more resolutely than their corporate counterparts. CNN reported last week that the Department of Homeland Security is considering requiring all of its employees to sign "confidentiality agreements" that prohibit them from disclosing unclassified "sensitive" information. The problem is it's entirely unclear what constitutes sensitive information. And the concern is that anything that some DHS bureaucrat decides he doesn't want to see in print or have discussed at a conference will suddenly be determined to be sensitive.

The relative openness of the DHS has yielded some excellent *Computerworld* stories on IT consolidation and cybersecurity — issues that are of paramount importance to IT professionals. It would be a shame to see that openness vanish in a wisp of sensitive-information smoke.

So what's an IT professional to do? If nothing else, question any corporate communication policies that restrict you from sharing professional information with your peers.

We call ourselves "The Voice of IT Management," but in truth that voice is yours. Whatever you do, don't lose it. **50886**

Don Tennant



DAVID MOSCHELLA

IT's Run of Stability About to End?

OVER THE PAST 40 years, countless IT suppliers have come and gone, and the way organizations use computers has expanded beyond what anyone could have imagined in 1964. To the point of cliché, IT people repeatedly say that change has been our industry's only constant. Yet despite all of this undeniable turmoil, there are two parts of the IT universe that haven't changed proportionately: IT organizations and the IT services companies that support them.

The latter is easier to demonstrate. While Burroughs, Digital, Wang, Cullinane and many other product companies vanished long ago, the same four services firms — IBM, Electronic Data Systems, Computer Sciences Corp. and Accenture (formerly Andersen Consulting) — have been the dominant players for as long as the IT services business has existed.



Powerful disruptive forces clearly have affected the hardware and software sides of our industry, but no such forces have affected the services sector, at least thus far.

While this is an intriguing topic in its own right, it also helps us understand why the corporate IT organization has also been relatively stable. Apparently, there is something about the nature of individual customer work that makes it less susceptible to change than the product side of our business. Whether this work is done by in-house staff or a service company seems to make very little difference.

But can this extraordinary stability be maintained? Recently, I have been doing research to try to forecast the future of the IT organization, and I've increasingly been coming to the conclusion that change is finally on the way. There seem to be three main forces that could transform the way IT is used and managed.

Increased business control. As IT becomes more deeply embedded in a company's actual products and services, it's likely that many businesses will want to take more direct control over business-critical IT projects. It probably makes sense for businesses to own the applications they rely on, with shared infrastructure and horizontal applications becoming the primary concern of the IT organization.

Alternative sourcing. Certainly, outsourcing remains an alternative for managing an organization's IT infrastructure, and the increasing marketplace focus on grid and utility computing suggests that the provision of capacity by third parties will rise in popularity. But such capacity services are now largely a commodity business, and both customers and outsourcing suppliers are struggling to find more dynamic, value-creating models.

Public infrastructure. In an abstract sense, IT organizations and IT services companies are both in competition with the Internet. This ever more capable public infrastructure will prove to be an increasingly attractive alternative to both in-house and outsourced IT solutions in areas such as collaboration, mobility and ASP-style services.

These three forces clearly have the potential to reshape the roles of both IT organizations and their service providers. But since there is so much IT work to do, it's not a question of whether either group will go away. Instead, it's likely that both sectors could start to change as dramatically as other parts of the IT industry have.

But while this logic seems sound, the real forecasting challenge is getting the timing right. Will this restructuring take seven or 17 years to play itself out? Despite all the changes our industry has seen, individual transitions are often a lot slower than they appear in retrospect. My guess is that by the end of this decade, we will look back and see that fundamental changes have indeed taken hold for IT organizations and services providers alike. **50080**

PIMM FOX

Workers of The IT World, Unite!

IT workers banding together to form unions? How 20th century.



A new report from the University of Illinois at Chicago reveals that 403,300 jobs were lost in the IT sector from March 2001 to April 2004 (download the report at QuickLink a5130). And the majority of the positions were lost after the IT recession came to an official end in November 2001.

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DON TENNANT

Don't Lose Your Voice

YOU WOULDN'T believe how often this happens: A high-profile IT executive is on stage at a conference doing a presentation on some very cool project his company has just completed. Under the glow of the huge PowerPoint slides that illustrate his message, he discusses the project in explicit detail, providing insights into the problems that had to be overcome and the benefits that were gained. The audience is riveted by the presentation because it provides the kinds of lessons that are solid gold for any IT organization that's looking at undertaking a similar project.



DON TENNANT is editor in chief of *Computerworld*. You can contact him at [redacted]

Then after the presentation, a *Computerworld* reporter approaches the speaker to ask for a few points to be clarified or elaborated upon. He's happy to oblige and begins to explain a particular point when he notices that the reporter is taking notes as he listens. And then the presenter drops the bomb. "You know you can't write about this."

Excuse me? You've just spilled your guts in a public forum in which hundreds of people from across the IT spectrum were given detailed knowledge of your project, and we can't write about this? From whom are you trying to withhold the information, and what on earth makes you think it's not already in the public domain? What are you thinking?

That last question was rhetorical. I know what he's thinking. He's thinking that if his company's PR people see comments from him in print that they haven't vetted, he's going to be chastised for failure to adhere to corporate communications policy — regardless of how nonsensical and inconsistent the policy may be.

This is disturbing. The amount of bureaucratic red tape involved in making information from your peers available is threatening to tie our hands to a degree we all need to be concerned about. Ask any corporate IT professional to identify the most credible and most valuable sources of information, and he'll almost invariably name other corporate IT professionals. Not vendors, not analysts, not consultants, as important as all of them may be. So corporate policies that place restrictions on the free flow of information — policies that often require people to get their PR and legal departments to sign off on their comments to the press — limit your exposure to the information you find most valuable in order to do your job.

Especially disturbing is the threat that some government tech workers will be silenced even more resolutely than their corporate counterparts. CNN reported last week that the Department of Homeland Security is considering requiring all of its employees to sign "confidentiality agreements" that prohibit them from disclosing unclassified "sensitive" information. The problem is it's entirely unclear what constitutes sensitive information. And the concern is that anything that some DHS bureaucrat decides he doesn't want to see in print or have discussed at a conference will suddenly be determined to be sensitive.

The relative openness of the DHS has yielded some excellent *Computerworld* stories on IT consolidation and cybersecurity — issues that are of paramount importance to IT professionals. It would be a shame to see that openness vanish in a wisp of sensitive-information smoke.

So what's an IT professional to do? If nothing else, question any corporate communication policies that restrict you from sharing professional information with your peers.

We call ourselves "The Voice of IT Management," but in truth that voice is yours. Whatever you do, don't lose it. **50896**

Don Tennant



DAVID MOSCHELLA

IT's Run of Stability About to End?

OVER THE PAST 40 years, countless IT suppliers have come and gone, and the way organizations use computers has expanded beyond what anyone could have imagined in 1964. To the point of cliché, IT people repeatedly say that change has been our industry's only constant. Yet despite all of this undeniable turmoil, there are two parts of the IT universe that haven't changed proportionately: IT organizations and the IT services companies that support them.

The latter is easier to demonstrate. While Burroughs, Digital, Wang, Cullinane and many other product companies vanished long ago, the same four services firms — IBM, Electronic Data Systems, Computer Sciences Corp. and Accenture (formerly Andersen Consulting) — have been the dominant players for as long as the IT services business has existed.



DAVID MOSCHELLA is global research director at CSC Research and Advisory Services, a Computer Sciences Corp. company. Contact him at [redacted]

Powerful disruptive forces clearly have affected the hardware and software sides of our industry, but no such forces have affected the services sector, at least thus far.

While this is an intriguing topic in its own right, it also helps us understand why the corporate IT organization has also been relatively stable. Apparently, there is something about the nature of individual customer work that makes it less susceptible to change than the product side of our business. Whether this work is done by in-house staff or a service company seems to make very little difference.

But can this extraordinary stability be maintained? Recently, I have been doing research to try to forecast the future of the IT organization, and I've increasingly been coming to the conclusion that change is finally on the way. There seem to be three main forces that could transform the way IT is used and managed.

Increased business control. As IT becomes more deeply embedded in a company's actual products and services, it's likely that many businesses will want to take more direct control over business-critical IT projects. It probably makes sense for businesses to own the applications they rely on, with shared infrastructure and horizontal applications becoming the primary concern of the IT organization.

Alternative sourcing. Certainly, outsourcing remains an alternative for managing an organization's IT infrastructure, and the increasing marketplace focus on grid and utility computing suggests that the provision of capacity by third parties will rise in popularity. But such capacity services are now largely a commodity business, and both customers and outsourcing suppliers are struggling to find more dynamic, value-creating models.

Public infrastructure. In an abstract sense, IT organizations and IT services companies are both in competition with the Internet. This ever more capable public infrastructure will prove to be an increasingly attractive alternative to both in-house and outsourced IT solutions in areas such as collaboration, mobility and ASP-style services.

These three forces clearly have the potential to reshape the roles of both IT organizations and their service providers. But since there is so much IT work to do, it's not a question of whether either group will go away. Instead, it's likely that both sectors could start to change as dramatically as other parts of the IT industry have.

But while this logic seems sound, the real forecasting challenge is getting the timing right. Will this restructuring take seven or 17 years to play itself out? Despite all the changes our industry has seen, individual transitions are often a lot slower than they appear in retrospect. My guess is that by the end of this decade, we will look back and see that fundamental changes have indeed taken hold for IT organizations and services providers alike. **50696**

PIMM FOX

Workers of The IT World, Unite!

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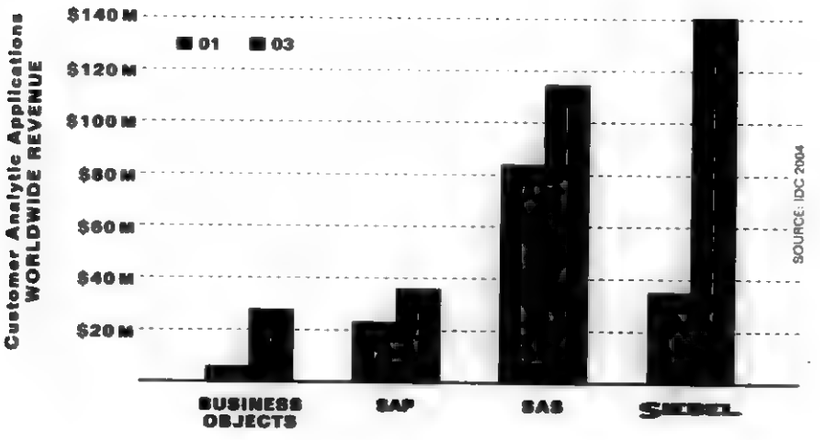
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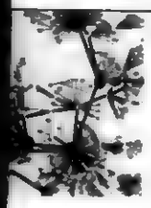
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FUTURE WATCH
Pointilist Protection
Network defense mechanisms in development at Carnegie Mellon's CyLab could provide an early-warning system to guard against virus and worm attacks by identifying and protecting critical nodes before the malicious code can spread. **Page 30**

CASE STUDY
Help Keeps Transit System Moving
It's been clear sailing at the Port Authority of Allegheny County in Pittsburgh since it introduced help desk software to streamline processes and regain control over climbing call volumes. **Page 28**

SECURITY MANAGER'S JOURNAL
Network Visibility Goal Gets Trimmed
When our security manager asks for total visibility, the technical team delivers a reality check — and a distributed intrusion-detection system plan that delivers what's possible. **Page 32**



STANDARDS:
High-Stakes GAME

Money and politics are playing a bigger role in the standards-setting process. By Robert L. Mitchell

MORE THAN EVER, businesses rely on IT products and services built around standards. But that demand, and the evolution of the industry, is changing how standards are created — and who creates them. The old image of a group of engineers working together to find the best technology to solve a problem is giving way to new realities.

As the market for IT products and services has grown, the stakes for vendors and users have increased. An emerging technology such as ultrawideband (UWB) may open up a market worth $1 billion or more. With so much at stake, participation in standards groups has swelled, and vendors have pushed harder to have their technologies adopted as standard. That

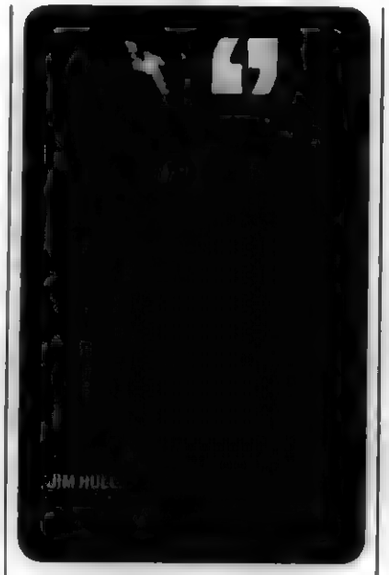
has made it difficult to reach consensus in some cases and created deadlock in others. And increasingly, vendors are trying to generate revenue by licensing intellectual property rights on the technologies they advocate as standards, rather than donating them for the common good.

"You now have compromises that are not just mathematical compromises or technical compromises but have major marketing compromises behind them," says Jim Carlo, president of the IEEE Standards Association.

Meanwhile, the evolution of more sophisticated systems has increased costs and worked against interoperability. At MasterCard International Inc., the challenge lies in getting industry-standard equipment to interoperate when inserted into complex systems such as its storage-area network (SAN).

"There are issues as you drill down into the management and interoperability of complex environments," says Jim Hull, vice president of engineering services at the Purchase, N.Y.-based financial services company. "You need to ask vendors whether they interoperate and at what level."

But some changes are also paying



dividends for business users. "What's better is the testing and verification. The companies are taking it upon themselves to ensure that their products work as advertised and are expanding their test labs and their testing," says Hull.

Successful industry standards are issued by authoritative organizations and are widely accepted by the market. "A standard is an indication that you are buying a technology that has proved itself," says Alan Bryden, secretary general of the International Standards Organization (ISO). And while standards in and of themselves don't ensure interoperability, they are a necessary precondition.

Opportunity Beckons

To Hull, a successful standard is one that lets him find a second source and receive competitive pricing for storage networking equipment that will plug and play with his SAN. "Because I approach it from a standards perspective, my interoperability issues go way down," he says.

For vendors, standardization results in the opportunity of a broader market and the expense of increased competition. "The companies involved need to decide when it is to their advantage to enlarge the pie even though they may lose market share," says Carlo.

Authoritative organizations used to include mainly those standards development groups accredited by the American National Standards Institute, which represents the U.S. in the ISO and in other national standards bodies. Now many specifications come from hundreds of organizations, including vendor alliances, consortia and other industry groups.

Such groups have proliferated in recent years. Organizations pop up when existing standards bodies are seen as being too slow to respond, lacking expertise or disinterested in an emerging technology. In some situations, vendors strike out on their own, believing that their technologies won't get a fair hearing if they go to an established group.

That was the reasoning behind the formation of DCML.org, a vendor consortium founded by Opsware Inc. a year ago to promote the Data Center Markup Language for exchanging information between management systems in data centers.

"If you bring it to a standards organization too soon, it will not have a chance to evolve on its own merits," says Tim Howes, Opsware's chief technology officer and chairman of the DCML Framework Technical Committee. But DCML.org was ignored by major data center software vendors.

Setting Web Standards

TIM BERNERS-LEE is the creator of the World Wide Web and founder and director of the World Wide Web Consortium (W3C) in Cambridge, Mass. Berners-Lee is currently working on the Semantic Web, a framework for making Web content understandable by machines as well as people. In an interview conducted via e-mail with Robert L. Mitchell, he discussed the W3C and the challenges of developing standards.

Why did the world need the W3C – yet another standards group? There was not a group that was ready to focus on the layers of technology above the protocols layer that could draw upon the right communities of users. W3C appeared at a time when some of the most serious concerns had to do with fragmentation of the basic Web technologies, namely HTML, and we had to find a way to bring the actors to the table for the greater good.

Prior to founding the W3C, you first took HTML to the IETF. Why didn't it work out? I did start by taking HTML to the IETF, as I had been involved with the IETF for Internet protocols. That didn't work out largely because the people with markup experience were a different set: They joined the later W3C HTML Working Group when it was formed, which was very successful in bringing the fragmented HTML versions back to a single standard.

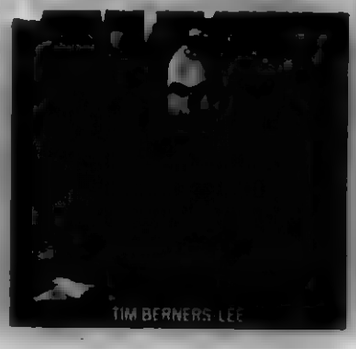
Why are there so many consortia and vendor groups promoting their own standards today? Recognizing that standards are now what customers demand, we see more of these marketing initiatives launched under the name of "standard." And of course, it makes sense that vendors might want to ensure that they can exert as much control as possible over the development of a standard – they're going to have to make products that conform. If a vendor group can control both the technical development and the marketing, then it's more appealing to the vendor – but not necessarily to the customer.

If you look at the rate of creation of new fora of the type which are formed by a few controlling founders, then in fact this is not new – it has been happening for a long time. Many of these are being formed as a marketing exercise, to build up some brand recognition. I don't think there is anything wrong with that, per se, except when it gets labeled a standard.

How do you think the world has changed in terms of what it takes to create a standard? A lot is at stake in terms of applications, both commercial and noncommercial. We've seen what happens when people and organizations sacrifice interoperability for speed.

There are also more people who are interested in participating in the production of a standard and more interested in using the end result. There is the continued desire to ensure that what gets built today works with what was implemented some time ago.

Given the importance of projects such the Semantic Web, are you working with other standards organizations to get its



elements more broadly supported? There has been relevant work done in the IEEE, though it doesn't come with the same connection to Web architecture – it doesn't use [Uniform Resource Identifiers] to identify everything, for example. The work on conceptual graphs, which is closer to Semantic Web work, went from the IEEE to ISO. However, the core standards for the Semantic Web, a growing stack based on the Resource Description Framework [RDF] and the Web Ontology Language, were developed at W3C and are W3C recommendations.

I think the largest liaison may be in the area of core ontologies for specific applications, which could seed a lot of connectivity. Calendar events are standardized in iCalendar at the IETF, and the RDF community is figuring out what they mean for conversion to RDF and then integration with other data, and the same is happening with media metadata as well as financial information.

I think the challenge and opportunity for the future is to get new groups in the application areas, especially at other standards bodies, to initially think in a Semantic Web way, so their work will join together without having to be reverse-engineered. So in many ways, the Semantic Web technology has to connect very well to specialized communities.

"DCML may have been an attempt at a standard, but it certainly wasn't open," says Alan Ganek, vice president of autonomic computing at IBM. But DCML.org recently became part of the Organization for the Advancement of Structured Information Standards (OASIS), and Ganek says IBM may take a second look.

It's not uncommon for large players to join a standards effort late, says Patrick Gannon, president and CEO of OASIS. "It's only when there's a clear indication from the market that they come on board," he notes.

Harald Alvestrand, chairman of the Internet Engineering Task Force, says what's often missing in standards organizations is significant user participation. In most cases, IETF standards efforts are driven by vendors.

"The standards process would deliver better standards if users were more active within it. [Users] inform the discussion in ways that other people can't," Alvestrand says.

Testing Ensures Interoperability

TO USERS, the value of standardization lies in interoperability, but a standard is just the first step. "The reality is that a standard does not address interoperability. The standard says, 'This is the way you build it,' " says Bob Snively, chairman of the InterNational Committee for Information Technology Standards' T11 Fibre Channel Interfaces Committee. While standards are a prerequisite for interoperability, Snively says vendor cooperation and testing are required to translate specifications into compatible designs.

"The standards developers often are not the people who are building the products. So what looks good on paper may need to be done in just a little bit different way," says Scott Valcourt, managing director of the University of New Hampshire Interoperability Laboratory. Since the late 1980s, the lab has worked with industry consortia in testing many emerging communications technologies, including 10 Gigabit Ethernet and wireless LANs. The lab also hosts "plug fests," where vendors can test product designs before they go to market. It does not, however, release results to the public or provide interoperability certifications.

Valcourt says such certifications lose meaning over time as the standard and products evolve. "[Testing] is never really done, because there are always new products coming out, there are always revisions, and with most certifications, there is no going back and retesting," he says. "The matrix [of products] just becomes too unwieldy."

But that hasn't stopped other vendors from trying. For example, the Bluetooth Special Interest Group certifies compliant products, as does the Wi-Fi Alliance. The latter has tested more than 1,500 products over the past four years.

"One of every four products that comes into our labs fails the first time," says Frank Hanzlik, managing director at the Austin-based alliance. Early testing is a way to improve products and reassure the market, he adds.

The Wi-Fi Alliance keeps its scope focused on basic connectivity. "We focus on the physical and MAC layers of the technology stack," Hanzlik says.

But even that level of testing will become more challenging in the future. "We are adding more and more sophisticated standards, where you have a lot more variables," Hanzlik says.

- Robert L. Mitchell

Making It Work

One subject on which customers continue to speak loudly is interoperability, and many industry associations are doing both compliance and interoperability testing.

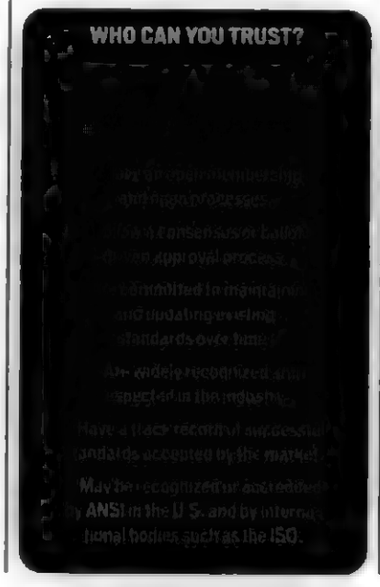
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But that's still not the reality, says MasterCard's Hull. "It's not a perfect world, and there's a long way to go to ensure that [products] interoperate."

Even when vendors are interested in developing a standard, they don't always agree on the details. The Institute of Electrical and Electronics Engineers Inc.'s study group for the UWB specification for wireless communications remains deadlocked after two years. Neither of two competing camps, led by Intel Corp. and Motorola Inc.'s Freescale Semiconductor Inc., has the votes needed to move forward. "The engineers are not listening to each other anymore," laments Martin Rofheart, director of UWB operations at Freescale.



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has made it difficult to reach consensus in some cases and created deadlock in others. And increasingly, vendors are trying to generate revenue by licensing intellectual property rights on the technologies they advocate as standards, rather than donating them for the common good.

"You now have compromises that are not just mathematical compromises or technical compromises but have major marketing compromises behind them," says Jim Carlo, president of the IEEE Standards Association.

Meanwhile, the evolution of more sophisticated systems has increased costs and worked against interoperability. At MasterCard International Inc., the challenge lies in getting industry-standard equipment to interoperate when inserted into complex systems such as its storage-area network (SAN).

"There are issues as you drill down into the management and interoperability of complex environments," says Jim Hull, vice president of engineering services at the Purchase, N.Y.-based financial services company. "You need to ask vendors whether they interoperate and at what level."

But some changes are also paying



dividends for business users. "What's better is the testing and verification. The companies are taking it upon themselves to ensure that their products work as advertised and are expanding their test labs and their testing," says Hull.

Successful industry standards are issued by authoritative organizations and are widely accepted by the market. "A standard is an indication that you are buying a technology that has proved itself," says Alan Bryden, secretary general of the International Standards Organization (ISO). And while standards in and of themselves don't ensure interoperability, they are a necessary precondition.

Opportunity Beckons

To Hull, a successful standard is one that lets him find a second source and receive competitive pricing for storage networking equipment that will plug and play with his SAN. "Because I approach it from a standards perspective, my interoperability issues go way down," he says.

For vendors, standardization results in the opportunity of a broader market and the expense of increased competition. "The companies involved need to decide when it is to their advantage to enlarge the pie even though they may lose market share," says Carlo.

Authoritative organizations used to include mainly those standards development groups accredited by the American National Standards Institute, which represents the U.S. in the ISO and in other national standards bodies. Now many specifications come from hundreds of organizations, including vendor alliances, consortia and other industry groups.

Such groups have proliferated in recent years. Organizations pop up when existing standards bodies are seen as being too slow to respond, lacking expertise or disinterested in an emerging technology. In some situations, vendors strike out on their own, believing that their technologies won't get a fair hearing if they go to an established group.

That was the reasoning behind the formation of DCML.org, a vendor consortium founded by Opsware Inc. a year ago to promote the Data Center Markup Language for exchanging information between management systems in data centers.

"If you bring it to a standards organization too soon, it will not have a chance to evolve on its own merits," says Tim Howes, Opsware's chief technology officer and chairman of the DCML Framework Technical Committee. But DCML.org was ignored by major data center software vendors.

Setting Web Standards

TIM BERNERS-LEE is the creator of the World Wide Web and founder and director of the World Wide Web Consortium (W3C) in Cambridge, Mass. Berners-Lee is currently working on the Semantic Web, a framework for making Web content understandable by machines as well as people. In an interview conducted via e-mail with Robert L. Mitchell, he discussed the W3C and the challenges of developing standards.

Why did the world need the W3C – yet another standards group? There was not a group that was ready to focus on the layers of technology above the protocols layer that could draw upon the right communities of users. W3C appeared at a time when some of the most serious concerns had to do with fragmentation of the basic Web technologies, namely HTML, and we had to find a way to bring the actors to the table for the greater good.

Prior to founding the W3C, you first took HTML to the IETF. Why didn't it work out? I did start by taking HTML to the IETF, as I had been involved with the IETF for Internet protocols. That didn't work out largely because the people with markup experience were a different set: They joined the later W3C HTML Working Group when it was formed, which was very successful in bringing the fragmented HTML versions back to a single standard.

Why are there so many consortia and vendor groups promoting their own standards today? Recognizing that standards are now what customers demand, we see more of these marketing initiatives launched under the name of "standard." And of course, it makes sense that vendors might want to ensure that they can exert as much control as possible over the development of a standard – they're going to have to make products that conform. If a vendor group can control both the technical development and the marketing, then it's more appealing to the vendor – but not necessarily to the customer.

If you look at the rate of creation of new fora of the type which are formed by a few controlling founders, then in fact this is not new – it has been happening for a long time. Many of these are being formed as a marketing exercise, to build up some brand recognition. I don't think there is anything wrong with that, per se, except when it gets labeled a standard.

How do you think the world has changed in terms of what it takes to create a standard? A lot is at stake in terms of applications, both commercial and noncommercial. We've seen what happens when people and organizations sacrifice interoperability for speed.

There are also more people who are interested in participating in the production of a standard and more interested in using the end result. There is the continued desire to ensure that what gets built today works with what was implemented some time ago.

Given the importance of projects such the Semantic Web, are you working with other standards organizations to get its elements more broadly supported? There has been relevant work done in the IEEE, though it doesn't come with the same connection to Web architecture – it doesn't use [Uniform Resource Identifiers] to identify everything, for example. The work on conceptual graphs, which is closer to Semantic Web work, went from the IEEE to ISO. However, the core standards for the Semantic Web, a growing stack based on the Resource Description Framework [RDF] and the Web Ontology Language, were developed at W3C and are W3C recommendations.



I think the largest liaison may be in the area of core ontologies for specific applications, which could seed a lot of connectivity. Calendar events are standardized in iCalendar at the IETF, and the RDF community is figuring out what they mean for conversion to RDF and then integration with other data, and the same is happening with media metadata as well as financial information.

I think the challenge and opportunity for the future is to get new groups in the application areas, especially at other standards bodies, to initially think in a Semantic Web way, so their work will join together without having to be reverse-engineered. So in many ways, the Semantic Web technology has to connect very well to specialized communities.

"DCML may have been an attempt at a standard, but it certainly wasn't open," says Alan Ganek, vice president of autonomic computing at IBM. But DCML.org recently became part of the Organization for the Advancement of Structured Information Standards (OASIS), and Ganek says IBM may take a second look.

It's not uncommon for large players to join a standards effort late, says Patrick Gannon, president and CEO of OASIS. "It's only when there's a clear indication from the market that they come on board," he notes.

Harald Alvestrand, chairman of the Internet Engineering Task Force, says what's often missing in standards organizations is significant user participation. In most cases, IETF standards efforts are driven by vendors.

"The standards process would deliver better standards if users were more active within it. [Users] inform the discussion in ways that other people can't," Alvestrand says.

Making It Work

One subject on which customers continue to speak loudly is interoperability, and many industry associations are doing both compliance and interoperability testing.

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Testing Ensures Interoperability

TO USERS, the value of standardization lies in interoperability, but a standard is just the first step. "The reality is that a standard does not address interoperability. The standard says, 'This is the way you build it,' " says Bob Snively, chairman of the InterNational Committee for Information Technology Standards' T11 Fibre Channel Interfaces Committee. While standards are a prerequisite for interoperability, Snively says vendor cooperation and testing are required to translate specifications into compatible designs.

"The standards developers often are not the people who are building the products. So what looks good on paper may need to be done in just a little bit different way," says Scott Valcourt, managing director of the University of New Hampshire Interoperability Laboratory. Since the late 1980s, the lab has worked with industry consortia in testing many emerging communications technologies, including 10 Gigabit Ethernet and wireless LANs. The lab also hosts "plug fests," where vendors can test product designs before they go to market. It does not, however, release results to the public or provide interoperability certifications.

Valcourt says such certifications lose meaning over time as the standard and products evolve. "[Testing] is never really done, because there are always new products coming out, there are always revisions, and with most certifications, there is no going back and retesting," he says. "The matrix [of products] just becomes too unwieldy."

But that hasn't stopped other vendors from trying. For example, the Bluetooth Special Interest Group certifies compliant products, as does the Wi-Fi Alliance. The latter has tested more than 1,500 products over the past four years.

"One of every four products that comes into our labs fails the first time," says Frank Hanzlik, managing director at the Austin-based alliance. Early testing is a way to improve products and reassure the market, he adds.

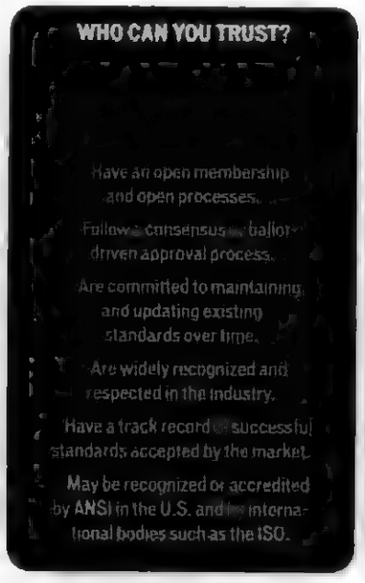
The Wi-Fi Alliance keeps its scope focused on basic connectivity. "We focus on the physical and MAC layers of the technology stack," Hanzlik says.

But even that level of testing will become more challenging in the future. "We are adding more and more sophisticated standards, where you have a lot more variables," Hanzlik says.

– *Robert L. Mitchell*

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HELP KEEPS TRANSIT SYSTEM MOVING

New help desk software eases the burden on Pittsburgh port authority service reps and ensures user access to critical applications. BY LINDA ROSENCRANCE

UNTIL LAST YEAR, the Pittsburgh-based Port Authority of Allegheny County had no centralized system for handling help desk calls from its 872 users.

The agency's 22 support representatives were overwhelmed with the 150 to 200 help desk calls they were receiving each day. The port authority has 3,100 employees and provides bus and light rail service to 68 million riders annually in Pittsburgh, Allegheny County and parts of three other counties.

The problem was that the authority's homegrown Microsoft Access Help Desk database management system couldn't handle all the calls and help requests.

CASE STUDY

"Approximately 55% of the help desk calls are for our PeopleSoft ERP application — both financials and HR/payroll, e-mail — which is Microsoft Outlook, a vertical market product for dispatching and scheduling, and Microsoft Office," says Wayne Hammond, the port authority's director of IT administration. The majority of the other calls are related to hardware, security and telecommunications, he adds.

The agency needed a way to streamline the requests and track each support staff member's trouble tickets, says Steve Dudzik, a port authority support representative. "The only way our support reps used to have access to the tickets was when the help desk call was created, and our help desk manager would e-mail that ticket to them," he says. "There was no way to check on their current status."

After looking at a few help desk products, the port authority selected HelpStar technology from Help Desk Technology International Corp. in Crestview, Fla. The main reason was money, according to Hammond. He had only about $6,000 to spend.

"We felt we needed to get a [commercial off-the-shelf] product, rather than working to develop something in-house," he says. "We were working with a limited budget, so we had to find something we felt would work — that had a Web interface. And we were hoping it would be open, like in a SQL platform that we could create reports from. And we wanted to be able to have everybody access this system."

The other packages he looked at did all the right things, but the port authority couldn't afford them, so it chose the HelpStar software, which was priced at about $4,200, Hammond says.

With HelpStar, which runs on a Microsoft SQL Server 2000 database, a new service request is created for each new job, call or action undertaken by the help desk, says Gemma Young, product manager at HelpStar.

End users can submit service requests from their Windows clients, over the Web or via e-mail. Those requests are converted into help desk tickets, and remote support staffers can open and update requests via the Web interface, Young says.

"HelpStar allows support reps to access their tickets from anywhere on the network by going through the Web interface, and it reduces the amount of e-mails we have to send out," says Hammond. "We also liked that through the Web interface, users can enter their own tickets and don't need to call the help desk anymore."

When a support representative is assigned a trouble ticket, a notification comes up on his screen, Dudzik says.

"The system checks for these notifications about every five minutes for us, but that's customizable," he says.

Automatic Routing

Once a request is made, it's automatically forwarded to the dispatch area. From there, a dispatcher, usually a support rep, will assign a priority to the request and direct it to the relevant queue, a temporary holding area for requests grouped by the particular skill required to solve them, Young says.

The requests are then sent to the most-qualified support staffers, who are prompted to work on the highest-priority requests that have been waiting the longest time, she says.

"The end users also have the ability to use the Web interface to check for solutions to their problems via the knowledge database — a database of common problems and their solutions," says Young. "Users can also check on the status of any existing requests they have logged with the help desk by e-mail or a Web interface."

And if one staff member's workload is reduced at a particular time, he can view the other outstanding tickets and assign one to himself, says Hammond.

The port authority has 10 locations, and if a support rep is handling a problem at a branch office, he can check the other tickets to see if anything else needs to be done there before going back to the central office. "Before, there was no way of knowing without making a phone call," says Hammond.

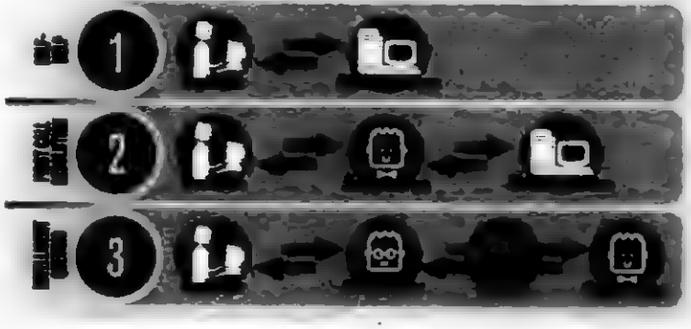
The port authority also keeps an account of every phase of the ticket, so support reps can see the whole history of the ticket from when the help desk worker or the user entered it.

The HelpStar client software was installed on the 22 support reps' desktop PCs, which are Dell GX-270S machines with 2.6-GHz Pentium 4 processors, 512MB of RAM and 40GB hard drives running Windows 2000, Service Pack 4. The server package runs on a Dell PowerEdge 2400 server with dual 66-MHz Pentium III processors with 1GB hard drives running Windows 2000 Server, Service Pack 3, Hammond says.

Installation of the HelpStar software took six to eight hours and was "trouble-free," Hammond says. **50349**

THREE-PRONGED RESPONSE TO DISTRESS CALLS

HelpStar software manages help desk inquiries at three levels.
1) End users can use the software for self-service resolution of problems.
2) Users can contact a support rep to sort through options and find the best solution.
3) If all help desk reps are busy, users go through a dispatcher who uses HelpStar to direct them to the queue for the most appropriate service rep.




Designed to work the way business
Samsung's 193P display

FUTURE WATCH

CARNEGIE MELLON UNIVERSITY is researching some of the biggest challenges in computer security, data availability and systems reliability through a year-old interdisciplinary program known as CyLab.

Funded with federal dollars and contributions from 40 private companies, CyLab brings together graduate students and 30 professors, mostly in computer sciences, to work in teams on a wide range of research areas.

For example, in September, Pittsburgh-based Carnegie Mellon won a $6.4 million grant from the National Science Foundation for an initiative called Security Through Interaction Modeling (STIM), which studies complex interactions between people, the computers they use and attacks from the outside. STIM will explore means of improving computer defenses by incorporating the models' behaviors into the defenses themselves.

Another CyLab project takes the name of the French impressionist painter Georges Seurat, who painted vast canvasses with many tiny dabs, or "points," of paint, a process dubbed pointillism. The Seurat team at CyLab is developing methods to monitor anomalous behavior that may be induced by buffer overloads and other glitches. The Seurat technique compares a precomputed profile of how a system should be performing to the combination of all the application interactions with the operating system. "So it looks at a profile of what this system should be doing and says maybe this thing has been corrupted," explains Mike Reiter, technical director of CyLab and a professor of computer engineering and science. "It can track accesses and changes across many machines all at once or in a short time period."

The Seurat project is so named because there are many layers, points or places where one might measure what is going on in a system in order to see evidence of an attack, much the same way the 19th century painter discovered that what we see comprises many points of color and light.

The Seurat technique is a broad-brush approach to security, and indeed, the overall scope of CyLab's $10 million annual research mission is broad, says Pradeep Khosla, dean of the Carnegie Mellon College of Engineering and co-director of CyLab.

"We want a world where we can push measurable, sustainable, secure, trustworthy and available data," explains Khosla. He says CyLab will attempt to help reduce the number of bugs in software, for example.



CyLab is developing network defense mechanisms for virus and worm attacks. Carnegie Mellon researcher Chenxi Wang says the idea is to detect an infection early and have the network react to it in real time to mitigate damage. The secret is to quickly identify those few critical nodes, shown here in red, that most aid the spread of malicious code so that they can be "immunized or patched," Wang says. The work is supported by a National Science Foundation grant of $1.1 million and is being conducted by Carnegie Mellon and industry partners Symantec Corp. and Akamai Technologies Inc. Researchers are also looking at network vulnerabilities in a separate effort called the Suerat Project.

Khosla estimates that for every dollar spent on computer hardware and software, it takes $6 to $8 in personnel costs to maintain it. For that reason, vulnerability analysis is part of the CyLab program as well as malicious code detection.

But even more basic, several projects at CyLab are devoted to creating self-healing systems that can survive malicious attacks, Khosla says. "We know attacks exist, so you can either build a system that survives the attack or find a way to stop the attack," Khosla says. "But trying to find a way to stop attacks is akin to saying, 'I'll kill all the bacteria and viruses out there.' Instead, we are going to find a way to live with worms and attacks with self-healing."

CyLab's immediate work on self-healing is a project called Self * Storage System, which researchers are about to demonstrate to the U.S. Army and will show publicly in six months or so. The idea is that there is no single point of failure in a system, especially storage, so if a piece of information is corrupted, the system can quickly determine that and automatically set itself back to its original state. The system survives the attack without actually finding a way to prevent it, Khosla explains.

Reiter says Self * Storage is also about improving management of large-scale storage systems in a process some call autonomic computing.

Cell Phone Remote Control

Another vision at CyLab is to use smart phones as ubiquitous access control devices. It is an idea that mobile phone companies have already implemented, but CyLab is working on new approaches to making that vision very scalable.

As a hypothetical example, Reiter cites the intrepid business traveler flying halfway around the world and using his cell phone as a key to open his hotel room door. The idea goes far beyond promoting a single standard and instead involves what Reiter calls a "flexible access-control network which allows new policies to be introduced into a system to permit devices to work."

The traveler would have his credentials transferred to the hotel from his phone by Bluetooth or ultrawideband technology, with a hotel room digital key transferred back to reside on the phone.

There would be no problem if the phone was stolen, because it would authenticate the user by PIN or thumbprint before revealing the key. Using its WAN capabilities, the phone would request permission from a remote server, perhaps at the traveler's place of employment, which wouldn't know the key but could authenticate the traveler based on the PIN or thumbprint. Once clearance was granted, the phone would be allowed to complete the computation of the cryptographic key to allow the traveler to get some sleep.

Reiter says CyLab is starting to demonstrate this capability and will move forward with the opening this winter of the Collaborative Innovation Center, a facility in which researchers will be able to control building functions using smart phones. **50615**

Pointillist Protection

A Georges Seurat approach to vulnerabilities. By Matt Hamblen

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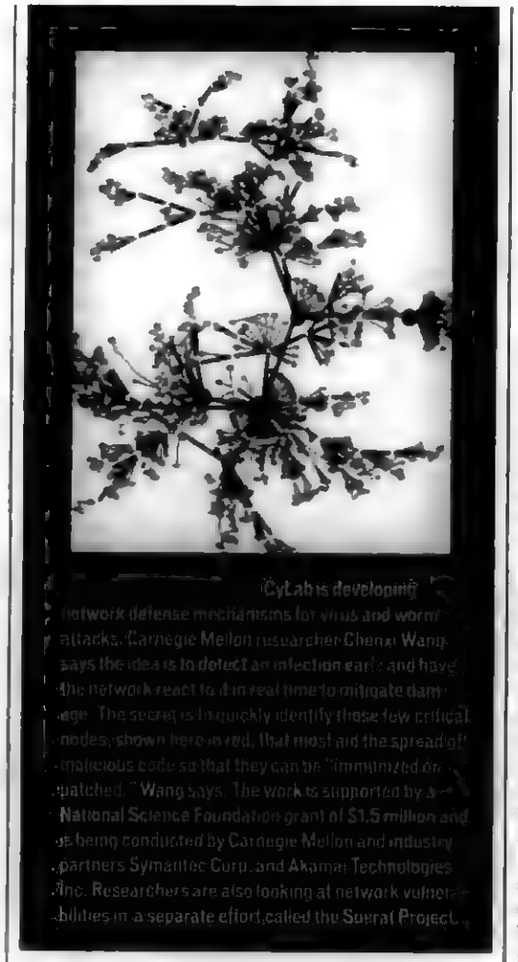
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CyLab is developing network defense mechanisms for virus and worm attacks. Carnegie Mellon researcher Chenxi Wang says the idea is to detect an infection early and have the network react to it in real time to mitigate damage. The secret is to quickly identify those few critical nodes, shown here in red, that most aid the spread of malicious code so that they can be "immunized or patched," Wang says. The work is supported by a National Science Foundation grant of $1.5 million and is being conducted by Carnegie Mellon and industry partners Symantec Corp. and Akamai Technologies Inc. Researchers are also looking at network vulnerabilities in a separate effort called the Seurat Project.

Khosla estimates that for every dollar spent on computer hardware and software, it takes $6 to $8 in personnel costs to maintain it. For that reason, vulnerability analysis is part of the CyLab program as well as malicious code detection.

But even more basic, several projects at CyLab are devoted to creating self-healing systems that can survive malicious attacks, Khosla says. "We know attacks exist, so you can either build a system that survives the attack or find a way to stop the attack," Khosla says. "But trying to find a way to stop attacks is akin to saying, 'I'll kill all the bacteria and viruses out there.' Instead, we are going to find a way to live with worms and attacks with self-healing."

CyLab's immediate work on self-healing is a project called Self * Storage System, which researchers are about to demonstrate to the U.S. Army and will show publicly in six months or so. The idea is that there is no single point of failure in a system, especially storage, so if a piece of information is corrupted, the system can quickly determine that and automatically set itself back to its original state. The system survives the attack without actually finding a way to prevent it, Khosla explains.

Reiter says Self * Storage is also about improving management of large-scale storage systems in a process some call autonomic computing.

Cell Phone Remote Control

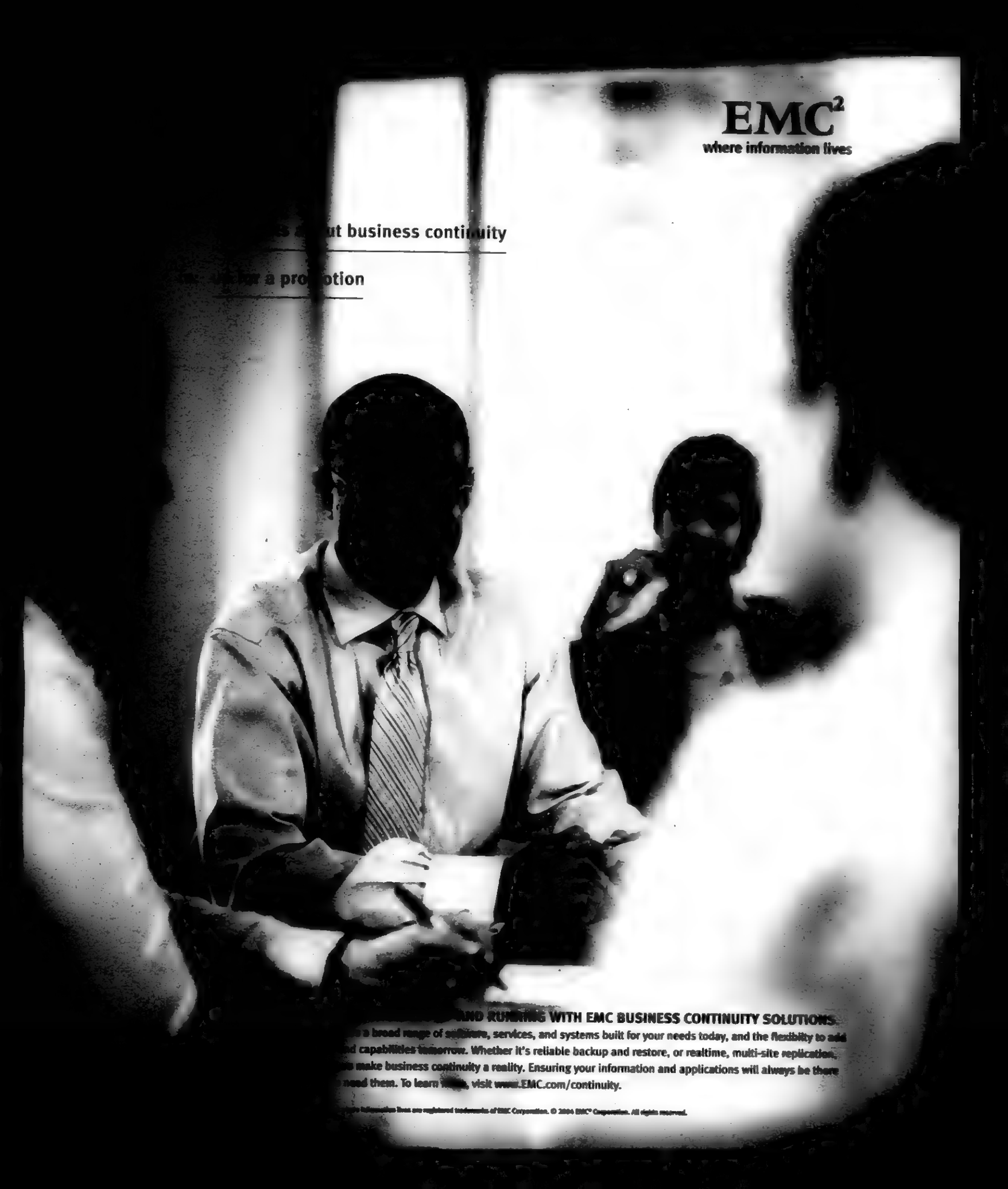
Another vision at CyLab is to use smart phones as ubiquitous access control devices. It is an idea that mobile phone companies have already implemented, but CyLab is working on new approaches to making that vision very scalable.

As a hypothetical example, Reiter cites the intrepid business traveler flying halfway around the world and using his cell phone as a key to open his hotel room door. The idea goes far beyond promoting a single standard and instead involves what Reiter calls a "flexible access-control network which allows new policies to be introduced into a system to permit devices to work."

The traveler would have his credentials transferred to the hotel from his phone by Bluetooth or ultrawideband technology, with a hotel room digital key transferred back to reside on the phone.

There would be no problem if the phone was stolen, because it would authenticate the user by PIN or thumbprint before revealing the key. Using its WAN capabilities, the phone would request permission from a remote server, perhaps at the traveler's place of employment, which wouldn't know the key but could authenticate the traveler based on the PIN or thumbprint. Once clearance was granted, the phone would be allowed to complete the computation of the cryptographic key to allow the traveler to get some sleep.

Reiter says CyLab is starting to demonstrate this capability and will move forward with the opening this winter of the Collaborative Innovation Center, a facility in which researchers will be able to control building functions using smart phones. **50615**


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Network Visibility Goal Gets Trimmed

Our security manager asks the impossible of her team before learning what can be done in the real world. By C.J. Kelly

SECURITY MANAGER'S JOURNAL

THE TEAM gathered in the security lab for our weekly meeting. At the top of the agenda was distributed intrusion detection. The junior-level security engineer glanced toward a whiteboard that displayed his work of art — numerous lines drawn in different colors depicting the complicated layout of our network. The black lines represented copper links, the red lines fiber, the black boxes routers and switches, and the blue boxes network taps and Snort sensors.

Meanwhile, the senior security architect distributed current network diagrams neatly done in Visio network diagramming software. Everyone was well prepared.

I noticed, however, that the team members were on edge. They were feeling drained and discouraged after dealing with Microsoft's flurry of security patches in October, discovering a security breach that originated from a remote laptop, managing participation in more than 40 IT and development projects and hearing rumors that the 2005 budget was being slashed to bare bones.

I took a deep breath, smiled my best we're-all-in-this-together smile and turned to the youngest member of our team. "Whatcha got?" I asked him.

He explained that his first recommendation for how to gain better visibility on the network was to buy port aggregators. He had read reviews and thought the idea sounded good. But after working closely with network engineers to better understand the network, the team member had found that the port aggregators wouldn't work for a variety of reasons. So, instead, he had come up with a design that combined port spanning with network taps. I reviewed his design and nodded. This kid is smart, I thought to myself, and this is sure going to cost a lot less money than the original plan of purchasing port aggregators at $950 a pop.

The goal, in my mind, was to be able to monitor the LAN/WAN environment for suspicious traffic, receive alerts via SMTP (preferably e-mail sent to our BlackBerry devices), respond to events in as close to real time as possible and report on that activity in weekly and monthly summaries to upper management. I didn't think that was too much to ask.

The senior security architect turned to me and said, "It would be helpful for us if you would be very explicit about what kind of results you're looking for."

As usual, I stuck my foot all the way down my throat. I said, "I want to see 100% of the traffic on 100% of this network and every network attached to it that we have security responsibility for." He smiled gently and said, "That's impossible. And by the way, nobody does that."

As usual, I stuck my foot all the way down my throat.

I learned early in my career that if you want to manage people well, you have to let go of your ego, hire people a lot smarter than you and let them do their jobs. My job is to understand enough about security to make good business decisions and to ensure that my team members have what they need to do their jobs. So when presented with this bit of insight from the security architect, I laughed, and the team started to loosen up.

Tell Me Everything

"What I know," I said, "is that we do not have the level of visibility that we need. What I know is that we cannot continue to rely on span ports. What I know is that our network could be owned [that's the hacker term for obtaining undetected full privileges on a private network] right now, and we have to do something. You're the experts. Tell me how this is done; tell me if we can do it and what you need from me to get it done."

At this point, the entire team started joking about how the network architecture is horrible. I thanked our junior engineer and asked him to put his designs into Visio, meet with the network engineers and the senior network architect and gain buy-in for his designs. Without the cooperation of the network guys, we weren't going to be able to sell the idea of in-line network devices, no matter what the cost savings.

I had to put together a project plan for this, present it to management, get it on the project management office queue and juggle the budget to make sure we could move forward quickly. My part is boring but essential. The company was scrutinizing every dollar, and I couldn't let this project fall by the wayside.

In an effort to be explicit about my expectations, I asked the senior security architect to explain the nuts and bolts of security monitoring to the team. I wanted to understand what we could do without seeing all the traffic all the time.

"What we need to be able to do," he explained, "is to collect data that describes the network environment to the highest levels possible. We will be constrained by hardware and its ability to collect the data. Therefore, we will have to focus on sampling the data at key points on our network. We will not be able to collect every packet that traverses the network and analyze it. Even if we did collect gigabytes of data from each key point, we would be faced with correlating and analyzing vast amounts of data, and we just don't have the resources to do that."

We had been in the security lab for two hours discussing intrusion detection, and it was now lunchtime. Engineers aren't at their best when they're hungry. "OK, guys, let's break," I said. "The next step is to find a way to correlate and analyze the data now that the design for collecting it has been completed. I'd like to have some choices to review next week. Good work."

I was humbled by my inability to understand all the technical details, but I was encouraged that I had hired people with top-notch skills. I was also excited that we were finally making some progress at the core level toward finding out what was really going on in the network. ◗

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "C.J. Kelly," whose name and employer have been disguised for obvious reasons. Contact her at mscjkelly@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

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SECURITY LOG

E-commerce Fraud On the Rise in '04

In its ninth annual e-commerce fraud survey, CyberSource Corp. forecast that businesses will lose $2.6 billion to online fraud in 2004, a 37% increase over $1.9 billion last year. In addition, merchants are rejecting 39% more orders than they did last year because of suspicion of fraud, said CyberSource, which specializes in electronic payment and risk management services for retailers. Retailers have lost more to online fraudsters. This year, fraudulent orders account for 1.8% of online sales, which is statistically level with 2003's 1.7%, according to CyberSource. The $700 million increase in fraud losses is due to e-commerce growth. The 340 merchants surveyed said they expect their e-commerce revenues to increase by 29% in 2005.

Net Monitor Now Works on Firefox

S2 Security Corp. announced that it has certified its S2 NetBox product for use with the Mozilla Foundation's new Firefox 1.0 browser. Users of S2 NetBox Version 1.1 and later releases can now access the software's monitoring, administration and reporting capabilities with an interface delivered via Firefox, said Wellesley, Mass.-based S2.

SSO at Last

RSA Security Inc. in Bedford, Mass., announced the availability of its RSA Sign-On Manager, which it said will simplify password management and make it easier to log into multiple applications. Sign-On Manager was originally due in the third quarter but was delayed so the company could make improvements suggested by test customers, said Phil Pokoiko, director of product management at RSA. Sign-On Manager connects RSA's SecurID Privilege and Certificate Manager software to RSA's software that previously only enabled single sign-on between Secure Computing Corp.

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BRIEFS

Adobe Announces Acrobat Upgrade

■ Adobe Systems Inc. in San Jose announced Acrobat 7. The new version can create PDF images of Outlook e-mail messages and folders, loads and runs faster, supports 3-D images and includes an organizer feature for combining PDF files into compound documents, according to the company. The Professional edition now includes Adobe Designer forms software. It also supports GeoTrust Inc.'s digital certificates and can create encrypted, password-protected PDF documents that users with the free Adobe Reader can open. Acrobat Standard is $299; Acrobat Professional is $449. The product will ship in January.

Epiphany Unveils Analytical Packs

■ Customer relationship management software maker Epiphany Inc. in San Mateo, Calif., last week rolled out analytical software that it said can help companies better deal with customers and drive profitability. The two new products in the Advisor line are aimed at the communications and retail finance industries. The packages ship this week with a typical installation priced at about $250,000, according to the company.

Symantec Updates Remote Software

■ Symantec Corp. in Cupertino, Calif., last week announced pcAnywhere 11.5, with support for a broader array of devices and more security features. Additions include the ability for IT managers to remotely control devices from any machine running Linux, Windows, Pocket PC and Pocket PC Phone, the company said. Security additions include 13 ways to authenticate users and use of the new Advanced Encryption Standard. A retail version will be available next month for $199.95.

TOMMY PETERSON

Users Should Enlist In Standards Wars

WHENEVER I think about what we vaguely refer to as the "standards process," I'm reminded of an event I attended in the summer of 2003 at Burton Group's Catalyst conference. It was billed enthusiastically in preconference publicity as "the first public demonstration" of SPML, the Service Provisioning Markup Language standard developed by OASIS, the Organization for the Advancement of Structured Information Standards. The demonstration was part of the run-up to a vote on the specification's acceptance by the full membership of OASIS, whose stated mission is to develop e-business technical standards.



TOMMY PETERSON is Computerworld's Technology editor. Contact her at tommy_peterson@computerworld.com.

The venue for this milestone was a nondescript meeting room hidden in the subterranean recesses of a San Francisco hotel. The room was mostly filled with smart, articulate engineers and their marketing department colleagues from each of the OASIS member vendors that had been part of the working group that produced the standard.

They stood in groups, each clumped in front of an island of systems running their company's software. From their stations, the groups eagerly engaged the public — in this case, journalists and a few curious conference attendees — and performed the delicate task of touting the superior qualities of their own products while talking up the importance of the standard that would make all of the products work together. The vendors represented in the room were big and small. Some were direct competitors; others were part of business partnerships.

Then the demonstration started. The critical moment, when an imaginary user's access rights and resource information were provisioned across all the applications running in the room, went off without a hitch. Proud exclamations erupted from the participating groups as the example user appeared in each vendor's application.

Unfortunately, it was difficult to make the imaginative leap from this highly controlled demonstration to the much more unpredictable environment of any large business's IT systems. The exercise was interesting — even impressive — yet I felt as though I'd watched an elaborate version of a high school science fair project.

This memory persists not because I doubt the importance of SPML in particular or technical standards in general. It's because that demonstration reveals the absurdities and complexities in the standards development process. We often speak of standards as though they are the result of a logical, if painfully slow, exercise that promises to rationalize some technology sector or another. For wireless LANs, it's the need to get basic communications standards in place. For Web services, the idea is to build a common stack of specifications so that service-oriented architectures can take over the corporate IT world.

In actuality, standards emerge both because of and despite a convoluted web of ideas, relationships and business needs. They reflect the interplay of market forces at least as accurately as they do the pure pursuit of elegant engineering solutions to technical problems. As Robert L. Mitchell points out in the feature "Standards: High-Stakes Game" (see page 25), the notion of technical standards being hammered out by a group of high-minded engineers is outdated — if it ever was based in reality.

The development of standards stirs contention because the process represents the friction point where innovation rubs up against commoditization. The impulse to protect intellectual property has to be balanced against the need to operate in an astoundingly diverse technology landscape. And don't forget that the winners of what are ostensibly wars of ideas get a much larger slice of million-dollar — or even billion-dollar — markets than do the losers. Given all the interests in play, is it any wonder that progress toward consensus on any specification is excruciatingly slow? The process isn't going to get any faster as the number of players continues to increase, and as each organization and vendor has more and more riding on the acceptance of its own ideas.

User participation in standards creation lags behind that of vendors, but corporate IT has at least as much at stake: Interoperability translates directly into money and time saved. To users, standards imply interoperability and the ability to comparison-shop to fill their technology needs while controlling costs. Standards also offer time savings in implementation after buying choices are made.

The standards development process also guarantees users plenty of frustration, as they sort through the welter of standards organizations and wonder what compliance means in the current fractured landscape. But user participation is key to achieving better standards and more efficient ways to create them. It's time to enlist in the standards wars. **50863**

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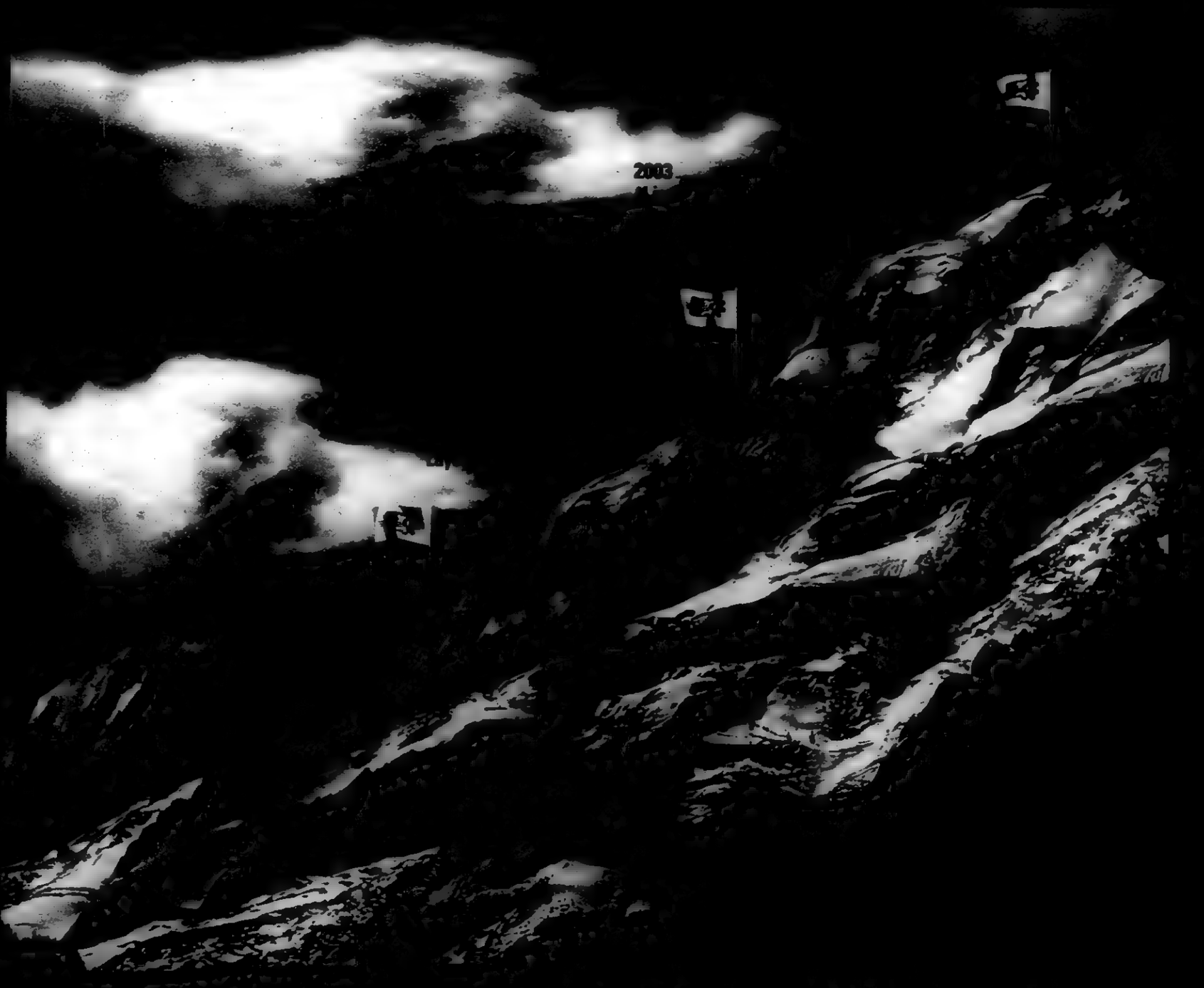
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To whom should the chief security officer report? That's the wrong question, says Norbert Kubilus. The right question is, Who should the CSO be? **Page 44**



MICHAEL MILLER

Linux UNCHAINED

Linux use is growing faster than the talent pool needed to support it. Here's how IT managers see the problem and what they're doing about it. **BY MARY K. PRATT**

CUSTOMERS OF GAF3 SOLUTIONS tell the technology services provider that they want to use Linux because they hear it's reliable, robust and relatively inexpensive. But a customer recently balked at the one-month delay to install a Linux server. Why such a long wait? GAF3's Linux expert was overextended, says George A. Fitch III, president and CEO of the Dover, N.H.-based company.

High demand has Fitch wondering if he should charge extra for Linux-related work. If he does, he wouldn't be alone.

Linux is gaining ground so quickly that some companies are having a hard time finding enough people to handle Linux-related work. And those they do find charge a premium, according to The Yankee Group, a market research firm in Boston. Skilled Linux administrators in major metropolitan markets command 20% to 30% salary premiums over their Unix and Windows counterparts — a fact that could diminish the cost savings that many companies bank on when they switch to Linux.

"It's really hard to find good, qualified help that doesn't charge you so much," says Laura DiDio, an analyst at Yankee Group.

Not all IT managers concur with that assessment, but they do agree that the growth of Linux requires a retooling of tech workers. They can't throw their Windows people into Linux projects without additional training, and though Unix staffers can pick up Linux more quickly, even they need time to get up to speed.

The Goods

Linux experts and enthusiasts cite a litany of skills that companies need for Linux systems work. Experience with programming and documentation is key. The ability to edit files and modify source code is important, too. Management experience is another plus.

Those skills aren't overly difficult to find, says Michael J. Ciaraldi, a computer science professor at Worcester Polytechnic Institute in Massachusetts. But other skills — namely expertise in networking and graphics — aren't so easy to locate.

"Another skill in Linux is you have to be willing to ask other people for help," Ciaraldi adds. For those who do seek help, there are Web sites and user groups that share information on how to use and modify Linux.

DiDio compares the skills needed for Linux today

to those sought for network administrators 15 or 20 years ago. "What you're basically looking for is that eclectic network administrator or software developer from circa 1988 — someone who knows lots of different things," she says.

While some say the lack of personnel with Linux expertise affects the rate at which companies adopt the open-source system, others say IT departments are finding the skills they need without much extra effort or additional pay.

"If you have someone who has experience with other operating systems, I don't think it's all that difficult switching over to Linux," Ciaraldi says. "Conceptually, the commands are the same, the structure is similar. It's just learning what the exact commands are to accomplishing various tasks."

Tom Pratt, IT manager at Coastal Transportation Inc., a shipping company in Seattle, agrees. He oversees a mixed environment that includes seven Linux servers and two Linux desktops. Pratt says he had no problem learning Linux, and he wouldn't expect to encounter any problems finding skilled help if necessary. A Unix administrator could easily evolve into a Linux administrator with self-directed training, Pratt says. "If you can read, that's the primary skill you need," he adds.

Not So Fast

Not all companies are comfortable moving ahead with Linux without skilled workers, however. Ciaraldi remembers one New Jersey company, which was working with Worcester Polytech students, that decided against a Linux server when it realized it didn't have in-house Linux expertise.

And for companies that like flexible IT staffs, Linux can present a problem. "The hardest thing I'm finding is someone who is very good in Linux and can support Windows," says Dan Agronow, vice president of technology at The Weather Channel Interactive Inc., or Weather.com, in Atlanta.

Agronow says he hasn't had any trouble finding staffers with Linux skills, but those with both Linux expertise and Windows skills are rare. "Most people aren't as broad as that," he says.

Like others, Agronow says he believes someone with Unix experience can easily make the transition to Linux, but he suggests that the significant differences between Windows and Unix/Linux could keep some companies from adopting Linux. "If you were an all-Windows shop, maybe you don't have the contacts to hire a Linux person," he says.

Besides, companies want more than Linux skills, experts say. They want business experience, too. "It's certainly possible to hire junior systems administrators who have great knowledge in Linux," says Mark Mellis, a consultant at SystemExperts Corp., a Sudbury, Mass.-based provider of network security consulting services.

"The place where you run into trouble is typically they know the technical bits, but they don't understand the business," he says. "They understand the details of the implementation, but they don't understand the greater architectural details or the big picture. That's why they're junior people."

Even companies that rely on their senior Unix workers for help with Linux systems are encountering problems, DiDio says. "There's a presumption that if these guys could do Unix, then Linux should not be that much of a stretch for them. So they're throwing them into the trenches," but they're not always prepared to handle all the tinkering that needs to be done, she says.

The famously collaborative Linux community tries to pooh-pooh this, according to DiDio. "They'll say, 'We have thousands of developers who will jump in and help out' " via Linux chat rooms and Web sites, she says. "While that sounds very nice, that's not going to take the place of skilled in-house staff."

For Now

While Unix people may be able to make the transition to Linux over time, the shortage of skilled Linux personnel today is forcing some companies to look to vendors for help. But DiDio says even the big Linux distributors like Red Hat Inc. and Novell Inc. "don't have thousands of tech support people" to meet growing demand for Linux-related services.

DiDio cites the case of a major stock exchange that switched from Unix to Linux. The organization had to default to its hardware vendor, Hewlett-Packard Co., for installation help and service. "This is how people are going to make their money on Linux — selling the premium technical service and support," she says.

And while that window of opportunity won't last forever, it may exist for the foreseeable future.

"I think there will be more demand as deployment continues," says Dick Mackey, principal at SystemExperts. "And I think the demand will increase before the supply of skilled people will be available. It will be a good market for those people."

Meanwhile, companies are trying to close the Linux skills gap by sending staffers for training and hiring new people specifically for their Linux experience. "And some of the smaller companies are asking employees to go out and teach themselves," says Ciaraldi.

Peter Childers, vice president of global learning services at Raleigh, N.C.-based Red Hat, says he has seen demand for the company's Linux training and certification courses increase dramatically. Today, there are more than 12,800 Red Hat Certified Engineers and 5,900 Red Hat Certified Technicians, a designation launched in January 2003. And 97% of people attending training are sponsored by their companies, Childers says.

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Even so, Linux personnel seem increasingly valuable. Regardless of how you increase the level of Linux expertise in your IT shop, beware of companies that might try to raid your staff, particularly competitors in your industry, DiDio says. "Make [workers] sign on the dotted line if you train them that they'll stay with you for a year or two," she says. **50385**

Pratt is a freelance writer in Waltham, Mass. You can contact her at markmary@mindspring.com.

What It Really Takes

AMAZON.COM INC. has used Linux in some shape or form since it was founded a decade ago. Even so, Tom Killalea, vice president of infrastructure at the Seattle-based Web retailer, doesn't seek out people specifically trained in Linux when he wants to hire new staff. "We hire a lot of people who tinker, who break things apart and put them back together," he says. "And through the economic ups and downs, we keep very squarely focused on innovation and customer service."

Killalea says his hiring philosophy hasn't hindered his ability to find people to work on Linux. "We're constantly looking for great computer scientists. We don't chase after the technology of the system," he says. "The reality is we want to hire really smart people: problem solvers, people who are curious. If we were to limit ourselves in our recruitment to the development of operating systems of the day, we'd be doing ourselves a disservice."

— *Mary K. Pratt*

Pros and Cons

Is your company using Linux or other open-source software?

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Plan to use in next 12 months	14%
No plans	39%

BASE: 140 North American companies

The biggest concerns about Linux or open-source software among companies using it:

Lack of support	57%
Don't have the skills, knowledge	36%

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Don't have the skills, familiarity	55%
Lack of support	53%

BASE: 55 North American companies

SOURCE: IDC RESEARCH INC., MARCH 2004

to those sought for network administrators 15 or 20 years ago. "What you're basically looking for is that eclectic network administrator or software developer from circa 1988 — someone who knows lots of different things," she says.

While some say the lack of personnel with Linux expertise affects the rate at which companies adopt the open-source system, others say IT departments are finding the skills they need without much extra effort or additional pay.

"If you have someone who has experience with other operating systems, I don't think it's all that difficult switching over to Linux," Ciaraldi says. "Conceptually, the commands are the same, the structure is similar. It's just learning what the exact commands are to accomplishing various tasks."

Tom Pratt, IT manager at Coastal Transportation Inc., a shipping company in Seattle, agrees. He oversees a mixed environment that includes seven Linux servers and two Linux desktops. Pratt says he had no problem learning Linux, and he wouldn't expect to encounter any problems finding skilled help if necessary. A Unix administrator could easily evolve into a Linux administrator with self-directed training, Pratt says. "If you can read, that's the primary skill you need," he adds.

Not So Fast

Not all companies are comfortable moving ahead with Linux without skilled workers, however. Ciaraldi remembers one New Jersey company, which was working with Worcester Polytech students, that decided against a Linux server when it realized it didn't have in-house Linux expertise.

And for companies that like flexible IT staffs, Linux can present a problem. "The hardest thing I'm finding is someone who is very good in Linux and can support Windows," says Dan Agronow, vice president of technology at The Weather Channel Interactive Inc., or Weather.com, in Atlanta.

Agronow says he hasn't had any trouble finding staffers with Linux skills, but those with both Linux expertise and Windows skills are rare. "Most people aren't as broad as that," he says.

Like others, Agronow says he believes someone with Unix experience can easily make the transition to Linux, but he suggests that the significant differences between Windows and Unix/Linux could keep some companies from adopting Linux. "If you were an all-Windows shop, maybe you don't have the contacts to hire a Linux person," he says.

Besides, companies want more than Linux skills, experts say. They want business experience, too. "It's certainly possible to hire junior systems administrators who have great knowledge in Linux," says Mark Mellis, a consultant at SystemExperts Corp., a Sudbury, Mass.-based provider of network security consulting services.

"The place where you run into trouble is typically they know the technical bits, but they don't understand the business," he says. "They understand the details of the implementation, but they don't understand the greater architectural details or the big picture. That's why they're junior people."

Even companies that rely on their senior Unix workers for help with Linux systems are encountering problems, DiDio says. "There's a presumption that if these guys could do Unix, then Linux should not be that much of a stretch for them. So they're throwing them into the trenches," but they're not always prepared to handle all the tinkering that needs to be done, she says.

The famously collaborative Linux community tries to pooh-pooh this, according to DiDio. "They'll say, 'We have thousands of developers who will jump in and help out' " via Linux chat rooms and Web sites, she says. "While that sounds very nice, that's not going to take the place of skilled in-house staff."

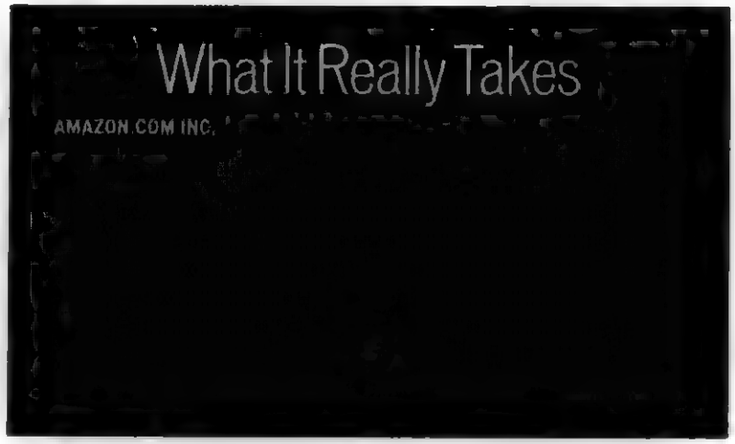
For Now

While Unix people may be able to make the transition to Linux over time, the shortage of skilled Linux personnel today is forcing some companies to look to vendors for help. But DiDio says even the big Linux distributors like Red Hat Inc. and Novell Inc. "don't have thousands of tech support people" to meet growing demand for Linux-related services.

DiDio cites the case of a major stock exchange that switched from Unix to Linux. The organization had to default to its hardware vendor, Hewlett-Packard Co., for installation help and service. "This is how people are going to make their money on Linux — selling the premium technical service and support," she says.

And while that window of opportunity won't last forever, it may exist for the foreseeable future.

"I think there will be more demand as deployment continues," says Dick Mackey, principal at SystemExperts. "And I think the demand will increase before the supply of skilled people will be available. It will be a good market for those people."



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SOURCE: FORRESTER RESEARCH INC., MARCH 2004

Congratulations winners!



Storage Networking World (SNW), in conjunction with Computerworld and the Storage Networking Industry Association (SNIA), proudly presented the fifth SNW "Best Practices in Storage" Awards Program. This program honored ten IT user "best practice" case studies selected from a field of qualified finalists.

Winners were recognized at the SNW Awards Ceremony – Wednesday, October 27th in Orlando, Florida

Winners in each of the following categories are:

Systems Implementation

Winners

- **Carlson Companies, Minnetonka, Minnesota**
- **State Street Corporation, Boston, Massachusetts**

Honorable Mention: Paul, Hastings, Janofsky & Walker LLP, Los Angeles, California

Storage Reliability and Data Recovery

Winners

- **Hershey Entertainment and Resorts Company, Hershey, Pennsylvania**
- **MidAmerica Bank, Clarendon Hills, Illinois**

Honorable Mention: Calpine Corporation, Houston, Texas

Data Lifecycle Management

Winners

- **Adirondack Electronics Markets, New York, New York**
- **PPL, Allentown, Pennsylvania**

Honorable Mention: NASA, Mountain View, California

Industry Regulation Compliance and Corporate Governance

Winners

- **MetLife Investors, Newport Beach, California**
- **Seattle Northwest Securities, Seattle, Washington**

Honorable Mention: The Center for the Evaluative Clinical Sciences, Hanover, New Hampshire

Innovation and Promise

Winners

- **New York State Psychiatric Institute, New York, New York**
- **Sports Illustrated, New York, New York**

Honorable Mention: Warner Music Group, Burbank, California



For information on Storage Networking World visit **www.snwusa.com**

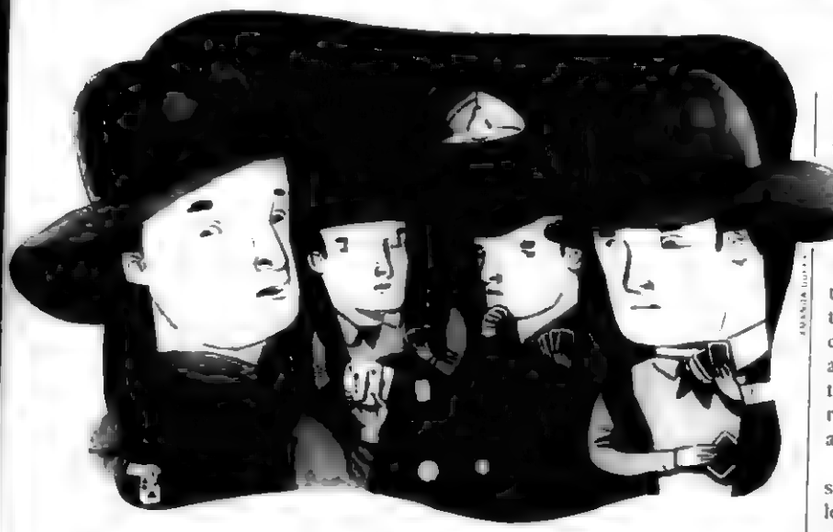
Criteria for judgement

Judges evaluated and ranked the finalists in each category according to their substantiated storage solution attributes and achievements against criteria such as:

- Financial return and measurable payback (returns on investment, assets, resources) through created/protected revenue opportunities or cost savings.
- Strategic importance to the business.
- Substantive customer impact (service, retention, acquisition).
- Positive impact on other business/organization units.
- Addresses system and department interoperability issues and heterogeneous platform integration challenges.
- Provides a strategic advantage to the business/organization while anticipating and accommodating the deployment of future storage solution initiatives.
- Supports the efficient and reliable data, information and application sharing/access between personnel, departments, divisions, etc.
- Addresses challenges of data, information and application security, recovery, business continuity, etc.

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WILD CARD CONTRACTS

When a developer plans to resell your custom software, you'll need to lay all your cards on the table to get a good deal.

By Marc L. Songini

SOMETIMES it takes a partnership with a vendor to craft software that fits your company's specific needs. But if the vendor intends to resell the software after the collaboration is over, the development contract should guarantee your intellectual property rights and, in some cases, your royalties. Unfortunately, negotiating the legal framework for this kind of collaboration is like playing poker with a bunch of wild cards.

"There are no 'default' rules in the law that require the parties to come to a specific [contractual] conclusion," notes Amy Landers, a lawyer specializing in patent and copyright issues and a professor at the University of the Pacific's McGeorge School of Law in Sacramento, Calif. "As with any type of negotiation, there is going to be a give-and-take depending on what's important to the individual companies involved."

Landers and other attorneys specializing in copyright and patent issues offer some tips on how to navigate the complexity of the law to build a contract that works.

PROBLEM: Finding a partner you trust.
SOLUTION: Research. "You have to know the character, quality and capabilities of the party you are dealing with," says Paul Roy, an attorney at Mayer, Brown, Rowe & Maw LLP in Chicago. Investigate a potential partner through site visits, meetings with key personnel and discussions with other companies the vendor has done business with, he says.

PROBLEM: Who owns the software?
SOLUTION: If the work is collaborative, with staff from both companies contributing, you can negotiate a joint copyright, or patent certain modules and allow the vendor to patent or copyright others, says Frank Bernstein, a partner at law firm Sughrue Mion PLLC in Washington. Typically, such rights are partitioned according to which party did which piece of work, he says.

Alternatively, you can include a contract clause called "work for hire," which ensures that no matter who writes the software, the customer owns it, says Bernstein.

PROBLEM: Too many choices; no templates for the agreement.
SOLUTION: Hard work. There are multiple scenarios and trade-offs to consider in resolving copyright and patent issues, explains Ross Dannenberg, an attorney at Banner & Witcoff Ltd., a Washington-based firm. For example, a trucking company wants to engage the vendor of its logistics-tracking software to build on a custom Web interface. Depending on the nature of the original software license, the trucker may first need permission from the vendor to modify the software.

Then, if the trucking company wants to own the copyright for the Web interface, it can negotiate to pay the vendor for the customization and control any distribution of the final application. It could also engage the vendor to market and distribute the application and split the royalties.

If the trucking company wants to save money on development, it can allow the vendor to keep the copyright and distribution rights. In that case, the trucker should be charged only what the newly customized software will cost any other customer, but it has no special rights to the product, nor can it prohibit distribution to others.

PROBLEM: Protecting trade secrets. Custom software is likely to include proprietary code and even business processes, the distribution of which could be devastating to the customer and useful to competitors.
SOLUTION: Decide which proprietary code and processes need to be protected and how to do it. Carefully define each instance as your company's intellectual property. Then you can stipulate that some features may not be included in the market version, or you can restrict the vendor from using certain features for a period of time, Roy says.

You can also include a clause in the agreement that forbids the vendor to sell the application to your competitors, says Bernstein. Be sure to clearly define who the competition is.

PROBLEM: Policing the agreement.
SOLUTION: You can build in an auditing clause that gives you the right to review the application to be marketed and ensure that it's not exposing crucial proprietary code. Bernstein says.

The agreement can also specify methods of redress in the event of a breach of contract, including recovery of damages or the right to take back exclusive ownership of the software.

PROBLEM: Determining payment.
SOLUTION: You might pay less to a vendor that intends to make money selling the application later. One way of arriving at the fee is to review prior contracts of this type. If necessary, an accounting firm can produce a concrete range of numbers, says Landers.

If your company will get a cut of the eventual profits, the contract should also specify practical means to audit the resale numbers, she says.

Be sure to resolve these issues in writing before the coding starts. "Folks say they don't care when they actually do," says Diana McKenzie, an attorney at Chicago-based Neal, Gerber & Eisenberg LLP. "They just don't think they care till they've spent $60 million on a [customized] SAP installation and discovered competitors can copy what they've done in six months." **50529**

'COOPETITION'

THE FOLKS AT LOGISTICS service provider BDP International Inc. view the company's collaboration with a vendor to build a piece of industry-specific software as a type of "coopetition."

Needing to consolidate its global shipping operations and lacking the internal resources to develop the relevant applications in a timely fashion, the Philadelphia-based company turned to logistics and transportation software vendor Global Logistics Technologies Inc. (G-Log) in Shelton, Conn. Each company had something the other company wanted: BDP had industry-specific intellectual property, and G-Log had the framework with its existing GC3 product to build the application, says Mark Stocksdale, director of software development at BDP.

Legal teams worked with both parties to craft an agreement. As part of the contract, G-Log retains the exclusive right to modify the source code, but the application will be flexible enough for BDP to do integration and configuration changes as needed.

BDP mapped out its processes for ocean and air import and export, detailing the specific business requirements for each before handing the documentation over to G-Log. After that, the companies' development teams engaged in daily back-and-forth sessions to extend the processes and systems to meet international requirements. "It was a very collaborative approach," Stocksdale says.

In the end, G-Log will have the right to sell a general order shipment application with basic, generic industry processes embedded in it. Those processes will exclude any proprietary features but include things such as the ability to handle commercial invoices. The system is expected to go live at BDP next year.

–Marc L. Songini



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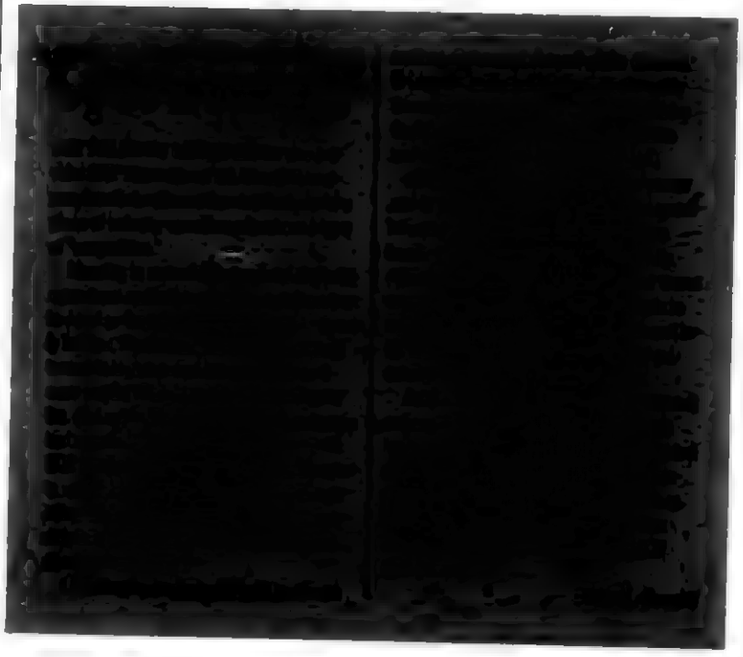
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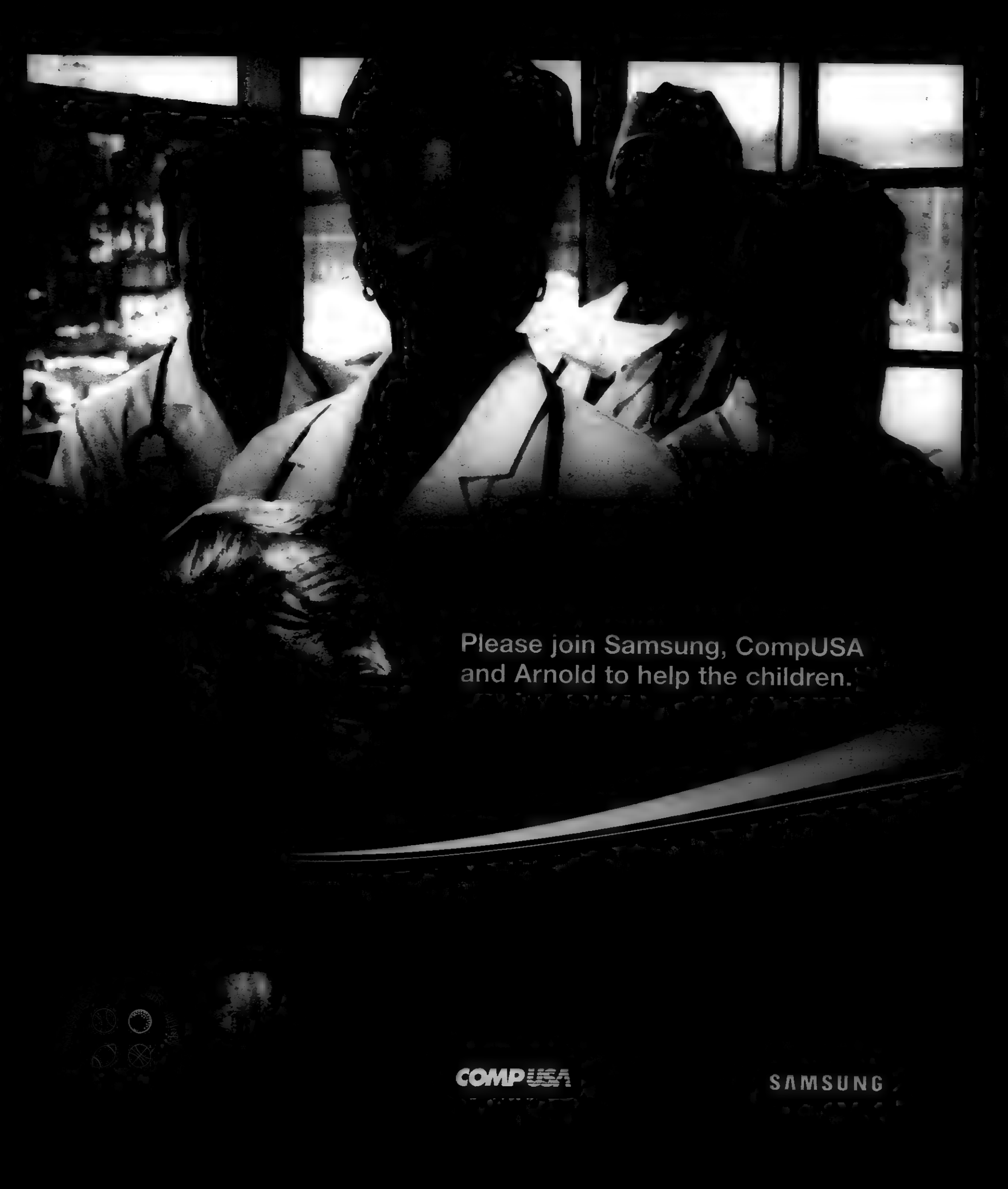
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Please join Samsung, CompUSA
and Arnold to help the children.
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AFTER THE Deal

Focusing too hard on getting a deal done can doom the implementation.

The art of deal-making may be grist for best-selling books and corporate legends, but its importance has been blown all out of proportion, says **Danny Ertel**, *a founder and director of Vantage Partners LLC, a Boston-based consulting firm. Signing the deal is the beginning of the process of creating value, he says, but the "deal-maker mentality" common in negotiations hurts the chances of the contract being implemented successfully. In November's* Harvard Business Review, *Ertel proposes a different mind-set in which inking the deal is only the beginning. He told Kathleen Melymuka how that approach can change everything — for the better.*



What is the deal-maker mentality? That's one a lot of negotiators have. They feel their job is to close the deal faster, bigger, better. It's not thinking about what happens after the deal is signed.

How does this mind-set affect, say, an outsourcing negotiation? It drives a lot of behavior, especially among buyers. They end up forcing providers to perform some pretty unnatural acts to win business without worrying about the consequences. A negotiating team focuses on getting the deal signed. Some are date-driven by a quarter or year close, and they don't think hard enough about what it will take to realize the value of the deal five or 10 years down the road.

You advocate a different approach based on what you call an "implementation mind-set."

What does that look like? That's having the negotiating team see their job differently. Instead of getting the deal signed, their goal is helping to create value by creating a deal that can be implemented. After all, what's the goal line? Is it a signature on a page or cost reduction, innovation, business transformation?

To help in the shift to that way of thinking you offer a "benefit of hindsight" exercise.

Can you explain? Hindsight is a wonderful thing, and it's actually more accessible than we realize. There's enough experience out there about outsourcing deals and large IT vendor contracts and what goes wrong with them over time that most negotiation teams should be able to tap into that experience and ask, "What tends to go wrong with these deals, and what can we do now in anticipation of those problems? How can we structure the deal and the relationship between us to minimize the chance of those problems happening?"

Some would say that penalty clauses take care of these issues. Penalty clauses give a false sense of security for the negotiators. Nobody wants to sit back and collect penalties; they want the deals to work. Simply having penalty clauses in the contract is not a good alternative to understanding what it will take to create value by implementing the deal.

Most negotiators play close to the vest, but you suggest a much less secretive approach.

Can you talk about that? Sure. If your purpose is just signing the deal, then you can decide to go caveat emptor all the way, and what they don't know hurts them. But if your purpose is implementing and creating value through implementation, then what they don't know can hurt you. So you need to think about what they need to understand.

Can you give me an example of something vendors may not know that you should tell them? At the outset of lots of outsourcing deals, there's an assumption: Don't tell them how much resistance to change there is in our organization or how messy our process is or how bad our data is because once we sign the deal, our mess becomes their mess. That's a recipe for conflict, scope changes and a relationship where the provider will have to cut corners somewhere else to dig out of the hole it didn't know it was getting itself into. If my company lacks some fundamental ability to perform my side of the deal or the problem is bigger than the vendor thinks it is, then letting them walk in not knowing about that is setting up for problems during implementation.

Handing off the deal after the negotiation can be the source of all kinds of problems, but you have some suggestions for avoiding those. Tell us about them. After the deal is done, the negotiators often go on to the next deal. Not enough time is spent making a good handoff or transition between the negotiation teams and the implementation teams. I recommend that organizations really plan a formal handoff and do that jointly so they have both buyer and seller negotiation teams briefing both sides of the implementation team.

What does that do for you? The briefing looks very different if you are both in the room together talking about why you did the deal you did and what it's going to take to make it work than if you're doing the briefings separately. If you brief separately, there's a tendency to just list all the ways you "got" them. And if both sides know they will be doing a joint briefing on why they did what they did, they spend less energy on the "gotcha" game during the negotiation and more energy on doing a deal based on objective criteria, external standards and industry practice, because both sides know they will need to jointly defend the deal.



If you approach negotiations with an implementation mind-set but the other side is full of deal-makers, won't you end up giving away the farm? There are two elements of a negotiation. One is communication: what I'm telling you to talk about. The other is commitment: what you're willing to agree to. Just because you come in with an implementation mind-set and put tough issues on the table and focus on how you're going to implement and warn in advance about what you want to talk about so they can be sure to prepare, it doesn't mean that if their side is difficult or shifty or too clever by half that you have to agree. ● 50600

This is the latest in a series of monthly discussions with Harvard Business Review authors on topics of interest to IT managers.

Career Watch

U.S. Workers Staying Home . . .

TOKYO IS THE MOST EXPENSIVE city for expatriate workers, followed by London, Moscow and Osaka, Japan, according to a 2004 survey by Mercer Human Resource Consulting LLC (see list below). *Workforce Management* magazine reports that an expat in Tokyo can expect to pay $4,501 a month to rent a luxury two-bedroom apartment, versus $3,500 in New York.

Because of the high cost of keeping U.S. workers abroad, many companies are sending them for shorter trips or hiring local talent. For example, Agilent Technologies Inc. pared its international transfer program from about 1,000 people in 2001 to 300 today. By filling positions locally and scaling back expat benefits, the company cut relocation costs from $72 million to $23 million.

In another survey, by GMAC Global Relocation Services, only half of responding companies said that workers took their children on international assignments, the lowest percentage in the 10-year history of the survey.

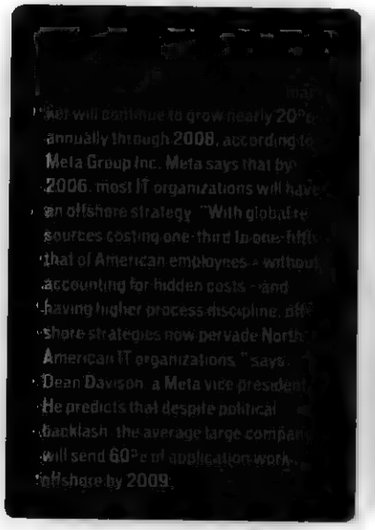
. . . But Not Foreign Workers

THE CAP OF 65,000 new H-1B visas granted to foreign workers was reached Oct. 1 – the day the new federal fiscal year began. Never before has the limit been reached in one day.

The H-1B visa, heavily used by high-tech employers, allows skilled foreign workers to get jobs in the U.S. for up to six years.

The cap for 2004 was reached five months into that fiscal year.

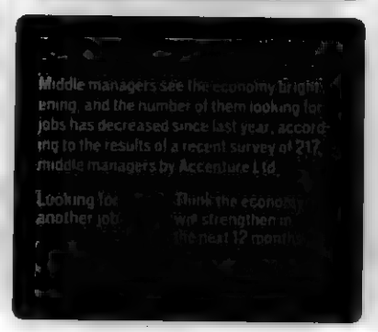
– Dan Verton

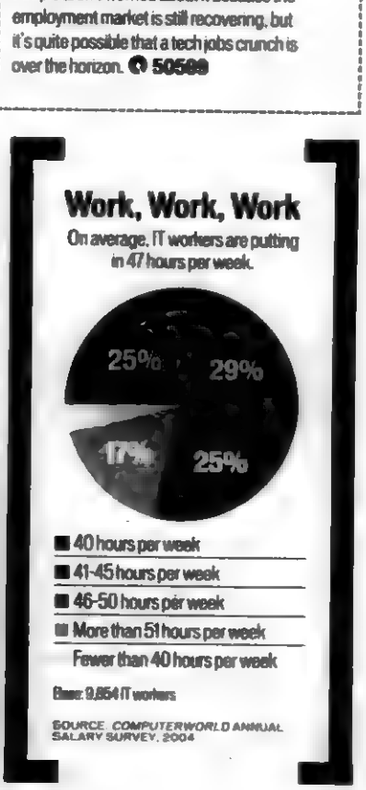


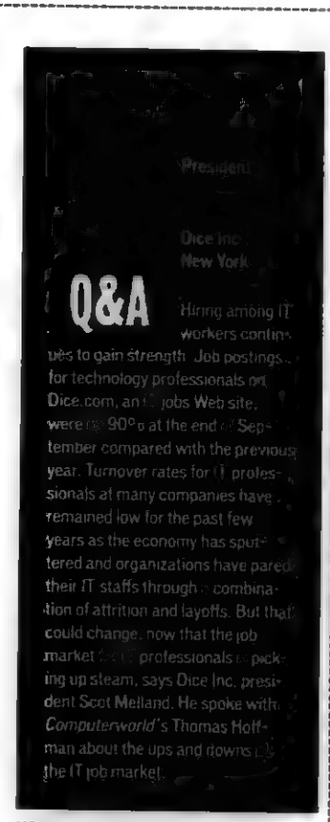


SOURCE: 2004 COST OF LIVING SURVEY, MERCER HUMAN RESOURCE CONSULTING LLC









What are turnover rates for IT professionals these days? In technology jobs, turnover historically has been fairly high, in the 15% to 20% range. Turnover rates have been extremely low the past couple of years, and there's a lot of anxiety and wanderlust among tech professionals.

Are there still a lot of unemployed or underemployed technology workers in the U.S.? What you hear is exactly that. We don't have 100% employment of tech professionals. Since the Internet and Y2k and telecom booms burst in 2001, you had a number of people from 2001 to 2003 who left the tech field.

You read a lot about underemployed and unemployed professionals in the tech sector, and that's a reality. But if you look at some of the [U.S. Bureau of Labor Statistics] numbers, the unemployment rate is extremely low; it's like 2.3%.

How is this affecting enrollment rates for computer science undergrads and graduate students? This has been a topic that the National Science Foundation has spent a lot of time on. At the graduate school level, since 9/11, security restrictions around student visa programs have tightened up in a big way. Many highly skilled graduate students who used to come to the U.S. and stay here are going elsewhere because of the difficulties in getting a visa.

It's a serious skill issue for the country. People aren't worried about it because the employment market is still recovering, but it's quite possible that a tech jobs crunch is over the horizon. **50569**

AFTER THE Deal

Focusing too hard on getting a deal done can doom the implementation.

The art of deal-making may be grist for best-selling books and corporate legends, but its importance has been blown all out of proportion, says **Danny Ertel**, *a founder and director of Vantage Partners LLC, a Boston-based consulting firm. Signing the deal is the beginning of the process of creating value, he says, but the "deal-maker mentality" common in negotiations hurts the chances of the contract being implemented successfully. In November's* Harvard Business Review, *Ertel proposes a different mind-set in which inking the deal is only the beginning. He told Kathleen Melymuka how that approach can change everything — for the better.*



What is the deal-maker mentality? That's one a lot of negotiators have. They feel their job is to close the deal faster, bigger, better. It's not thinking about what happens after the deal is signed.

How does this mind-set affect, say, an outsourcing negotiation? It drives a lot of behavior, especially among buyers. They end up forcing providers to perform some pretty unnatural acts to win business without worrying about the consequences. A negotiating team focuses on getting the deal signed. Some are date-driven by a quarter or year close, and they don't think hard enough about what it will take to realize the value of the deal five or 10 years down the road.

You advocate a different approach based on what you call an "implementation mind-set."

What does that look like? That's having the negotiating team see their job differently. Instead of getting the deal signed, their goal is helping to create value by creating a deal that can be implemented. After all, what's the goal line? Is it a signature on a page or cost reduction, innovation, business transformation?

To help in the shift to that way of thinking you offer a "benefit of hindsight" exercise. Can you explain? Hindsight is a wonderful thing, and it's actually more accessible than we realize. There's enough experience out there about outsourcing deals and large IT vendor contracts and what goes wrong with them over time that most negotiation teams should be able to tap into that experience and ask, "What tends to go wrong with these deals, and what can we do now in anticipation of those problems? How can we structure the deal and the relationship between us to minimize the chance of those problems happening?"

Some would say that penalty clauses take care of those issues. Penalty clauses give a false sense of security for the negotiators. Nobody wants to sit back and collect penalties; they want the deals to work. Simply having penalty clauses in the contract is not a good alternative to understanding what it will take to create value by implementing the deal.

Most negotiators play close to the vest, but you suggest a much less secretive approach. Can you talk about that? Sure. If your purpose is just signing the deal, then you can decide to go caveat emptor all the way, and what they don't know hurts them. But if your purpose is implementing and creating value through implementation, then what they don't know can hurt you. So you need to think about what they need to understand.

Can you give me an example of something vendors may not know that you should tell them? At the outset of lots of outsourcing deals, there's an assumption: Don't tell them how much resistance to change there is in our organization or how messy our process is or how bad our data is because once we sign the deal, our mess becomes their mess. That's a recipe for conflict, scope changes and a relationship where the provider will have to cut corners somewhere else to dig out of the hole it didn't know it was getting itself into. If my company lacks some fundamental ability to perform my side of the deal or the problem is bigger than the vendor thinks it is, then letting them walk in not knowing about that is setting up for problems during implementation.

Handing off the deal after the negotiation can be the source of all kinds of problems, but you have some suggestions for avoiding those. Tell us about them. After the deal is done, the negotiators often go on to the next deal. Not enough time is spent making a good handoff or transition between the negotiation teams and the implementation teams. I recommend that organizations really plan a formal handoff and do that jointly so they have both buyer and seller negotiation teams briefing both sides of the implementation team.

What does that do for you? The briefing looks very different if you are both in the room together talking about why you did the deal you did and what it's going to take to make it work than if you're doing the briefings separately. If you brief separately, there's a tendency to just list all the ways you "got" them. And if both sides know they will be doing a joint briefing on why they did what they did, they spend less energy on the "gotcha" game during the negotiation and more energy on doing a deal based on objective criteria, external standards and industry practice, because both sides know they will need to jointly defend the deal.

If you approach negotiations with an implementation mind-set but the other side is full of deal-makers, won't you end up giving away the farm? There are two elements of a negotiation. One is communication: what I'm telling you to talk about. The other is commitment: what you're willing to agree to. Just because you come in with an implementation mind-set and put tough issues on the table and focus on how you're going to implement and warn in advance about what you want to talk about so they can be sure to prepare, it doesn't mean that if their side is difficult or shifty or too clever by half that you have to agree. **50800**

The Implementation Mind-Set

THINK FUTURE.
A year into the contract, will the deal be working? What will have gone wrong?

NO SURPRISES.
The short-term advantages they may provide can cripple implementation in the long term.

THEIR PROBLEMS ARE YOUR PROBLEMS.
Expose hidden obstacles. Anything that will make implementation difficult for the other side will cost you, too.

ONE MESSAGE.
Briefing both sides at once avoids intrigue and keeps everyone on the same page.

CLOSING ISN'T EVERYTHING.
Don't embrace artificial deadlines. Take the time to get both sides aligned.

SUCCESS IS SWEETER THAN PUNISHMENT.
Penalty clauses are a lose/lose proposition, and they don't solve problems. Aim to create success, not to punish failure.

This is the latest in a series of monthly discussions with Harvard Business Review authors on topics of interest to IT managers.

Career Watch

U.S. Workers Staying Home . . .

TOKYO IS THE MOST EXPENSIVE city for expatriate workers, followed by London, Moscow and Osaka, Japan, according to a 2004 survey by Mercer Human Resource Consulting LLC (see list below). *Workforce Management* magazine reports that an expat in Tokyo can expect to pay $4,501 a month to rent a luxury two-bedroom apartment, versus $3,500 in New York.

Because of the high cost of keeping U.S. workers abroad, many companies are sending them for shorter trips or hiring local talent. For example, Agilent Technologies Inc. pared its international transfer program from about 1,000 people in 2001 to 300 today. By filling positions locally and scaling back expat benefits, the company cut relocation costs from $72 million to $23 million.

In another survey, by GMAC Global Relocation Services, only half of responding companies said that workers took their children on international assignments, the lowest percentage in the 10-year history of the survey.

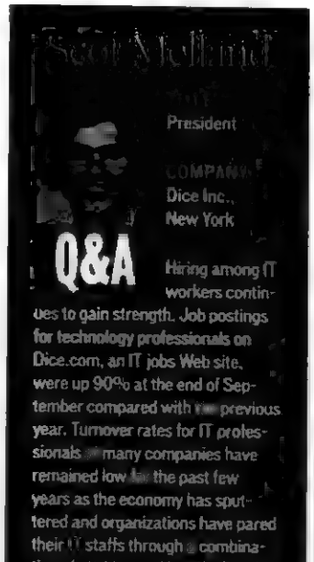
. . . But Not Foreign Workers

THE CAP OF 65,000 new H-1B visas granted to foreign workers was reached Oct. 1 – the day the new federal fiscal year began. Never before has the limit been reached in one day.

The H-1B visa, heavily used by high-tech employers, allows skilled foreign workers to get jobs in the U.S. for up to six years.

The cap for 2004 was reached five months into that fiscal year.

– Dan Verton



Hiring among IT workers continues to gain strength. Job postings for technology professionals on Dice.com, an IT jobs Web site, were up 90% at the end of September compared with the previous year. Turnover rates for IT professionals at many companies have remained low for the past few years as the economy has sputtered and organizations have pared their IT staffs through a combination of attrition and layoffs. But that could change, now that the job market for IT professionals is picking up steam, says Dice Inc. president Scot Melland. He spoke with *Computerworld*'s Thomas Hoffman about the ups and downs of the IT job market.

What are turnover rates for IT professionals these days? In technology jobs, turnover historically has been fairly high, in the 15% to 20% range. Turnover rates have been extremely low the past couple of years, and there's a lot of anxiety and wanderlust among tech professionals.

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How is this affecting enrollment rates for computer science undergrads and graduate students? This has been a topic that the National Science Foundation has spent a lot of time on. At the graduate school level, since 9/11, security restrictions around student visa programs have tightened up in a big way. Many highly skilled graduate students who used to come to the U.S. and stay here are going elsewhere because of the difficulties in getting a visa.

It's a serious skill issue for the country. People aren't worried about it because the employment market is still recovering, but it's quite possible that a tech jobs crunch is over the horizon. **50599**

BULLISH ON OFFSHORE

The offshore outsourcing market will continue to grow nearly 20% annually through 2008, according to Meta Group Inc. Meta says that by 2006, most IT organizations will have an offshore strategy. "With global resources costing one-third to one-fifth that of American employees – without accounting for hidden costs – and having higher process discipline, offshore strategies now pervade North American IT organizations," says Dean Davison, a Meta vice president. He predicts that despite political backlash, the average large company will send 60% of application work offshore by 2009.

Mercer HR Consulting evaluated and indexed the costs of more than 200 items, such as housing, food and clothing, in 144 cities. New York was used as a comparison point, with a cost index of 100.

1. Tokyo: 130.7
2. London: 119.0
3. Moscow: 117.4
4. Osaka, Japan: 116.1
5. Hong Kong: 109.5
6. Geneva: 106.2
7. Seoul, South Korea: 104.1
8. Copenhagen: 102.2
9. Zurich: 101.6
10. St. Petersburg, Russia: 101.4

SOURCE: 2004 COST OF LIVING SURVEY, MERCER HUMAN RESOURCE CONSULTING LLC

Nothing to Write Home About

In a recent *Computerworld* survey of 9,854 IT workers, respondents reported that these jobs were among those with the lowest average salary increases – only 1%:

- Directors of e-commerce
- Internet technology architects/strategists
- Database managers
- Database administrators
- Communications specialists

Looking Up

Middle managers see the economy brightening, and the number of them looking for jobs has decreased since last year, according to the results of a recent survey of 217 middle managers by Accenture Ltd.

Looking for another job:

THIS YEAR 29%
LAST YEAR 49%

Think the economy will strengthen in the next 12 months:

THIS YEAR 49%
LAST YEAR 29%

Work, Work, Work

On average, IT workers are putting in 47 hours per week.



- 40 hours per week
- 41-45 hours per week
- 46-50 hours per week
- More than 51 hours per week
- Fewer than 40 hours per week

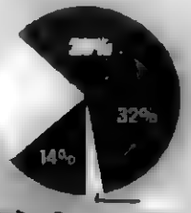
Base: 9,854 IT workers

SOURCE: COMPUTERWORLD ANNUAL SALARY SURVEY 2004

QUICK HITS

Project Portfolio Management

How far along are you in project portfolio management?



- Don't have it
- Early stages of adoption
- Intermediate stages of adoption
- Currently employing
- Don't know

Project portfolio management adoption by company size:

- $5B or more
- $1B to less than $10B
- $500M to less than $1B
- Less than $500M

What capabilities are you currently using in your portfolio management tool?

- Project inventory
- ROI calculations
- Resource forecasting
- Strategic alignment
- Integrated budgeting
- Tactical analysis
- Graphic reporting on performance
- Don't know

BASE: 259 technology decision makers

SOURCE: Forrester Research Inc., Cambridge, Mass., September 2004

NORBERT J. KUBILUS

IT and Security: Converging Roles

ONE OF THE GREAT DEBATES in recent months has been whether the chief security officer should report to the company's CIO or CEO.

The fact that information security is first and foremost a technology issue fuels the argument for the CIO reporting line. The reasoning is that the CSO, as the person who safeguards the organization's information assets, should report to the CIO.



But the other side argues that security is more than a technology concern. Information security is a business issue that also includes physical security at the corporate level. Securing information is key to the organization's long-term growth and survival. This puts the responsibility for setting security policy squarely on the CEO and suggests that the CSO should report directly to him.

Lost in this debate is the real issue. Organizational structure is secondary to how security — IT and otherwise — is defined and implemented to support or enable corporate objectives. Who has the skills and knowledge to design a proper security methodology and to implement appropriate policies across the corporation? Who is responsible for defining, implementing and managing the enterprise architecture?

It's not the traditional security chief. The skills and expertise required of a CSO are quite different from those invoked while worrying about access doors and security-guard rounds.

A CSO needs a strong technology background coupled with the political and interpersonal skills to implement policies across the organization. A CSO must also stay current with laws and regulations that affect information security deployment and keep the CEO, CFO and board of directors apprised of security matters.

All C-level executives are liable for any loss of information, even if it's stolen the old-fashioned way — taken from the mailroom, for example. Criminal and civil penalties are the norm if a company is found negligent in protecting information, and ignorance of the law is no defense.

So yes, the CSO should report to the CEO. But ideally, the CIO and the CSO should be one and the same person.

I have held the title of CIO/CSO three times in my career while reporting to a CEO or COO. The dual job expands the CIO role to address corporatewide risk issues with a broad range of technical and nontechnical security processes and initiatives.

And the number of risks are increasing. According to FBI statistics, a company has a 90% chance of experiencing a computer or network security breach within the next year, an 80% chance of suffering a financial loss due to a security breach and a 44% chance that the loss will exceed $4 million.

New laws and regulations regarding information security are the result of dramatic increases in the loss of personal and financial information through cybercrimes and fraud.

Given the threat, the CIO/CSO needs to address three top-level network security challenges. The first is to prevent infestation of the network by viruses, worms, Trojan horses and so on, as well as to isolate and remove any infestation without affecting the operational ability of the corporation. Network infestation alone will cause more than $100 billion in financial losses globally in 2004. The second challenge is to protect private information from intruders who pose as legitimate users after gaining unauthorized network access. The final task is to defend against denial-of-service attacks in which legitimate business resources or customer access are diminished or denied.

I know from experience that no one can do this job alone. As custodian of the corporate information assets, the CIO/CSO must make information owners in the business units aware of their responsibility for information security. He can do this by involving them in business impact analysis, risk assessment, business continuity planning and security policy development.

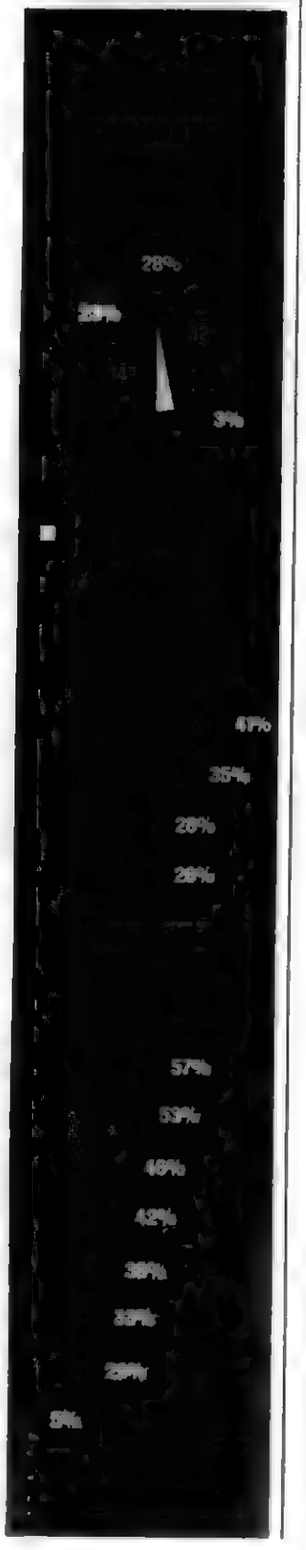
He must also work closely with the CFO, the human resources executive and the board audit committee. Together, they must ensure consistency of security policies and procedures and open administration of the security program, including clearly defined audit trails. This collaboration, with the CSO/CIO in the lead, is the best way to effectively protect the information and physical assets of the firm.

50528

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QUICK HITS



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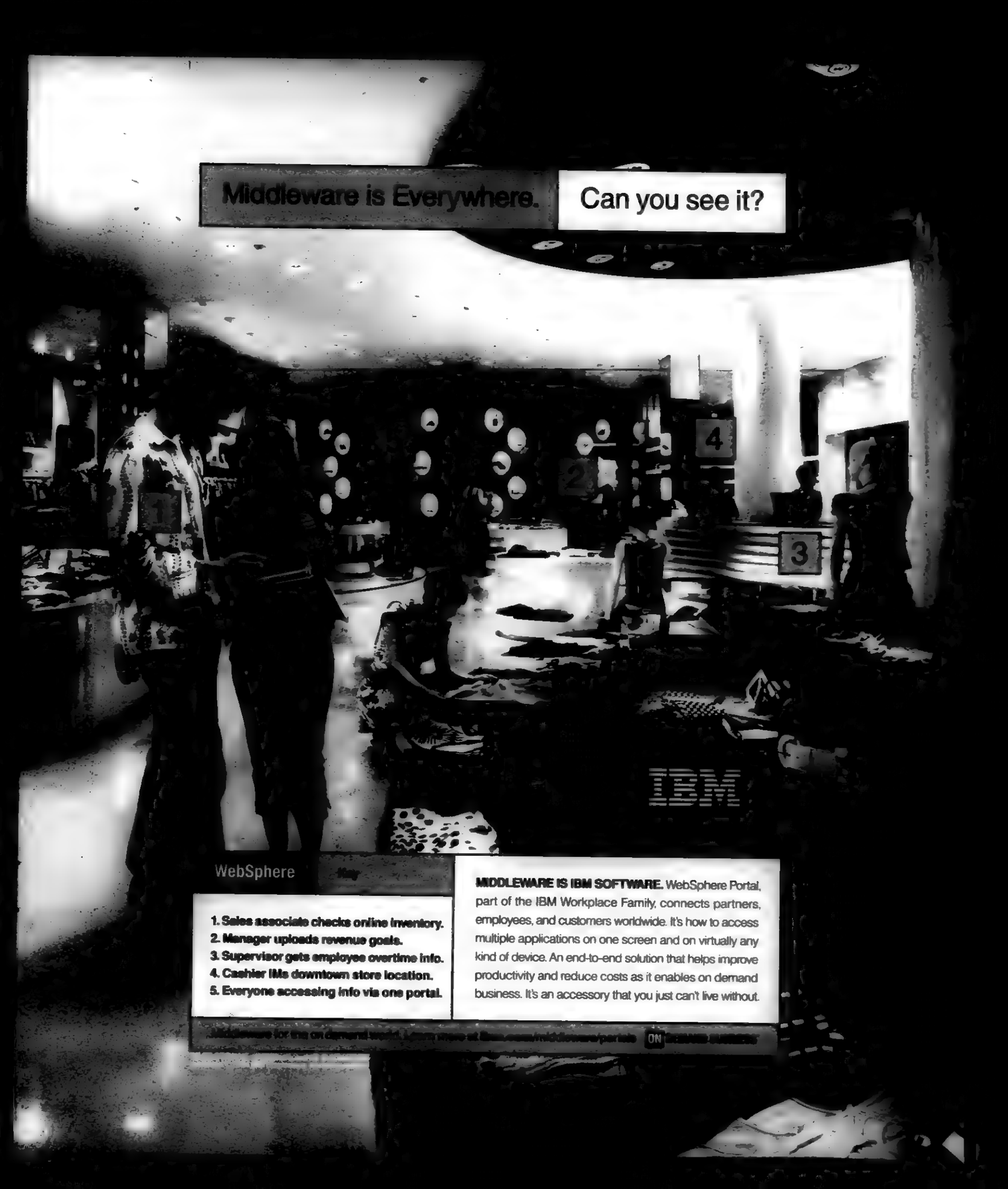
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Can you see it?
1
2
3
4
IBM
WebSphere
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2. Manager uploads revenue goals.
3. Supervisor gets employee overtime info.
4. Cashier IMs downtown store location.
5. Everyone accessing info via one portal.
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Systems People seeks prog analysts, software engineers, DBAs to design customized applications to meet client's needs. Travel maybe required. Min requirement is BS/MS with IT exp. Competitive wage with full benefits, sponsor H/Green Card. Contact: jobs@systems-people.com. EOE.

Computer Professionals (Multiple Openings) Software Engineer, Programmer Analyst, Database Analyst, Systems Analyst, Administrator/Network Administrator. Positions offered require the minimum of a Master's degree with a minimum of one year experience the applications listed. In lieu of Master's Degree, employer is willing to accept a Bachelor's Degree along with five (5) years of progressive professional experience. Please note, employer is willing to accept a foreign degree if it is determined to be the U.S. Equivalent to a Master's Degree or the U.S. Equivalent to a Bachelor's Degree along with five (5) progressive professional experience. Must have experience in one or more of the following: Oracle, Microsoft.NET, C, C++, Crystal Reports, Sybase, DB2, Visual Basic, MS DOS, COBOL, VB.NET, MS Access, SQL Server, COGNOS, Micro Strategy, PowerBuilder, VC++, JAVA, XML, ASP, HTML, Unix Network Programming. Extensive Travel and/or relocation. Attractive compensation package. Mail your resumes to: Human Resource Director, American Solution, Inc., 100 Commerce Drive, Ste. 103, Newark, DE 19713.

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Position available for Network Systems Analyst. Duties: Design, install, configure, and support LAN/WAN (Local Area Network/ Wide Area Network) network configurations, architecture and internet systems. Maintain and test Windows NT Servers, network hardware, and software. Analyze user requirements, procedures, and problems to automate processing or to improve network systems. Monitor network system performance to ensure network availability to all system users and perform necessary maintenance to support network availability. Document the processes necessary for computer solutions. Identify needs of development, modification, or update of customer's network systems. Plan layout of new computer system or modification of existing system. Communicate with IT specialists of customers and instruct them to solve and prevent problems.

Requirements: Bachelor's degree in Computer Science or related field. Compensation: $32,000 per year, plus benefits. Working conditions include 40+ hour work week with two weeks paid vacation per annum. Submit resume with complete references to: TransDigital Solutions, Inc., 167 West Main Street, Suite 210, Lexington, KY 40507. Only persons with authorization to work permanently in the U.S. need apply.

All duties of a Manager, Hardware Engineering & MPI, incl managing engrs & technicians, providing direct engg contribution on technical projects & technical input to business dvlpmt activity. Managerial duties incl hiring technical staff, conducting performance reviews, personnel issues, assigning tasks to dept staff, reviewing & approving dept & project expenses & supervising lab facility. Specific technical duties incl system- & circuit-level dsgn, verification & providing mfg support for RF, baseband & audio applics for wireless communication products such as CDMA, GSM/GPRS/EDGE handsets, data modems, reference dsgns & evaluation platforms; schematic & PCB layout dsgn; dsgn of Rx, Tx & PLL RF circuitry, user interface, peripheral control, radio interface circuitry, & audio circuitry; dvlp test s/ware for high-volume factory test using C, Teststand & Labview tools; installation, optimization, support of test systems in mfg facilities; & analysis of factory test data & processes to identify & resolve factory test issues. Reqs Bach or equiv in Electrical Engg or related field; 5 yrs exp in job offrd or 5 yrs exp in RWare or radio frequency engg & dsgn. Respond to HR Mgr, Job Code #HWMGR-IT, Elektrobit Inc., 11121 Willows Rd NE, Ste 200, Redmond, WA 98052.

Network and Data Communications Analyst sought by Amplidyne, Inc., a Telecom Network Solutions company. BS in Comp. Science/Electronics Eng. or a related field with 5 yrs. exp. Respond by resume to HR Dept., 16075 E. 32nd Avenue, Unit A, Aurora, CO 80011-1529

Software Engineer (Huntsville, Alabama) - Java application programmer responsible for development, integration, and testing of telecommunication products into a distributed, multi-client, multi-server Element Management System. Must have a Bachelor degree or foreign degree equivalent in Electrical Engineering or Computer Engineering. Education or work background must include one year of experience in Java application programming. Must have legal authority to work in U.S. Send resume to D. Tober (REF:SE), ADTRAN, 901 Explorer Blvd., Huntsville, AL 35806.

Bioinformatics Programmer wanted to oversee all aspects of comp network functions in Center for Cancer Systems Biology (CCSB), incl admin of multi-platform network & mgmt of IT infrastructure & oper. syst for all databases. Will also supervise bioinform analysts, create & implement bioinform. tools for analysis of functional genomics & proteomics, & dvlp web-based methods for accessing biological datasets. Must have MS degree in Bioinform. or Comp. Sc. & 2 yrs. Bioinform. devlpmt exper., incl exper working on multiple platforms (Unix/Linux, PC, Mac), & exper. in genomic or proteomic data analysis using AceDB, MYSQL, +/or Oracle, Perl, C++ & Java. Send resume to Lorraine J. Barnes, International Services, Dana Farber Cancer Institute, 44 Binney St., Boston, MA 02115

BCCUSA Inc - South Portland, ME needs experienced Programmer Analysts having a Bachelors Degree with minimum two years of progressive experience in J2EE architecture with understanding of Enterprise System and Application architecture. Must also possess knowledge of RUP & UML methodology, Requisite Pro, Rational Rose, Rational Clear Quest, Rational Clear Case, MS Visio, MS Project, JAD sessions, Winrunner and Loadrunner. Competitive salary and benefits.M-F, 40 hours/week.Please mail your resume to BCCUSA Inc., HR Dept, 650Main Street Ste 201, South Portland, ME-04106

Senior Account Manager wanted to source and support new technical business development opportunities. Must have Bachelor's degree in Electrical Engineering, Computer Science or related field and 4 years experience in corporate sales in the software services industry, including 2 years experience with project management and software development. Send resume to Hilary Gosselin, Human Resources Manager, Lionbridge Technologies, Inc., 492 Old Connecticut Path, Framingham, MA 01701.

Programmer Analyst needed w/Bachelors degree or Foreign Equivalent in Engg. or Comp. Sce or Math & 2 yrs exp to analyze & design Entity & Functional Models using Oracle Designer. Create & test Java programs that interact with Oracle Database using JDBC & JSERVER. Create applications using Oracle Workflow. Create & test voice applications using VoiceXML & Voice Grammars using Nuance Grammar Builder. Develop custom reports using JReports. Implement & maintain Data Exchange using MQSeries. Mail resumes to: Shrigue Inc., (Ref 9001) Centera Center, 4320 Winfield Road, Suite 200, Warrenville, IL 60555.

Assistant Mgrs of Operations needed. Seeking qual. candidates possessing MS or equiv. &/or rel. work exp. Part of req. rel. work exp. must include 1 yr working in client support to resolve customer IT issues & working w/ SQL Server. Duties include: analyze business processes - implement IT solutions, working w/ Oracle. Fwd. resume & ref. & salary req. to TRRS Imaging (USA), Inc., Attn: HR, 200 Middlesex Essex Tpk, #300, Iselin, NJ 08830.

Applications Engineer needed to dsgn & dvlp s/ware for telecom interoffice, narrowband/broad band provisioning using Enterprise Architect CEM, Tuxedo, C++, Unix, Java, J2EE, XML, XSLT, Informix, Oracle; dsgn & dvlp interfaces for OS & GUI using Java Swing, JSP, EJB, XHTML, SVG & WebLogic. Apply to: Global Consultants, Attn: Hiring, 6800 Grand Oaks Cir #100, Tampa, FL 33637.

Software Developer

To develop applications for a variety of educational systems and business applications using Asp/Asp.NET, C++, C# and VB6 and using MS Visual Studio as coding environment. Req MS degree in Comp. Sci., Info. Mgmt or other related field, familiarity with double-byte character sets/Unicode for Asian language-based application interfaces, and profic. in Asp/ Asp.NET, C++, C# and Visual Studio. 40hrs/wk. Send resume & cover letter to Fred Ferguson, Curriculum Associates, Inc., P.O. Box 2001, N. Billerica, MA 01862-0914. Fax: (978) 663-6521.

Programmer-Analyst II for NE OH. Plan/develop/test/document computer programs; apply experience of programming techniques and comp systems; evaluate user request for new/modified programs; enter program codes into comp system/to design software/websites and digitize images. Masters/MBA in MIS or Bachelor's in Comp Sci/Engineering. 3 yrs Exp/job related, including prev work w/.NET Framework. Windows, VB, VC++, Flash, Java, JSP, JewelScan Oracle, Access Word, Powerpoint, developing Jewelry business software and troubleshooting hardware and software problems and enhancing images using Photoshop req. Travel req. Resumes (no calls) to 25200 Chagrin Blvd Suite 101, Beachwood, OH 44122. EOE.

F/T Junior Software Engineer. Responsible for the development, maintenance, and enhancement of applications running in a real-time operating system. Responsible for the development of utilities on various platforms using C and C++. Must have a Bachelor's degree in Computer Science & Engineering, related field, or foreign degree equivalent. Educational background must have included C and C++. Salary: Competitive. Send resume to: Srivatsan Ramachandran, AMI, 6145F Northbelt Pkwy., Norcross, GA 30071.

F/T Jr. Software Engineer Responsible for development, maintenance, and enhancement of applications running in a real-time operating system. Responsible for the development of utilities on various platforms. Must have a Bachelor's degree in Electrical Engineering, related field, or foreign degree equivalent. Educational background must have included DOS, Windows 95/NT, UNIX, and Linux. Salary: Competitive. Send resume to: Srivatsan Ramachandran, A.M.I., 6145-F Northbelt Parkway, Norcross, GA 30071.

Technical Writer, Northport, AL (2 positions): Analyze & document client business processes to integrate technology. Prepare system & program specifications; document program & system logic; prep. & maintain user guides & technical manuals; monitor system changes; develop & document recovery plans, standard ops procedures & equip. maintenance. Req: Bachelors (or foreign equiv or equiv in experience and/or education) in Comp Applications or Engineering or related fields + 2 yrs exp. in job, or 2 yrs performing technical documenting of systems. Mail resume to HR, Applied Infotech, 501 Bridge Ave, Northport, AL 35746

Programmer/Systems Analyst. Participate in solution delivery; developing prototypes, writing analyses and design documents, ensuring operational control of systems, installing software, writing and testing code, and debugging software programs. Must have Bachelor's in Computer Science or related, 1 yr exp plus knowledge of Oracle Developer 2000 (Forms, Reports, Graph & Menu), PL/SQL, SQL* Plus, SQL* Loader, Pro*C, and Discoverer 2000. Send resume to Fastek International, Attn: David Kemper, 1425 60th St. NE, Cedar Rapids, IA 52402.

F/T Software Engineer Responsible for developing, enhancing, maintaining Network/Storage software components using Assembly, C, C++, and RTOS. Support OEMs who are using these components. Work with Test and Validation groups to ensure component is tested thoroughly using iSCSI and MPLS. Follow Software Development Procedures. Use Source Code Control. Provide technical documentation and regular status reports to management. Must have a Bachelor's degree in Electronic and Communication Engineering, related field, or foreign degree equivalent. Must have 1 yr of exp in job offered or a position with same duties. Salary: Competitive. Send resume to: Srivatsan Ramachandran, AMI, 6145F Northbelt Pkwy., Norcross, GA 30071

Systems Analyst/Programmer Sr. Charlotte, NC. Rsp for initial deployment & ongoing support of computer apps. Reqs. BA in Comp. Science. 2yrs. exp. in pos. offd. or as IT Staff Consultant. The 2yrs. exp must incl. work w/ software analysis, design, dev. & implem. using Java, incl. Java Servlets (Single Servlet Model), JSP, Java Beans, JavaScript, JDBC, JNDI & JMS, w/ develop. tools such as WSAD, for deployment on IBM WebSphere Server on a UNIX platform, as well as exp. dev. web-based apps. utilizing HTML, XML, XSL & LDAP (or similar tech.), & exp. working w/ Oracle & DB2 databases. Must have Sun Java Programmer Cert. M-F, 8-5. Send resume to Randy Buck, Wachovia Corp., 1525 West W.T. Harris Blvd., NC0775, Charlotte, NC 28288-0775. No phone calls.

Computers - Senior Technical Consultants needed. Seeking qualified candidates possessing BS or equiv. and/or rel. work exp. Duties include: Develop business implementation strategies & address specific issues that arise during implementation; Provide configuration management to DBA staff for developed software & troubleshoot products; Work with Oracle ERP Applications, Developer 2000, Oracle Workflow Builder, Oracle J Developer, PL/SQL & Oracle Discoverer. Fwd resume & references to: Core Services Corporation, Attn: HR, 610 Railway Avenue, 2nd Floor, Union, NJ 07083.

Programmer-Analysts needed to analyze, dsgn, dvlp telecom inventory, provisioning & activation systms, banking & fin'l acctg systems using C/C++, Java, STL, Shell Scripts, sed, AWK, PERL, Purify, Informix, Oracle, CVS, Tuxedo, CEM, UML, XML, Xerces, XMLSpy, HTML, TL1, Apache, Tomcat, Windows, UNIX, HP-UX, Solaris & Linux. Resume to Global Consultants, Attn: Hiriame, 25 Airport Rd, Morristown, NJ 07960

Comp. S/W Engrs (twg Mast Deg w/2 or Bach Deg w/5 yrs exp) & Progmr Analysts w/ exp req'd. Exp must incl combinations of C, C++, VC++, Visual Basic, Java, PB, SQL, PL/SQL, SAP, Peoplesoft, Siebel, Informatica, BusinessObjects, Essbase, Cognos, MicroStrategy, Oracle, Sybase, DB2, Unix & Windows NT. Apply to HRD, Millennium Information Tech, Airport Office Center, 2348 Post Road, Warwick, RI 02886.

F/T Software Engineer. Responsible for designing generic modules/device drivers using C/C++. Review the design of the modules using software engineering methodologies and Windows NT. Develop the corresponding modules using bootloader. Debug and test the modules using different methods and test equipments used in embedded environment e.g. Logic Analyzers. Must have 2 yrs. of exp. in job offered or a position w/ same duties. Must have a Bachelor's degree in Computer Science & Engineering, related field, or foreign degree equivalent. Salary: Competitive. Send resume to Srivatsan Ramchandran. AMI, 6145-F Northbelt Pkwy., Norcross, GA 30071

IT CAREER OPPORTUNITIES

GEORGIA - Technical Analyst/ Computer Systems Analyst

ILLINOIS - Senior Member of Technical Staff/ Computer and Information Systems Manager

MASSACHUSETTS* - (HQ of CSC Consulting, Inc.) - Employment is throughout U.S. Senior Consultant /Software Engineer

Positions require a BS and/or relevant experience; a combination of experience and college level education may be accepted. The flexibility to travel and be on-call may be necessary. Proof of legal authorization to work in the U.S. is required. Please forward your resume to Computer Sciences Corp., Attn: J. Le, 2100 E. Grand Ave., Mail Code A209, El Segundo, CA 90245. Please indicate the specific occupation and location for which you are applying.

Embedded Software Eng. wanted by company engaged in graphics and multimedia technology design, manufacturing and marketing. Requires Bach. in CS or EE plus 2 yrs exp. including Set Top Box methodologies and ATSC. Reply to ATI Research, Inc. H.R. Dept., Attn: K.B., 62 Forest Street, Marlborough, MA 01752.

RPG Programmer Design software using programming in Report Program Generator II (RPGII). Operation Control Language (OCL). California Software Baby 36 Graphic User Interface and Visual Basic. Use of correlation analysis forecasting and delivery routing optimization. Update and support of current system. Troubleshooting and fix existing application problems for help desk. Require Bachelor's degree or will accept a Master's degree in Computer or Industrial Engineering. Prevailing salary. Must have indefinite work authorization. Send resume to humanresources@suburbansoftware.com

Quality Assurance Mgr., Wachovia Corp Charlotte. Oversee QA for risk mgmt. tool. Reqs. BA Comp. Science, Math, or Finance & 5 yrs exp. in pos. offd or as a Sr. Consultant or IT Project Mgr. The 5 yrs must incl IT business analysis, system testing & fin. appl support in Unix, J2EE, Sybase, Oracle & work w/ FX products & risk mgmt. reporting. 3 must incl. QA mgmt. & proc. using capability maturity model in Level 5 environ. & sw engrng. Must possess PMP® cert. M-F, 8-5. Send cvr./resume to Meredith Ellerson, Wachovia Corp., 401 S. Tryon Street, 15th Floor, Charlotte, NC 28288-0475. No phone calls.

Sr. Programmer Analysts...

...needed for Intermountain Health Care located in Salt Lake City, UT.



Please visit our website at www.ihc.com for our online application, job reference #17574.

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IT company based in Nashua, NH requires Programmer Analysts, Systems Analysts, Software Engineers, Systems Administrators and Database Administrators having a minimum of Bachelors or Master's or Equivalent Degrees and 1-3 years of experience in client server technologies, designing, developing and implementing web based application packages using C, C++, Java, Java Script, EJB, XML, VB,VC++, Unix, PL/SQL, ASP, VB.Net, ASP.Net and C#, SAP R/3 SD, MM, FI, ABAP/4, ALE/EDI, BW, PeopleSoft, Oracle, Sybase & MS-SQL Server, AS/400 RPG II,E, Sun Solaris, HP-Unix, Linux, AIX, Windows NT/ Windows 2K, Siebel, Oracle Financials, Win Runner, Load Runner, Rational Robot, Test Suit, Lotus Notes, Domino, Lotus Script, Powerbuilder, Delphi. Please mail resume to Software Research Associates, Inc. d/b/a NRI, HR Department, 76 North Eastern Blvd., Suite 29-A/38-AB, Nashua, NH - 03062.

SOFTWARE ENGINEER to provide on-site consultancy in design, development, customization, testing and maintenance of e-commerce web-enabled applications software using Java, JSP, DB2, COM, DCOM, VB, ASP, Rational Rose, Rational RequisitePro, UML, Oracle and SQL Server, create database objects, code management, requirement management and code integration. Require Bachelor's (or equivalent) in Computer Science and five years experience in the job offered or any experience providing skills in described duties. 40% travel required to client sites within the United States. Competitive salary and benefits. 40-hour/week, 8 am to 5:30 pm, M-F. Apply with resume to President, KZ Technologies, Inc., 9471 Brentwood Drive, Suite 74, Lewisville, NE 68128

Sr Software & Sys. Engg, NH- Design, develop, and implement software applications using C, C++, Cobol, Pro'C, Pascal, CLISP, Java, JavaScript, VB Script, ASP.net, Perl, Crystal Reports, Power Builder, Unix, IPC, TFTP, UML, UDP etc. Develop databases using Oracle, Informix, SQL Server and Sybase. Provide programming using multi-threading, sockets, IPC, windows-SDK, Shell and TCP/IP. Develop GUI's using MFC and Java AWT. Responsible for network system application development using Mobitex, CSD, GSM and GPRS. Configure management system using Rational ClearCase, PVCS, Subtime and Microsoft Source Safe. Perform maintenance development and code optimizations. Define and generate objects and source code. Analyze, evaluate and prepare program specifications and troubleshoot technical problems. Req: master's or equivalent degree in CS + 6 yrs of exp @ sal $87,000/p.a. • Send 2 copies of resume to Job Order#2004-555, P.O. Box 999, Concord, NH 03302-0999

Software Engineer (2 positions), various locations - Research, design and develop computer software systems in conjunction with hardware product development applying principles and techniques of computer science, engineering and mathematical analysis. Requires 4 yrs exp in job offered or 4 yrs exp as Programmer Analyst or Systems Analyst. Must have 1-yr exp using Active Server Pages and SQL Programming. 5 day, 40 hr/wk, $73,985/yr. Please mail resumes to Workforce Development Programs, PO Box 46547, Denver, CO, 80202 and refer to order number CO0507011.

F/T Software Engineer Responsible for design, develop, enhance, and maintain Network Storage Server software components using various operating systems and computer networking technologies. Design and analyze the software components for various computer organizations using various data structures, advanced algorithms and database management techniques. Coding and debugging the software components using Higher level and Assembler level languages. Develop user interfaces using E-commerce technologies. Follow software engineering procedures throughout life cycle of development. Must have a Masters degree in Computer Science and Engineering, related field or foreign degree equivalent. Educational background must have included Data Structures and Algorithms, Computer Organization, Operating Systems, Computer Networks, Software Engineering, Database Management Systems, Topics in Design and Analysis of Advanced Algorithms, Higher Level Language Lab, Assembler Level Language lab, and E-Commerce. Salary: Competitive. Send resume to Srivatsan Ramachandran, AMI, 6145F Northbelt Pkwy., Norcross, GA 30071

Western Computer is looking for a Business Analyst/Navision Implementation Specialist/ Navision Support Specialist/ Project Manager with a Bachelors or equivalent and experience in related occupation to analyse, train, implement, manage using Microsoft Navision based software. Strong Accounting knowledge is preferred. Please send resumes to Diane, Western Computer, 980 Enchanted Way, Ste 104, Simi Valley, CA 93065 or email dianes@westerncomputer.com.

F/T Software Engineer. Responsible for designing, developing, enhancing, and maintaining Network Server Management Software Components using various operating systems and computer networking technologies. Design and analyze the software components for various computer organizations using various data structures, database management, and distributed computing techniques. Coding software components using both assembler level and higher level languages. Develop user interface using e-commerce concepts. Follow Software Engineering procedures throughout life cycle of development. Must have a Masters degree in Computer Science and Engineering, related field or foreign degree equivalent. Educational background must have included Data Structures and Algorithms, Computer Organization, Distributed Computing, Operating Systems, Computer Networks, Software Engineering, Database Management Systems, Higher Level Language Lab, Assembler Level Language Lab, E-Commerce. Salary Competitive. Send resume to: Srivatsan Ramachandran, A.M.I., 6145-F Northbelt Parkway, Norcross, GA 30071.

Computer Professionals (Multiple Openings) Software Engineer, Programmer Analyst, Database Analyst, Systems Analyst, Administration/Network Administrator. Positions offered require the minimum of a four-year Bachelor Degree or a foreign degree determined to be the U.S. Equivalent to a Bachelor's Degree; also require a minimum of one year experience in one or more of the following: Oracle, Microsfot NET, C, C++, Crystal Reports, Sybase, DB2, Visual Basic, MS DOS, COBOL, VB NET, MS Access, SQL Server, COGNOS, Micro Strategy, PowerBuilder, VC++, JAVA, XML, ASP, HTML, Unix Network Programming. Extensive Travel and/or relocation. Attractive compensation package. Mail your resumes to: Human Resource Director, American Solution, Inc., 100 Commerce Drive, Ste. 103, Newark, DE 19713.

F/T Research Software Engineer for NM location. Responsible for performing database design, system configuration, data conversion planning, application design and development, documentation development, and application and system training. Configure hardware, software, and network components of GIS and LIDAR systems. Assist clients in developing practical programs that maximize the benefits of their GIS investment. Analyze clients' system operations to determine opportunities for increasing production efficiency. Must have a Master's degree Computer Science, related field, or foreign degree equivalent. Must have 2 yrs. of exp. in job offered or a position w/ same duties. Salary: Competitive. Send resumes to: Shala Seals, Spectrum Mapping, LLC. Ref: 222. 28969 Information Lane, Easton, MD 21601.

F/T Computer Programmer. Responsible for analyze, review, modify and implement new and existing programs using iSeries, AS/400 systems, and RPG/400, Delphi and Java programming Languages. Develop specifications using systems analyses. Adapt programs to new requirements and monitor their performance. Must have a Bachelor's degree in Computer Science, Electronic Engineering, related field or foreign degree equivalent. Must have 3 yrs. of exp. in job offered or a position w/ same duties. Salary: Competitive. Send resume to: C. Lesker, Deloitte TIS, Inc., 11810 Northfield LN, Bldg. 1203, Alpharetta, GA 30004.

UNIX Systems Administrator (NYC)

Software Company located in Lower Manhattan seeks a UNIX Systems Administrator

The following are the main responsibilities:
- Analyze & evaluate user needs.
- Design & configure systems.
- Implement, test & write scripts as needed to ensure system/network performance;
- Write & execute scripts, maintaining library of test scripts & creating overall testing infrastructure.
- Perform hardware install and maintenance Requirements:
- BS in Engineering/Computer Science
- 1 year experience as a UNIX System Administrator
- Shell Programming - Korn, Bourne, csh and perl.
- Familiarity with Solaris and Linux operating systems.
- Must be familiar with the Sun enterprise class servers.
- Must be familiar with Intel based servers.
- Should be familiar with UNIX security.

Apply to: Royalblue Financial Corp., 17 State Street, New York, NY 10004, Attn: CTM-WC

Sr Software Engineer wanted to mng software dvlpmt, projs. for n-tier, web-based CRM apps for use by the invest. mngmt. & energy indust. Must have B.S. deg. in Comp Sc., Eng or related field & min 3 yrs. exper. developing n-tier, web-based apps. using Microsoft.NET framework (including ASP.NET, Visual C#.NET & Visual Basic.NET), XML & Web Services, COM/ActiveX components, incl. COM+ & SQL programming + object-oriented analyses, design & programming exper., incl. UML, & exper. developing & integrating CRM apps. & developing commercial apps. Send resume to Steven Notherm, CFO, Setuit Technologies, Inc., 80 Washington St., Unit M-80, Norwell, MA 02061

PROG. ANALYST - ORACLE APPLNS

Perform analysis, dsgn & implementation on Oracle applns sys. software incl quality assurance, production support, documentation & testing for Enterprise Resource Planning projects. MS in Comp. Sci or Electrical or Electronics Engrng + 2 yrs exp in job offered or as a Software Engnr - Oracle Applns. Exp must incl. Oracle applns, C, C++, PL/SQL, ODAD & UML. High mobility preferred. 40 hrs/wk, OT as reqd, 8 am - 5pm, $86,730/yr. Submit resume to Manager, Butler County CareerLink, Pullman Conference Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5899. Refer to Job Order No. WEB 474249.

Programmer Analysts to analyze, design web appls using Java, VB, Java Script, VBScript, HTML, DHTML, ASP, PHP, Access, Oracle, SQL Server, Dreamweaver, Active X, IIS under Windows, UNIX OS; generate batch reports; conduct user req/feasibility studies & systems analysis; maintain, document, support, test and debug appls. Require: B.S. or foreign equiv in CS/Engg(any branch) with 2 yrs exp in web based appls. High Salary F/T. Travel involved. Resume to: HR, Salem Associates, Inc., 405. 6th Ave., Ste102, Des Moines, IA50309

Programmer Analysts needed. Duties: Perform process re-engineering and improvement. Gather and evaluate requirements, translate business requirements and prepare technical specifications. Provide system development initiatives and complex reporting and analyses to support various functions. Devise, develop and test applications using appropriate end user tools such as PCSAS, COGNOS and SQL. Validate data integrity by ensuring timely maintenance, updates, code sets, procedure and diagnosis codes. Work with Teradata and Oracle databases on Unix platform. Install programs and procedures. Perform complex data mapping, data mining, data extraction and manipulation. Travel to set up systems, interact with clients and train users at various locations for different short and long term projects. Req: BS or equiv in Comp Sci, Engg, Math or related & 2 yrs in the job offered or 2 yrs as a comp prof. Experience must include 2 yrs working w/PCSAS, Teradata and COGNOS. Sev. Pos. avail. Sal. $44,400.00/yr, 40 hrs/wk, 8:00AM-5:00PM. Send resume to PA Career Link/Job Service: Site Manager, Beaver County CareerLink, 2103 Ninth Avenue, Beaver Falls, PA 15010-3957. Reference Job Order No. WEB 472887.

Statistical Modeling Analyst, Wachovia Corp., Charlotte, NC. Design, dev., implement analytical programs, algorithms & scoring models re. predicting customer behavior, profitability, market drivers, product ID, & marketing campaigns. Reqs. BA in Math or Stats. 2 yrs exp in pos. offered or as a Stat. Programmer Analyst, TA, or Software Dvlp. The 2 yrs exp. must incl. bldg adv. quant models using algorithms & scoring models, conducting stat. analyses using SAS, SPSS or similar tools predicting customer behavior based on large quantities of data. 1 yr. exp. must incl. defining & assessing marketing strategies in a financial instit. M-F, 8-5. Send resume to Beth Shook, Wachovia Corp., 1525 West W.T. Harris Blvd., NC0134, Charlotte, NC 28262-0134. No phone calls.

Software Engineers to lead teams to analyze, design, develop client/server, web appls in ASP, XML, ActiveX Controls, VB, ASP.NET, VB Net, ADO.Net, HTML, Oracle, SQL Server, Windows etc; create complex business components using COM dynamic link libraries and implement them in multi-tier env'r using MS Transaction Server; trouble shoot software/hardware problems; interact between project members, vendors, customers and recommend hardware/software upgrades; provide training to end users, team members. Require: MS in CS/Engg (any branch) & 3 yrs exp in job offered or a BS or foreign equiv in CS/Engineering & 5 yrs of progressive exp in IT. Travel Involved. Comp.Salary. F/T. Resumes: HR, Synergy America Inc., 6340 Sugarloaf Parkway, Ste 140, Duluth, GA30097

Software Developer, under supervision, will develop, test and implement client-server web based applications using Com, MSMQ, C, C++, Pl/Sql, HTML, Visual Basic, Windows 95, VBScript, JavaScript, Cobol. Network technologies and Oracle. Will be responsible for complete life cycle of the project. 40 hrs/week, Mon-Fri, 8am to 5pm. Bachelor's Degree, one year & 6 months experience required. Competitive salary. Send resume to Manager, Yelme Investment Ltd., 5001 W. Fond du Lac Ave., Milwaukee, WI 53216.

Programmer Analyst needed w/2 yrs exp to analyze, design, develop and debug the code for n-tier multi channel (web & voice) system using VoiceXML, XSL, Java, J2EE & XML. Test & deploy the voice applications on Telfme platforms. Build the security applications using RSA encryption & SOAP web services. Build Java GUI applications using Java Swing APIs, JAXP & Xalan. Mail resumes to: Bhrigue Inc. (Ref #002) Centera Center, 4320 Winfield Road, Suite 200, Warrenville, IL 60555.

COMPUTERS

Product Verification Engineer needed to plan & conduct system tests and analyze/configure/test L1-L3 network protocols in support of product develpmt in Raleigh NC. Req's MS+3 yr. experience or BS+5. Exp must include: UNIX; network hardware & OS, automated test infrastructure; analysis, configuring & testing OSI L1-L3 protocols; Shell/CGI/Tcl scripting; Java & C/C++ programming. Principals only. Mail resume to C. Cocchiarella/Re:AT, Spirent Communications, 26750 Agoura Road, Calabasas, CA 91302. EOE.

System Engineer w/ 2 yrs exp to design, configure & implement s/w applications using HP Open View Suite, Spectrum network management; configure Cisco routers & switches using Cisco works. Set up IP protocols with SNMP & MIB. MS – SQL & Oracle database on Sun Solaris, HP Unix & Windows. Mail res. to: CompuInfo, 1119-1D, Crab Orchard Drive, Raleigh, NC 27606.

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ITCAREERS.COM

ADC Telecommunications, Inc. requires a Systems Development Engineer, Product Development, for our office in Raleigh, North Carolina. Position provides technical leadership to Design Engineering and Product Development and Marketing to translate marketing product requirements into system-wide software/hardware architecture specifications for access network products and for providing technical guidance, including feasibility studies and applicable industry standard requirements.

Minimum Qualifications: Masters Degree with a major/focus in Computer Science, Electrical Engineering, or Software Engineering or equivalent foreign degree as established by a written evaluation and 5 years of experience in telecommunications software design and development using SDL, C, HDLC, TDM, hardware device drivers, finite state machines, protocol stack development, call processing and OSI modeling implementing protocols of ISDN, LAPD, Frame Relay, and Q.931. Also requires 1 year of experience using Hierarchical PNNI. Experience may be gained concurrently.

Send a detailed resume to ADC Global Staffing, Job No 2176, ADC Telecommunications, 13625 Technology Drive, Eden Prairie, MN 55344, fax to 952.917.0886 or apply on line at www.adc.com/careers.

Luceo, Inc. seeks Programmer/Analyst based out of our Naperville, IL loc. Design FI/CO SAP solutions. Identify & design requirements, system development, configuration, testing, training and support of multiple business process areas in Finance Treasury and Controlling. Develop functional specifications to include interfaces, enhancements, reports, conversions. Some travel required. Must have Bachelor Business or related + 2 yrs relevant exp. Resume to Luceo, Inc., 1431 Xalten Avenue, Naperville, IL 60540.

Marketwatch, Inc. has multiple openings in New York and Minneapolis for the following positions:

SOFTWARE DEVELOPER (NY) & SOFTWARE ENGINEER/ DIRECTOR (MN)

Req. include BS deg. in comp. sci., engin., or rel tech field and relevant exp. designing, implementing and testing applications. Specific skill requirements vary by position

Send resume to: resume@marketwatch.com

Sr. Web Developer - NYC

Client interaction, analysis, design, dvlpmt using latest software technologies, incl. J2EE, SunOne 7 server, Oracle, business objects along with testing & integration; production support, enhancements & bug solving. Must have min. Bachelor's Comp. Sci., Engg or related & 2 yrs exp. Send resume: Hyatt Leader, 90 Park Ave., 24th Fl., New York, NY 10016.

Software Test Engineer - Mayfield Heights, Ohio

Entry Level position under strict supervision engaged in software testing activities for global manufacturer of industrial automation systems. Defines, develops and executes software test plans for a variety of company's industrial automation products including Data communication, Data acquisition and Networking software. Defines, designs, develops and implements different test tools and automated test ware to be used in the process of software testing using object oriented programming techniques. Uses programming languages, including C/C++, Assembly and Visual Basic. Develops test ware for exercising exposed interfaces to validate correct operation by applying knowledge of different testing and quality standards. Verifies that the released software meets all the design specifications. Works on cross-functional engineering teams to determine test outline requirements for new functionality. Communicates with different groups from different parts of world. Configures and sets up products ranging from Programmable Logic Controller (PLC) software to the DeviceNet, Controlnet and Ethernet network as part of system testing. Assists in troubleshooting customer applications as needed. Assists in presale customer support as needed. Works with other company and non company related software product applications to ensure the communications compatibility of the tested product. Required is a Bachelor of Science degree in Computer Science, Computer Engineering or Electrical Engineering. As part of the required education or any relevant experience, the applicant must have: had educational training or experience in configuring and testing networks and systems, and in utilizing software test methodologies including black box testing and white box testing; had education training or experience in developing and programming Visual Basic and SQA Basic applications; had educational training or experience with programming languages C/C++ and Assembly, and with Windows operating systems; had educational training or experience with DeviceNet and ControlNet networks; had educational training or experience with Programmable Logic Controller (PLC), and in the use of Ladder Logic Programming software; and had educational training or experience with Human Machine Interface (HMI) and related programming software. Must have proof of legal authority to work in the U.S. Qualified applicants please submit resume including job requisition #26368R to M. Taft, P.O. Box 2086, Milwaukee, WI 53201-2086

Oracle Corporation has the following opening at its Orlando, FL office: Support Engineer. Under detailed instruction, identify, analyze and resolve technical problems of computer software systems. Provide technical support by establishing test cases in similar environments, analyzing data setups and applying patches. Assist users and analysts in solving problems. Within defined practices and procedures, develop workarounds and suggest technical resolutions. May be assigned to various technical support projects that utilize skills. Requirements: Bachelor's degree or equivalent in Computer Science, Engineering, Business, Math, Physics, or related field plus 2 years in computer technical support. Must include 1) database technology, 2) C, 3) SQL, and 4) TCP/IP. Salary: $61,688/year. Jobsite/ Interview: Orlando, FL. Hours: 40 hrs/wk. 8:30a.m. to 5p.m. Reply to: Job Order FL 2573498, Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302.

QUALITY ASSURANCE ANALYST, Lake Mary, FL. Participates in developing & testing functional specifications in accordance with company standards. Reviews Technical Specifications & confirms functionality. Develops & executes Master Test Plans & Detailed Test Scripts. Participates in unit testing, system testing, functional testing, performance testing, integration testing, stress testing, user acceptance testing & regression testing where appropriate & in accordance with defined test plans. Reviews release literature & documentation prior to distribution. Uses communication abilities to provide support, direction & guidance both within the department & as needed by clients. Requires BS in Computer Science, or equivalent, as well as 2 yrs exp as a Quality Assurance Analyst, Consultant, IT Research Assistant, AutoCad Instructor, Systems Analyst or related. Must have authority to work in the U.S. Send resume to: Agency for Workforce Innovation PO Box 10869 Tallahassee, FL 32302-0869 Re JO FL#2569989

Programmer Analyst, multiple positions, to program, analyze, test, troubleshoot and develop Delphi software as a front end for use in multiple RDBM (such as Foxpro, Oracle, Interbase and Sybase) legacy informational systems installed in a distributed client server environment including implementation in an intra/internet environment. Uses tools such as MIDAS, SOAP, COM/DCOM, Object Pascal, ASP, ADO, XML, Web Logic Server, T-SQL, COBRA, DLL, TOAD, Quick Reports, IIS, Swing, JSP, and CSS as required in performance of duties. Requires two years direct experience. Work location: Various unanticipated client sites. Send resumes only, no calls, to: Parry Senapathy, Genome International Corporation, 8000 Excelsior Dr. Madison, WI 53717.

Programmer Analyst needed in Venice, FL. 40 hrs. per wk., 8 a.m. - 5 p.m., $65,000 per yr. Requires Bachelor's degree in comp. sci. Responsible for design, development & implementation of company web site used to deliver financial charts & publications to subscribed client's personalized sites, also responsible for new pages, web site maintenance, troubleshooting & ongoing improvement. Utilize extensive Java technology including Servlets, JSP, and JDBC connectivity, XML, XSL & graphics. Uses, HTML, CGI, C++, network programming, SQL, common data structures & computer graphics & art. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869 Job order #FL-2578227

Software Engineer to design, develop, implement, test, support, and maintain software systems for various business management applications in a client/server environment using C, C++, XML, WS-Security, SAML, EbXML, XSLT, XPATH and Perl under Windows, Linux, and UNIX operating systems. Require: M.S. degree in Computer Science or a closely related filed with three years of experience in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to Rayender Gaddam, Orpine Enterprises, 1004 Crooked Creek Ct., Mableton, GA 30126, Attn: Job SP.

SOFTWARE ENGINEER to design, develop, test and maintain web-based application software using Oracle, HTML, JavaScript, Java, JSP, XML and Oracle Portal on UNIX and Windows platforms. Require: M.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered or as an Application Developer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to Bhavan Kusal, Popular Tech, 14151 Newport Avenue, Suite 204, Tustin, CA 92780, Attn Job RK.

Programmer Analyst : Oracle Specialist - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of large volume on-line complex integrated client-server based business, financial, banking, manufacturing and other commercial application systems in a multi-hardware/multi-software environment using centralized or distributed database systems using Oracle Relational Database Management Systems (RDBMS) and related software Design of large application systems and databases in a Co-operative Development Environment (CDE), and analysis, design and development of applications using CASE (Computer Aided Software Engineering) tools. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science /Business-Commerce and 1 yr experience in job offered or as Software Engineer/Systems Analyst are required Must have appropriate combination of skills as follows: 1 of A and 3 of B, or 2 of A and 2 of B. A) includes Oracle RDBMS, Oracle CASE tools (Designer, Dictionary, Generator), CDE 2, Oracle Financials, B) includes PRO*C, SQL*Forms, SQL*Reportwriter, SQL*Plus, SQL*Menu, PL/SQL. High mobility preferred. 40 hrs/week, 8 am - 5 pm. $86,533 - $78,000 per year. Qualified applicants should contact or send resume to: Site Administrator, Greene County CareerLink, 4 West High Street, Waynesburg, PA 15370-1324. Refer to Job Order #WEB 472444.

Computer

Senior Analyst Applications Programming

Developing, enhancing, testing, supporting, maintaining, and debugging Java Interactive Banking Automation (JIBA, an object oriented application which requires knowledge of Object Oriented design and development) on a UNIX platform and Java to support Customer Service and Support's Interactive Banking Call Centers (IBCC). Kana Desktop, and Softphone. Responsible for the complete lifecycle development of multiple projects, as well as providing guidance and reviewing work of less experienced associates. Providing maintenance of JIBA, Softphone, JOBE (JIBA Online Banking Enrollment) and services (Web Services Middleware). Position requires a Bachelor's degree or foreign degree equivalent in Computer Science, MIS or closely related field and 2 yrs. exp. in job offered or as an Analyst or Programmer. Also required JIBA (Java Interactive Banking Automation), Unix, Object Oriented design & development, and Microsoft NT. $76,000/year, M-F, 8am to 5pm. Job site/ interview: Jacksonville, Florida. Please send resume to Workforce Program Support, P.O. Box 10689, Tallahassee, FL 32302-0689 and reference Job Order #FL-2574737

Bank of America
(Higher Standards)

Computer - Staff Software Engineer, Boca Raton, Florida. Design, code, implement, test and support software tools for embedded voice application development using Java, J2EE, C++, C, UML, XML, Websphere Studio Application Developer, WebSphere Application Server, WebSphere Portal Server, and install Shield on Windows NT/2000, Linux, AIX and Sun Solaris platforms. Requires Bachelor's Degree or equivalent in Computer Science, Management Info. Systems or Engineering plus (1) year experience in the job offered or one (1) year experience in the related occupations of Coop, Lab Administrator or Intern. $77,975.50 per year. 40 hours per week 8:00am-5:00pm. Send resume to Job Order number FL-2572933, Workforce Program Support, P.O. Box 10689, Tallahassee, FL 32302-0689.

SENIOR SOFTWARE ENGINEER (3 positions offered) to design, develop and support application software in a client/server environment using object oriented analysis, C, C++, VC++, MFC, COM/DCOM, COBOL, DB2, MS SQL Server, Oracle, SPII, IVR, CTI experience with Intel Dialogic APIs and Visual Studio on Windows NT/XP, UNIX and IBM MVS/OS390 platforms; Mentor junior engineers and programmers. Require: Bachelor's degree in Computer Science, an Engineering discipline, or a closely related field with 5 yrs of progressivelyresponsible exp in the job offered or as a Programmer/Systems Analyst. Extensive travel on assignments to various client sites within the U.S is required. Competitive salary offered. Send resume to: SatishKumar Ashok, CSR Data Systems, Inc., 21 Crestwood Street, Pecatoway, NJ08854; Attn: Job SB.

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in WebLogic, TogetherJ, JRun, Oracle, WebSphere, JNDI and RMI. Requirements: Bachelor's Degree, educational or functional (3 years experience= 1 year of college) equivalent, in Engineering, Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of WebLogic WebLogic, TogetherJ, JRun, Oracle, WebSphere, JNDI and RMI Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Fayette County CareerLink, Attn: CareerLink Program Supervisor, 135 Wayian Smith Drive, Uniontown, PA 15401, Job No. WEB472190.

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Business Objects, Informatica Power Center, Oracle Designer, DB2 and Oracle. Requirements: Bachelor's Degree, educational or functional (3 years experience=1 year of college) equivalent, in Engineering, Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Business Objects, Informatica Power Center, Oracle Designer, DB2 and Oracle. Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: BECS/CareerLink Program Supervisor, Indiana County CareerLink, 300 Indian Springs Road, Indiana, PA 15701, Job No. WEB472201.

Programmer-Analyst: Plan, develop comp programs; eval user reqs, determine feasibility, cost, time, compatibility w/system; convert specs to coded instructs; enter codes; design displays; run, test, debug, correct syntax/logic; document devel, prep manuals, installation, training routines. 9a-5p. Req: Master's in Comp Eng, Comp Sci or related/equiv & 1 yr exp or as Software Developer. Resume: T Fitzgerald, Venus Advert, 945 W 15 St, Riviera Bch, FL 33404.

Business Analysts

ThoughtWorks is a global, rapidly-growing application development firm looking for Business Analysts for its Chicago, Nashville, New York, & San Francisco offices. We build highly complex, high business value applications for Global-1000 clients. Analysts will interview client users & managers to understand & create functional requirements. Will document, define & review detailed business & functional requirements. Will work closely w/ developers & architects to build custom J2EE & .NET applications. Will conduct user focus sessions w/key client team members & be involved w/all phases of development (analysis, design, coding, testing, deployment).

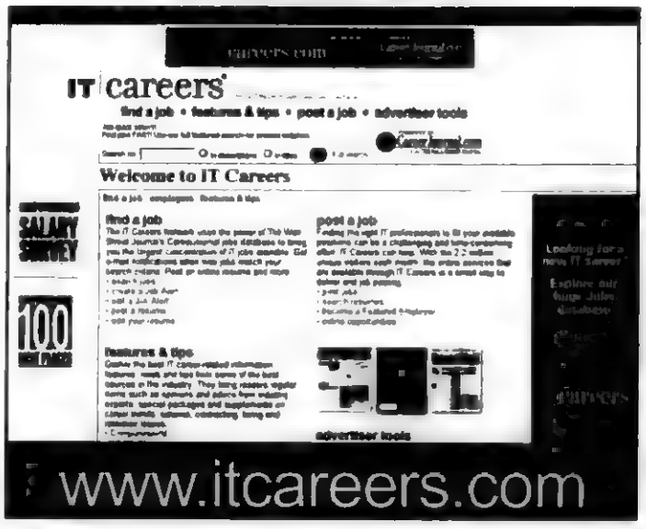
Requirements: Bach degree in Business, Finance, Computer Info Systems or related field or foreign equivalent. 3 yrs exp in systems analysis on development of new & replacement application projects. Exp must include gathering & developing detailed functional requirements for OO, multi-tier applications & iterative development methodologies, such as Agile Methodologies.

BlueCross BlueShield of Tennessee seeks a Technical Systems Analyst for its headquarters in Chattanooga. Position requires a BS in Computer Science or related field and 5 yrs. of experience in software consulting and programming. Experience must involve programming with MQSeries, WebSphere, J2EE, and .NET. Qualified candidates should send resumes to Stephanie Hawkins, Recruiter, BCBST, 801 Pine St., Chattanooga, TN 37402. Refer to Job Code TSA1. EOE.

Computer Professionals (Multiple Openings) Wissp in one or more of the following:
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Netezza Adds Data Warehousing Appliance

Targets firms with up to ITB of data

BY HEATHER HAVENSTEIN

Netezza Corp. last week added an appliance to its data warehousing product line that's targeted at companies with 400GB to 1TB of data.

The move signals a focus on a new target market for Netezza, which traditionally has sold its hardware/software bundles to high-end companies with about 10TB of data, according to Netezza executives. The new NPS 8025 model of Netezza's 8000 Series data center appliance line rolls together servers, database software and storage that let users analyze large amounts of business intelligence data, said Jit Saxena, co-founder and CEO of Framingham, Mass.-based Netezza.

"Companies today want to look at all the detail of their customer transactions, of their clickstream transactions — huge amounts of data," Saxena said. "We have been able to use commodity components, [and] we can put the processing power where it is best utilized to keep costs low." In Netezza appliances, the CPU power is next to the data, enabling quick analysis of large amounts of data, he explained.

Analysts said that while the appliance could appeal to smaller companies that don't have extensive data warehousing expertise, Netezza could face a rougher reception at sites that have standardized on hardware and databases.

Epsilon Data Management Inc. has used the Netezza appliance to integrate several smaller databases, said Mike Coakley, vice president of marketing technology partnerships and alliances at the Wakefield, Mass.-based marketing services company.

In addition to providing Epsilon customers with the speed needed to analyze large amounts of data quickly, the appliance has helped Epsilon cut its maintenance costs. "If you're buying big IBM iron and then you have to put the relational database on it and add the disk, those are significant costs," Coakley said.

Dan Vesset, an analyst at IDC, said that users in small companies and in departments of large companies may find the appliance appealing because they often don't have the IT expertise to manage separate data warehousing components.

In addition, Netezza has a unique feature that allows users to load data into the appliance, do ad hoc analysis and then dump the data, he said.

Wayne Eckerson, director of research at The Data Warehousing Institute in Seattle, noted that Netezza is one of the first vendors to offer an appliance for data warehousing. As a result, Eckerson said, its customers so far are mostly early adopters.

"We're seeing companies moving gradually into appliances, [as most] companies have already committed to database and hardware platforms," he said. "Changing those things is not done lightly."

In addition, the full 8000 Series appliances were upgraded to offer improved workload management and faster bulk data movement speeds. **50926**

Continued from page 1

Tacoma

Consulting Inc. for unforeseen customization work.

"They threw the switch at one time, and a lot of failures happened," said Scott Huntley, communications supervisor for the city. The extensive project gave the city an integrated system to run all general operations, such as police, fire and utilities. End users learning to use the new system initially complained about implementation problems, he said.

Of late, the most pressing issues have been problems with the financial module, which have led to delays in hammering out the city's budget. There have also been performance issues with the SAP CRM software that supports the city's five utilities.

Tacoma's system problems have become so prominent that city councilor Julie Anderson last month filed a resolution calling for an audit.

"The City of Tacoma is experiencing unanticipated costs in operating the system, and there are significant gaps between our expectations for functionality and how the SAP system currently operates," Anderson said in an e-mail. "As an elected official, I am unable to determine if these issues are due to SAP software, management of City of Tacoma employees, or poor consulting services from TUI."

Problem Areas

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Some of the early problems have been solved, officials said. For instance, the payroll application issued inaccurate checks, but that was related to manual errors that haven't recurred, said IT personnel.

More significant were the problems with the budget module. The difficulties of switching to the new system, combined with a $30 million city budget shortfall, resulted in a "perfect storm," said David Otto, director of business information systems for Tacoma. Despite this, the city was able to meet its preliminary budget deadline of Oct. 31 and expects to have its final numbers by year's end.



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SAP has no worries about an audit, said spokesman William Wohl. He noted that R/3 has enabled Tacoma to establish common practices and become more efficient. "The software is helping transform city government in a way not otherwise done with its legacy systems," Wohl said. "At the end of the day, the customer has said the software tools are an asset." **50934**

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The troubles included a payroll system that was issuing inaccurate checks - something that became a "well-publicized" problem, even though no one ever missed being paid, Locatis said. Denver solved it by installing a service pack and undertaking staff training efforts.

The problems arose in part because of a lack of accountability: The Denver project was being overseen by a steering committee rather than by a CIO, Locatis said. That governance setup exists in most municipalities, which are made up of independent agencies. Rolling out ERP software in such an environment is like installing a system in 30 companies at once, Locatis said. "It's really important to have appropriately strong management," he added.

– *Marc L. Songini*

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Netezza Adds Data Warehousing Appliance

Targets firms with up to 1TB of data

BY HEATHER HAVENSTEIN

Netezza Corp. last week added an appliance to its data warehousing product line that's targeted at companies with 400GB to 1TB of data.

The move signals a focus on a new target market for Netezza, which traditionally has sold its hardware/software bundles to high-end companies with about 10TB of data, according to Netezza executives. The new NPS 8025 model of Netezza's 8000 Series data center appliance line rolls together servers, database software and storage that let users analyze large amounts of business intelligence data, said Jit Saxena, co-founder and CEO of Framingham, Mass.-based Netezza.

"Companies today want to look at all the detail of their customer transactions, of their clickstream transactions — huge amounts of data," Saxena said. "We have been able to use commodity components, [and] we can put the processing power where it is best utilized to keep costs low." In Netezza appliances, the CPU power is next to the data, enabling quick analysis of large amounts of data, he explained.

Analysts said that while the appliance could appeal to smaller companies that don't have extensive data warehousing expertise, Netezza could face a rougher reception at sites that have standardized on hardware and databases.

Epsilon Data Management Inc. has used the Netezza appliance to integrate several smaller databases, said Mike Coakley, vice president of marketing technology partnerships and alliances at the Wakefield, Mass.-based marketing services company.

In addition to providing Epsilon customers with the speed needed to analyze large amounts of data quickly, the appliance has helped Epsilon cut its maintenance costs. "If you're buying big IBM iron and then you have to put the relational database on it and add the disk, those are significant costs," Coakley said.

Dan Vesset, an analyst at IDC, said that users in small companies and in departments of large companies may find the appliance appealing because they often don't have the IT expertise to manage separate data warehousing components.

In addition, Netezza has a unique feature that allows users to load data into the appliance, do ad hoc analysis and then dump the data, he said.

Wayne Eckerson, director of research at The Data Warehousing Institute in Seattle, noted that Netezza is one of the first vendors to offer an appliance for data warehousing. As a result, Eckerson said, its customers so far are mostly early adopters.

"We're seeing companies moving gradually into appliances, [as most] companies have already committed to database and hardware platforms," he said. "Changing those things is not done lightly."

In addition, the full 8000 Series appliances were upgraded to offer improved workload management and faster bulk data movement speeds. **50926**

Continued from page 1

Tacoma

Consulting Inc. for unforeseen customization work.

"They threw the switch at one time, and a lot of failures happened," said Scott Huntley, communications supervisor for the city. The extensive project gave the city an integrated system to run all general operations, such as police, fire and utilities. End users learning to use the new system initially complained about implementation problems, he said.

Of late, the most pressing issues have been problems with the financial module, which have led to delays in hammering out the city's budget. There have also been performance issues with the SAP CRM software that supports the city's five utilities.

Tacoma's system problems have become so prominent that city councilor Julie Anderson last month filed a resolution calling for an audit.

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FRANK HAYES ■ FRANKLY SPEAKING

Open-Source Java?

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And sure enough, Sun *didn't* open-source the forthcoming version of Java, code-named Mustang. Instead, the Mustang source code went up on the Net under the Java Research License.

If you aren't sure just what that means — well, neither is Sun.

Sun's director of Java technology, Matt Thompson, says that the implications of offering the code through the research license are still under investigation [QuickLink 50865].

That's putting it delicately. The Java Research License was created specifically for universities and researchers. It's really not intended for what Sun obviously has in mind: getting a lot of open-source developers to look at the early snapshot, kick its tires, put it through its paces and generally give it an open-source-style once-over. Thompson even announced the source code's availability at an open-source event in Silicon Valley.

That makes sense, at least if you step back from the open-source politics and legalities. No, Sun doesn't want to give up its control of Java. But Sun *does* want to leverage the "many eyeballs" effect of open-source — the fact that the more people you have looking at source code, the more bugs they'll find.

And not just what we traditionally call bugs. All those eyeballs can also spot inelegant designs and problematic approaches. They can bring far broader experience to bear than any traditional group of code reviewers, and they can apply the perspective of end users and business requirements.

The eyeball effect isn't the only advantage of open-source development, but it's one of the most powerful — and it's the easiest one for non-open-source developers to crib. They just have to be willing to let lots of people see their source code.

That's the benefit Sun clearly gets by going this route — if you ignore the politics and legalities.



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

And if you don't ignore them? Then Sun gets even more.

After all, Sun may not really be making Java open-source, but it sure *looks* open-sourceish, doesn't it? Rubbing up against that positive open-source buzz surely won't hurt Java.

Then there's the curiosity factor: Developers who aren't that interested in writing Java programs anymore might still want to look at the Mustang code. Once they get their fingers dirty, they might get hooked again.

The legal implications? Sun won't have a chance of claiming that anyone has stolen its trade secrets, not with everything out in the open. But anyone else who thinks Sun has infringed on intellectual property rights in Java won't have an excuse for failing to speak up right away — the code is right there for anyone to see. That actually puts Sun in a stronger position for defending its intellectual property.

And if Sun really does get large numbers of people agreeing to its relatively restrictive research license, its terms could give Sun ammunition should the company ever decide to launch its own legal attack against someone Sun thinks is improperly using that Java source code.

Pretty impressive batch of implications for Sun deciding to use the Java Research License, isn't it? True, this faux open-source approach will irritate open-source purists. But let's face it — Sun really doesn't care if those purists are pleasantly surprised or not.

And when you consider just what Sun gets from "research-sourcing" Java, there's really no surprise at all. **50897**

Tricky, Very Tricky

Big airplane maker has a problem with its big, expensive plotter: The paper shifts intermittently while printing big drawings. After weeks of repairs and even swapping out the plotter, vendor sends pilot fish to see if it's a software glitch. "A plot began, and as the paper traveled rearward, the edge wafted up and struck the wall behind the plotter with a loud *thwack*," says fish. "With hardware support and five engineers watching, I simply pushed the plotter away from the wall another few inches. Problem solved."

SHARK TANK

Another Satisfied Customer

New-IT manager marches into pilot fish's office and demands that fish add a new shared network drive – for just one file. But, fish points out, the file could easily be e-mailed to everyone in the company. Manager doesn't buy it. And the file is rarely used, says fish. No soup, says manager. And we're out of new drive letters, fish says. "You can at least try," manager insists. "I log in, check a few logs, delete some files and defrag a small drive," says fish. "Then I turn around and say, 'I'm sorry. I tried. It doesn't work!' He leaves satisfied."

Looking Ahead

It's 1999, and this IT pilot fish plans out testing for Y2K-related dates: leap year 2000, year-end 2000, etc. "All testing is accomplished successfully, and we're all feeling pretty good about the effort we've put forth," he says. But at a review meeting, fish's boss asks if fish has tested for the year 3000 yet. "And worse, he's serious," fish groans. "I tell him we'll just have to let our descendants worry about that century change."

No, Wait, Stop!

New-hire help desk pilot fish gets the call from a receptionist whose tab key isn't working. "I remembered seeing a huge monitor on her desk, so I told her to shake the keyboard upside-down and tap one corner on the desk," fish says. "No luck. I then told her to pick up one end about two or three inches off the desk and drop it. Hearing a loud thud, I asked what she was doing. She said, 'I am dropping one side of the laptop they just got fixed for me yesterday.'"

That's Where I've Seen Him!

This company's employee newsletter has a picture of an IT intern on its cover, illustrating a story inside about interns. One of the senior analysts tells pilot fish that the guy in the picture certainly looks familiar, but the analyst just can't place him. Says fish, "That's when I told her the intern in question had been sitting at the workstation behind her for the past six months."

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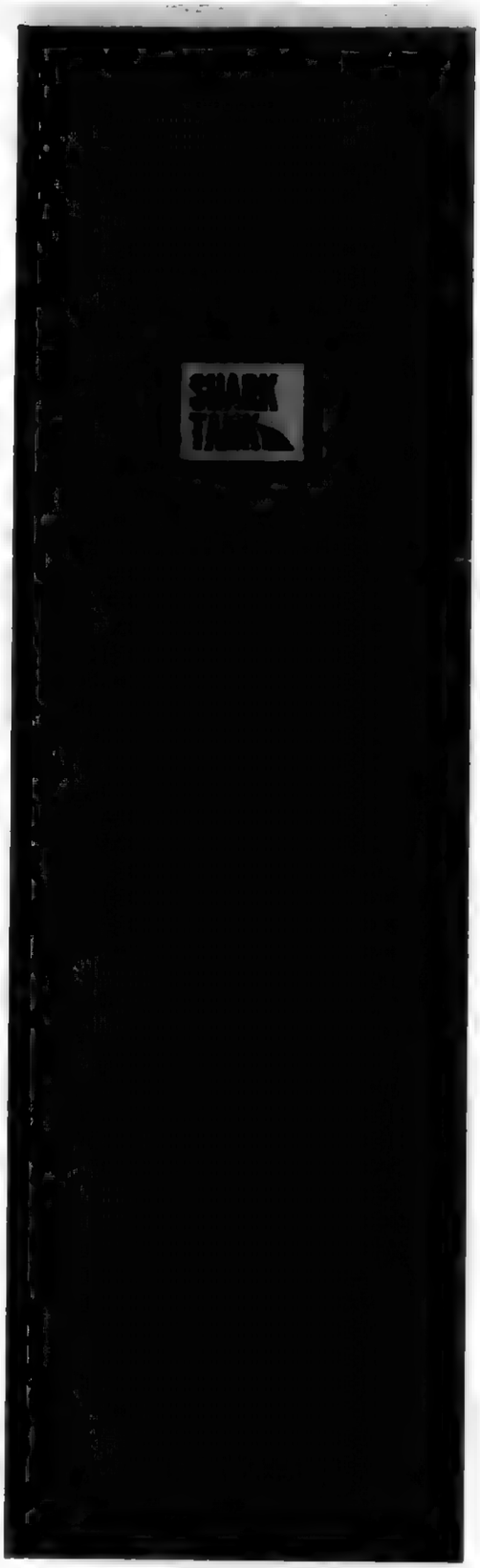
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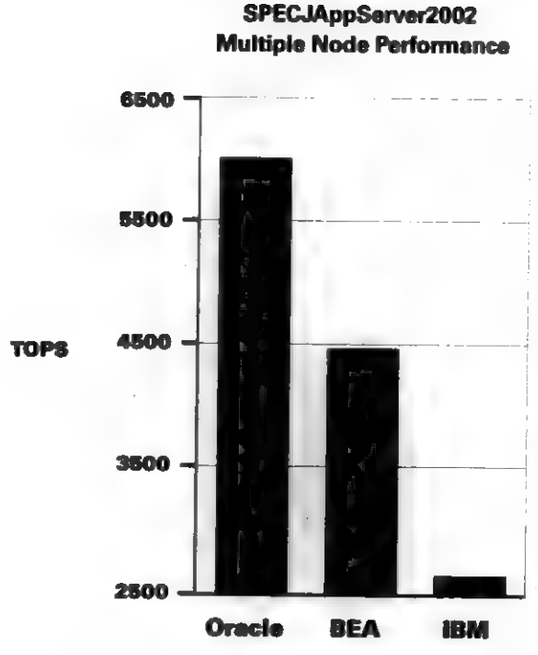
TEN MOVES AHEAD

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IN DEPTH

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ALSO INSIDE: Executives from Salesforce.com and Siebel state their rival hosting cases.

CA Hires 'CEO-Elect,' Dithers on User Show

Vendor cancels CA World 2005 conference, then restores event after customers complain

BY MATT HAMBLEN

Computer Associates International Inc. last week named 26-year IBM veteran John Swainson as its president and future CEO, anointing him as the successor to ousted top executive Sanjay Kumar. But in a rapid succession of events, the company also canceled its CA World 2005 user conference and then reinstated the event after getting complaints from customers.

In a letter sent to users last Monday, CA said it had decided to postpone the next CA World until the spring of 2006 in order to "redefine" the show, which attracts thousands of attendees from around the world. But in an interview on Wednesday, Swainson said the software vendor will hold CA World 2005 after all, although the conference will take place next fall instead of in April.

ONLINE

a1540

Swainson said he initially thought the decision to cancel next year's conference made sense because as a relatively new leader, it would be hard for him "to stand up and articulate a strong strategy" for CA. Without specifying what prompted the change in CA's thinking, Swainson said he realized that some users were concerned about losing momentum for new initiatives.

CA hasn't set a date for the conference, and Swainson said the event will have to be managed by an outside firm because some of the workers who helped run CA World in the past are no longer at the company. But he vowed that the conference will be "something that really does live up to its reputation."

Gregg Smith, a Windows NT administrator at Media General Inc. in Richmond, Va., said he's glad that CA is restoring CA World 2005. But he added that he would have

CA, page 16

IT Dabbles With Firefox, but Few Plan to Switch From IE

BY CAROL SLIWA

The Firefox Web browser has been causing a commotion among users and snaring snippets of market share from Microsoft Corp.'s Internet Explorer since June — long before Version 1.0 of the open-source software was officially released earlier this month.

But statistics suggest that corporate users aren't the major group fueling the growth of Firefox. The new browser's most dramatic spikes in usage are on weekends, according to Chris Hoffman, director of engineering at the not-for-profit Mozilla Foundation, which developed Firefox.

That observation was borne out by an e-mail poll of IT managers conducted last week by *Computerworld*. Only two of the 25 respondents said their organizations have standardized on Firefox. Another 11 said they have tried Firefox

Firefox, page 57

REALITY CHECK

BELIEF: More than 80% of users accessing U.S.-based Web sites are still running IE, usage data shows.

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Anything BUT IT



Fear of outsourcing has some grad students shunning IT for business degrees. By Dan Verton

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Be My Guest

IN DEPTH

Staples, Sovereign Bancorp and other large users are taking the plunge on hosted CRM applications. Hosting pioneer Salesforce.com has raised its revenue forecast, and rivals such as Siebel are expecting an upsurge in demand. But not everyone thinks hosted CRM is ready for corporate prime time. PAGE 44





ALSO INSIDE: Executives from Salesforce.com and Siebel state their rival hosting cases.

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BY CAROL SLIWA

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But statistics suggest that corporate users aren't the major group fueling the growth of Firefox. The new browser's most dramatic spikes in usage are on weekends, according to Chris Hoffman, director of engineering at the not-for-profit Mozilla Foundation, which developed Firefox.

That observation was borne out by an e-mail poll of IT managers conducted last week by *Computerworld*. Only two of the 25 respondents said their organizations have standardized on Firefox. Another 11 said they have tried Firefox

Firefox, page 57

NEWSPAPER

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REALITY CHECK

ONLINE: More than 90% of users accessing U.S.-based Web sites are still running IE, usage data shows:

QuickLink 51064

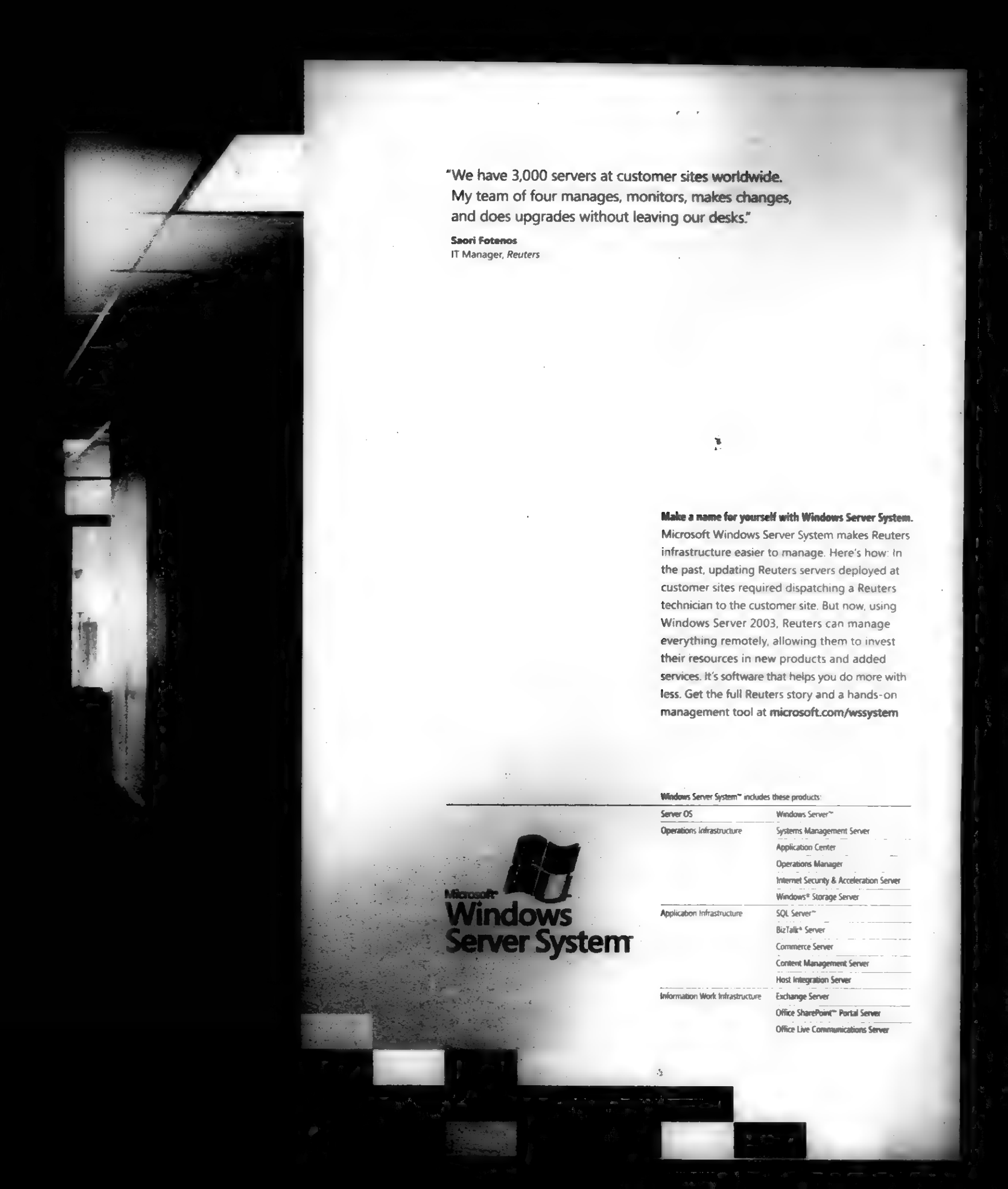
Anything IT



Fear of outsourcing has some grad students shunning IT for business degrees. By Dan Verton

PAGE 41


Microsoft
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Web Servers Upgraded
in Three Hours
REUTERS



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Saori Fotenos
IT Manager, *Reuters*

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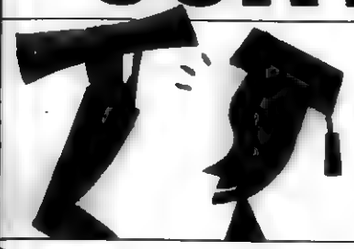
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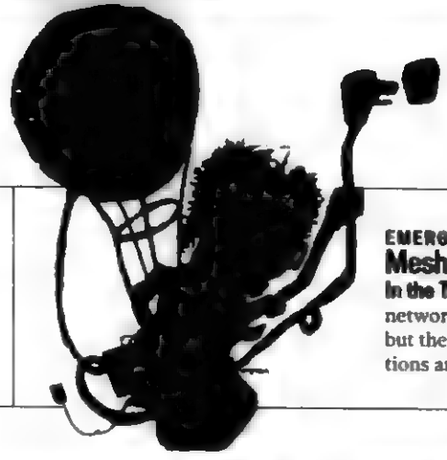
Backstage Pass

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Mesh Moves Into the Office
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Go Ahead – Miss My Deadline

IT MANAGEMENT: When some projects fall behind, it's the deadline that has to be jettisoned. Insisting that things remain on schedule works to a point, but it can impede good judgment, consultants Michael Patterson and Patricia Pruden say. QuickLink 50504

Ten Questions on Application Security

SECURITY: Abhishek Chauhan of Teros offers this checklist of questions to ask when evaluating products to safeguard your infrastructure. QuickLink 49782

The Vision Thing

STORAGE: Vendor misrepresentations have warped the original vision of storage-area networks, says columnist Jon William Toigo. QuickLink 50006

Hands On: Nintendo DS

MOBILE/WIRELESS: With the holiday shopping season upon us, *Computerworld*'s game expert Peter Smith takes a look at one of the industry's hottest gaming devices. QuickLink 51021

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Hosted CRM Looks to Step Things Up

Vendors cite large deals as a sign of growing acceptance of online apps, but skeptics remain. By Marc L. Songini

IN DEPTH

NOVEMBER has been a busy month for Salesforce.com Inc. The hosted CRM pioneer held its second annual user and developer conference, where it introduced a software upgrade that became available Nov. 15. San Francisco-based Salesforce.com, which went public in June, also reported third-quarter revenue of $46.4 million and raised the sales forecast for its full fiscal year.

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COMPANY	SCORE
[redacted]	4.2
[redacted]	4.0
[redacted]	3.8
[redacted]	3.6
[redacted]	3.4
[redacted]	3.0
[redacted]	2.8

BASE: Ratings are composite scores based on an analysis of deployment issues, software usability, support requirements, potential business impact and vendor track records on ROI.

SOURCE: NUCLEUS RESEARCH INC., WELLESLEY, MASS., AUGUST 2004



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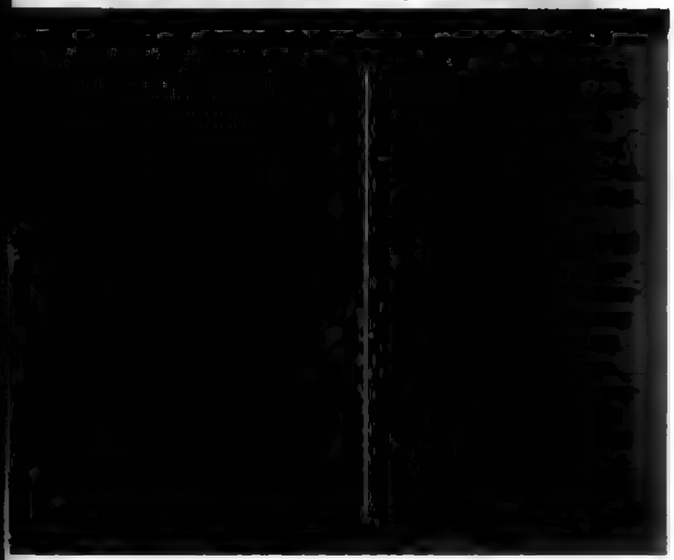
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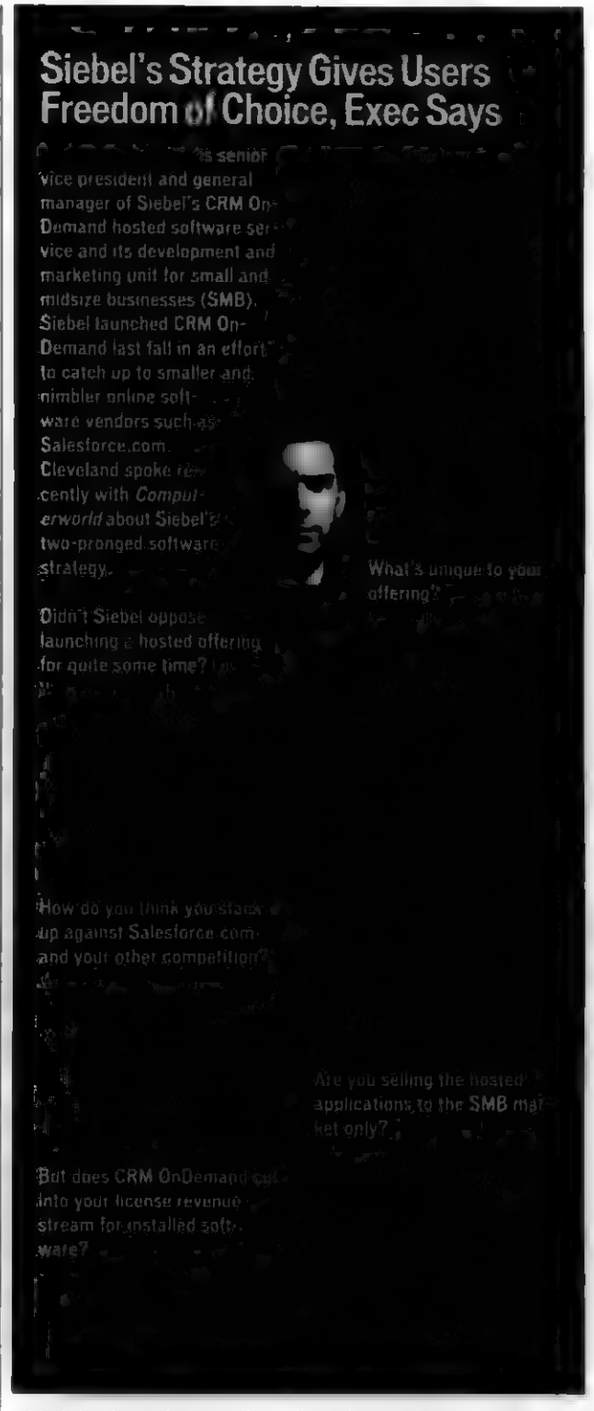
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Hosted CRM Looks to Step Things Up

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IN DEPTH
HOSTED CRM

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SOURCE: NOLAN, QUINN & RELKEN, WELLESLEY, MASS., AUGUST 2004

Benioff Sees Hosted Apps as 'the Future of Software'

It could be easily argued that , Salesforce.com's chairman and CEO, has done more to promote the idea of hosted CRM and make it seem credible than anyone else in the software industry has. Benioff, a former Oracle Corp. executive, founded Salesforce.com in 1999. Now the company claims that its hosted applications are used by about 12,500 customers with a total of 185,000 end-user subscribers. Benioff recently spoke with *Computerworld* about the hosted CRM market.

How have things gone since you went public in June? I think our business is very strong. We're starting to see large companies come to us for mega-implementations, such as SunGard Data Systems, SunTrust Bank, ADP and Cisco Systems. We're seeing a model where we're doing something unusual and not done in other enterprise software companies – it's a true democracy. Very small companies, medium companies and even large mega-implementations are all done on the same piece of code.


BENIOFF

Did Siebel's entry into the hosted CRM market validate Salesforce.com offerings? If you go back and look at the history of all the things Tom Siebel said about us, it was that we won't be around in a year, this will never work, and big companies will not be interested in this. It's all on the record. Now it is the future of software [for Siebel as well as for us], and that's interesting.

Do you think the number of vendors in the hosted CRM market will eventually shrink? Like in all

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> SENIOR VICE PRESIDENT OF SALES, EGL INC



markets in software, there's going to be a leader. Typically, the industry tends to aggregate around a leader – [Microsoft] in office productivity and operating systems, and it's true in databases with Oracle. The [hosted CRM] market is still young, and Salesforce.com is a young company, only in business five years. I'm still seeing the market take shape and form, and how it will turn out is up to the customers.

What about integration of your applications with back-office systems? Is that getting any easier? It's an irony of the market that people think it's hard to integrate with our service. We have a lot of customers with SAP or PeopleSoft or Oracle. They run Oracle applications like the [E-Business Suite] 11i payables and receivables, and it's integrated with Salesforce.

In a sense, doesn't hosted CRM put internal IT staffers at your customers out of a job? I've never found that to be true. I've never had anyone contact me and say, "You cost me my job." It's more likely a true statement when someone says they bought XYZ [software] and never got it up and running, and it's more likely that cost them their job.

– Marc L. Songini

Siebel's Strategy Gives Users Freedom of Choice, Exec Says

BRUCE CLEVELAND is senior vice president and general manager of Siebel's CRM OnDemand hosted software service and its development and marketing unit for small and midsize businesses (SMB). Siebel launched CRM OnDemand last fall in an effort to catch up to smaller and nimbler online software vendors such as Salesforce.com. Cleveland spoke recently with *Computerworld* about Siebel's two-pronged software strategy.



CLEVELAND

Didn't Siebel oppose launching a hosted offering for quite some time? I don't think we were opposed to hosting. I think in reality, our customers in the enterprise weren't really asking for it. There's a pretty strong appetite out there for it [now], and certainly that wasn't the case several years ago.

How do you think you stack up against Salesforce.com and your other competition? We'll offer hosted as well as nonhosted, or a hybrid of the two, and make it the customer's decision. That's where we're headed. It's not a conflict because the entire sales organization sells the same product.

But does CRM OnDemand cut into your license revenue stream for installed software? That's not the case. There isn't good revenue vs. bad revenue. There's a kind of revenue that comes from licenses, a kind from maintenance, a kind of revenue in the form of services and a fourth coming from subscriptions. More and more, we're going to build this kind of model where we don't have to do large quarterly transactions where 80% of the money is made going into the quarter and then 20% is made relying on Hail Mary kinds of things [to boost sales]. We're blending revenue streams to build consistent quarter-to-quarter growth and a profit engine that Wall Street can count on.

What's unique about your offering? The beauty of the single code path is you get to decide what particular [software] objects you want to express. We benefit from having 1,000 developers working at Siebel, and we only need a few to turn on [features] or turn them off to create the OnDemand product. One competitive advantage against someone like Salesforce.com is that our research and development dwarfs theirs. Salesforce.com may get closer to making a more complicated product by adding all these additional features to make it more competitive – we can pick and choose what we want.

Are you selling the hosted applications to the SMB market only? The truth is that while initially we had thought the product might prove to be primarily in the SMB market, the uptake has been quite strong in the enterprise space. We've got a number of companies you could classify as enterprise, Sprint, Marriott, Motorola.

– Marc L. Songini

AT DEADLINE

Staff Cuts to Cost HP $200 Million

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IBM is acquiring Liberty Insurance Services Corp., the U.S. business process services operation of RBC Insurance. When the deal closes, LIS will become an IBM subsidiary focused on handling life insurance and annuity policy processing for several insurance companies worldwide. IBM bought the firm to capture part of what's projected to be a $2 billion global market next year. IBM will retain the 700 LIS employees.

Citrix Makes Play For VoIP Presence

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Users Still Victims of Oracle/PeopleSoft Saga

With resolution of takeover bid months away, the only certainty is uncertainty

BY MARC L. SONGINI

Embattled ERP software vendor PeopleSoft Inc. last week refused to capitulate in its long-running battle with potential purchaser Oracle Corp., despite the apparent will of a majority of shareholders, keeping corporate users in limbo.

Pleasanton, Calif.-based PeopleSoft's board called on Oracle to raise its bid as Oracle appealed to PeopleSoft directors to lift their strong poison-pill anti-takeover mechanisms, which would likely make the deal unreasonably expensive for Oracle. A judge in a Delaware court has agreed to hear arguments in the case Dec. 13.

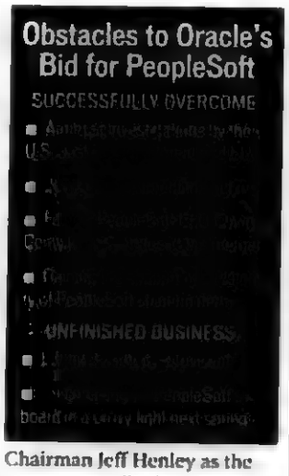
While the fate of the merger is still uncertain, recent events don't bode well for PeopleSoft users, who have struggled with the situation for months.

"What this means to customers is increased uncertainty caused by more legal wrangling," said John Matelski, deputy CIO for the City of Orlando, a PeopleSoft shop. "I'm comfortable with the products and services that PeopleSoft provides, and thus I remain hopeful that a merger/acquisition does not occur. Regardless of what the result is, it's in all parties' best interest that a rapid resolution occur."

John Schindler, CIO at lighting fixtures maker Kichler Lighting Group, a PeopleSoft shop in Cleveland, said, "Having now worked with Oracle E-Business applications as well as PeopleSoft in my career, I'm as committed as ever to the quality and lower cost of ownership that PeopleSoft provides Kichler." He noted that the takeover effort is by no means over, as the proxy and poison-pill battles continue.

"Selfishly, I want PeopleSoft to survive as an independent company," Schindler said. "I believe Oracle is trying to buy a customer list and will ultimately kill off the PeopleSoft applications. I'm hopeful that this will die during the poison-pill phase."

PeopleSoft's board declined to accept Oracle's so-called best and final offer of $24 per share, or $9.2 billion, despite Oracle's claims that 60% of PeopleSoft stockholders tendered their shares in favor of the sale prior to its deadline of Nov. 19. Oracle called the shareholder vote a "mandate" for approval of its hostile bid to buy its competitor. "We believe it is time to bring this matter to a close, for the good of PeopleSoft's shareholders, customers and employees," said Oracle Chairman Jeff Henley as the votes were tallied.



But PeopleSoft's board has refused to budge and has retained the poison-pill mechanisms. A. George Battle, chairman of the PeopleSoft board's transaction committee, said in a statement issued after the vote that "we would be willing to discuss an offer made by Oracle at an appropriate price — but $24 is not that price."

At that point, Oracle responded that the two companies were "obviously at an impasse." Oracle's board had urged PeopleSoft to sell without having to shift the takeover fight to a Delaware court, which could force PeopleSoft to lift the poison-pill provisions, or to the shareholders via a proxy battle, which would take place next spring.

Although it looks like it will come down to a proxy fight, "this deal just moved one more significant step toward closing in Oracle's favor," said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif.

Many users just want the two vendors to work out their differences, no matter what the result.

Gary Riley, a business systems analyst at Matanuska Telephone Association Inc., a PeopleSoft World shop in Palmer, Alaska, said, "If they are just fighting for the best dollar-per-share figure, they should be sitting down at the table with Oracle." **51057**

Oracle Plans to Add BI Offerings

ORACLE is maneuvering to bolster its business intelligence market share with new standalone query, reporting and analysis tools and an extension of the operational reporting in its applications suite.

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Robert Shimp, Oracle's vice president of technology marketing, declined to provide details about the announcements.

However, Dan Vesset, an analyst at IDC who has been briefed by Oracle, said the company is rebranding the query, reporting and analysis tools from its application server. The rebranded, stand-alone tools will be sold separately, Vesset said, and they will support more end-user customization.

"They are certainly making a bigger push in BI," Vesset said. "They were always focused very much on the database, and the surrounding BI tools were secondary. There is a realization that BI should be a separate revenue stream."

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"This is not meant to be a replacement for traditional data warehousing, but rather an extension to the applications," Gile said. "It has limitations when it is compared to a full data warehouse but is a solid alternative to standard reporting."

Patricia Dues, president of the Oracle Applications Users Group and project officer for the Las Vegas city manager's office, welcomed the enhancements to DBI, which her office uses to report against Oracle purchasing, financial and human resources applications.

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– *Heather Havenstein*

HP Launches Software Automation Manager

BY MATT HAMBLEN

Hewlett-Packard Co. tomorrow will unveil a management automation software product and a new version of its help desk software at its annual European user conference, Software Universe, in Madrid.

The new HP OpenView Automation Manager product replaces the pricey Utility Data Center offering the company dropped last month [QuickLink 49774], analysts said. It includes technologies HP got when it acquired Novadigm Inc. and Consera Software early this year, as well as business intelligence software from HP Labs.

Automation Manager, which will ship in January, gives CIOs an automated predictive system for managing the IT services of a corporation, said David Gee, HP's vice president of worldwide software marketing. When demands change, the software automatically optimizes the configuration of services and applications to match preset service levels, he said.

Model-based Automation

For example, Gee said, if a corporation needed to add 1,000 e-mail users, the product would help model the process involved and automate the setup based on the projected length of the process and the desired level of e-mail performance.

At its heart, the new software relies on "model-based automation" instead of building the automation from basic scripts, he said. "It's a lot more flexible and robust," Gee said.

Frank Gillett, an analyst at Forrester Research Inc., said the offering is an important product for HP that is "in effect a replacement for the Utility Data Center." The UDC hardware/software bundle was priced in excess of $1 million and was called very complex by analysts. "Before this, HP had basically a muddle strategy where they wanted you to buy UDC and software," said Gillett.

Michael Hanzlick, project manager at T-Systems International GmbH, the Frankfurt-based networking branch of Deutsche Telekom AG, said he will test Automation Manager once it's available. The product should help make management of systems more precise, he said, adding that he isn't sure which features are most important.

T-Systems has been using OpenView products since 1996, gradually adding features as its global network grew to 350 locations with 3,500 servers and 68,000 clients. T-Systems added Novadigm management tools two years ago, and Hanzlick said he expects the integrated products to better manage the operation.

"It's ideal that HP and Novadigm work together," said Hanzlick. T-Systems uses Novadigm to create a "desired state model" of how a process should run in the event of changes in system usage.

Stephen Elliot, an analyst at IDC, said Automation Manager will provide a tighter integration of OpenView products. But, Elliot added, "I wouldn't say it's better or different" than products from competitors such as Computer Associates International Inc. or IBM's Tivoli Software unit.

HP is also expected to ship HP OpenView Service Desk 5.0 in mid-2005. It will feature a new Web-based graphical user interface and standard reports, as well as service-level agreement templates. **51075**

NEW PRODUCTS

HP OpenView Automation Manager

- Manages Microsoft Windows and Linux blade servers
- Support for HP-UX to come
- Costs $1,000 per server, or $1,800 per server bundled with HP OpenView tools

H-1B Backers Want Bigger Increase in Cap

BY PATRICK THIBODEAU

The 20,000-visa increase that Congress added to the fiscal 2005 H-1B cap just before its holiday break left no one involved in the contentious issue happy, and IT trade groups said they will try to further raise the cap next year.

The proposed legislation, which was included in the omnibus federal budget bill approved over the weekend prior to Thanksgiving, would allow foreign nationals with master's and Ph.D. degrees from U.S. universities to apply for H-1B visas during the government's current fiscal year.

The current cap of 65,000 visas was reached on Oct. 1, the first day of the fiscal year.

Trade groups and IT vendors such as Microsoft Corp. and Intel Corp. had urged Congress to raise the fiscal 2005 cap, as had technology users such as The Goodyear Tire & Rubber Co. Despite the vote to do so, some H-1B proponents said that the legislators didn't go far enough.

The number of additional H-1B visas needed this year "is closer to 50,000," said John Palafoutas, a senior vice president at the AEA, a Washington-based trade group. Large numbers of students graduating from U.S. universities with advanced degrees in fields such as computer science are foreign nationals. Proponents of the cap increase argue that it's in the nation's best interest to keep these skilled graduates here and that an H-1B visa is a path to permanent residency.

But opponents say that's not necessarily the case.

Path to Green Card?

Many employers "don't use the H-1B visa to bring people into the U.S. and keep them here," said Ron Hira, an assistant professor of public policy at the Rochester Institute of Technology in New York. Often, IT services firms simply need to add workers at customer sites, according to Hira. "They're not trying to sponsor people for green cards," he said.

That's true at Tata Consultancy Services Ltd., a Mumbai, India-based IT services firm with operations worldwide. Tata has about 8,000 employees in North America, primarily in the U.S., and about 7,200 of them are here on some kind of visa. Among its U.S. workers, about 65% have H-1Bs, and the remainder hold L-1 visas, said spokesman Victor Chayet.

He added that many of Tata's U.S.-based employees are graduates of universities in India and that only a handful ever seek permanent residency here. The company doesn't discourage workers from applying for green cards, but its service delivery model is based on the ability to move people from country to country as needed. "Keeping that fluid workforce is to our benefit," Chayet said.

Groups representing high-tech workers opposed any increase in this year's H-1B cap. Al Gray, executive director of the National Society of Professional Engineers in Alexandria, Va., said current indications are that there "are no really serious shortages" of engineering and IT workers.

But Joanna Smith Bers, managing director of DB Marketing Technologies LLC, a consulting firm in New York, said she has had trouble finding job candidates from U.S. schools who have strong math and statistics training and who understand business.

"I would like nothing better than to hire Americans for these positions," she said. "My challenge is that the people who have the education and the background are coming from abroad." **51062**

MORE ONLINE

Visit our H-1B special coverage page
QuickLink s1400
www.computerworld.com

L-1 Visa Users Face New Restrictions

ALTHOUGH Congress raised the H-1B cap, it approved new restrictions on the L-1 visa program, which some critics view as a prime vehicle for shifting U.S. jobs to lower-paid workers.

L-1 visas let multinational corporations relocate employees to the U.S. through intracompany transfers. But legislators and IT job activists who want to rein in the L-1 program claim that some companies use the visas to bring in foreign workers to either replace existing employees or contract out to other businesses.

The latter practice is what the change proposed by Congress is intended to stop. Specifically, the measure would require that any "specialized knowledge employee" brought to the U.S. on an L-1 visa be controlled and supervised by the company that submitted the visa petition.

John Bauman, president of The Organization for the Rights of American Workers, a Meriden, Conn.-based group formed by laid-off high-tech workers, said the legislation should have a major impact.

Bauman said that even if U.S. workers lose 20,000 jobs because of the proposed increase in the H-1B visa cap, "they may gain 200,000 on L-1s not being able to work at a third party."

But others aren't so sure. "Whatever kind of law is passed, someone will find a way around or over or through it. So it's a matter of interpretation and how companies adapt to these new restrictions," said Vin O'Neill, senior legislative representative at IEEE-USA, a unit of the Institute of Electrical and Electronics Engineers Inc. in Washington.

–Patrick Thibodeau

BRIEFS

IBM, Honeywell in $250M Tech Pact

IBM and Honeywell International Inc. last week signed a 10-year engineering and technology services deal worth up to $250 million. The agreement gives Honeywell access to IBM's engineering expertise and is designed to speed Honeywell's production of network-centric battlefield components and systems. IBM will receive military and aerospace resources and expertise, as well as access to avionics and vehicle electronics customers.

Saab Taps Hyperion For Finance Project

Saab AB has agreed to install Hyperion Solutions Corp.'s Financial Management application to replace its internally developed consolidation system and spreadsheet-based reporting system. Financial details weren't disclosed. Saab executives said they expect the software to improve the flexibility of the defense and aerospace company's reporting system.

Linux Desktop Effort Gets a Boost

Scalix Corp., a maker of desktop applications for Linux systems, joined Open Source Development Labs Inc. in an effort to help push the spread of desktop Linux. Scalix makes Linux-based e-mail and calendaring applications. The nonprofit OSDL, formed to foster the spread of Linux into the enterprise, claims several top system and software makers as members.

Systemcorp Joins IBM's Rational Unit

IBM last week said it has completed its acquisition of Systemcorp, a manufacturer of project portfolio management software. Financial details weren't disclosed. Systemcorp's 70-person operation in Montreal will be integrated into IBM's Rational unit. IBM will ship Systemcorp offerings in 30 days.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FAULKNER

On Sarb-Ox, Savvy IT Shouldn't Overlook . . .

. . . what's under the covers of a fully compliant technology asset base. "That's especially true in the financial industry," says Ed Chopskie, vice president of enterprise technical marketing at San Diego-based Peregrine Systems Inc. Pointing to the "safeguarding of assets" section of Auditing Standard No. 2, Chopskie asserts that auditors will be keen to look at all internal operations that could "have a material effect on the company." In the financial services industry, which is heavily dependent on IT, virtually everything will face the auditor's sniff test, he claims.



Chopskie says he expects that in addition to the obvious workflows and controls built into finance-related systems, auditors may nose around your IT procurement processes or the state of your software license compliance. Let's imagine that critical software you use relies on the continued viability of a vendor in Chapter 11, or that you have only one licensed copy of Microsoft Office, but it's installed on 10,000 desktops. Either situation could materially affect the financial health of your business. Not surprisingly, Peregrine suggests that using its asset-tracking and expense-control tools will help you achieve Sarbanes-Oxley compliance. Those products will be joined by process automation and asset optimization software next year, Chopskie says.

Microsoft CRM bucks subscription model . . .

. . . as 99% of its current users opt to license and install the applications. David Thacher, general manager of CRM at Microsoft Corp., says that only 1% of the more than 2,500 Microsoft CRM customers have opted to have the software hosted for them on a subscription basis. Although licensing's dominance is impressive, it's largely a result of the fact that Microsoft is still putting the finishing touches on its Service Provider License Agreement (SPLA), which will spell out the terms under which service providers can rent the software to users. Expect the lawyers to complete the SPLA tome in the spring, Thacher says. If, er, *when* it's completed, look for the percentage of subscription-based users to rise dramatically. Thacher says to also expect expanded reports in the next release of Microsoft CRM, thanks to the addition of new SQL Server Reporting Services functionality. A good guess is that the CRM unit's 200 developers will beat Microsoft's myriad lawyers and deliver the update in early 2005, ahead of the SPLA.



Don't lose business due to Web site errors . . .

. . . that discourage online visitors. Fix the errors and save a bunch o' dough on your IT costs, advises Mike Gabrys, co-owner of BikeSmart.com, the online retail arm of Mike's Bicycle Centers of Northern California in San Rafael. Everything on BikeSmart's Web site is custom-written. "And we like it a lot," Gabrys says. But customization made it harder to troubleshoot and remediate persistent 400- and 500-class errors that the Web site was generating. In addition, the site's response time was disappointing, he says. At first, BikeSmart's developers thought the problem was in the company's ColdFusion-based online shopping application. But after installing an Xfire Web site monitoring appliance from Xaffire Inc., they discovered a flaw in their MySQL database implementation that was causing most of the problems. One of the biggest benefits BikeSmart has realized since installing the monitoring device is that lower-level IT staffers can use it to solve problems, freeing senior developers to work on other projects, Gabrys says. David Jilk, CEO of Xaffire in Superior, Colo., says Version 3.2 of the Xfire software will be released for beta-testing this week. It will add filtering capabilities and the ability to store the information it gathers in relational databases. Xfire pricing starts at $28,000.

Database unlocks performance . . .

. . . bottleneck in traditional relational systems. Kenneth Ruotolo, chief financial officer at Burlingame, Calif.-based Ants Software Inc., says that much like the QWERTY keyboard was designed to slow down typists, RDMS technology hailing from the late 1970s and early 1980s used "sequential locking" as a way to slow down transaction processing. That was done because the databases had to contend with tiny network pipes and time-sharing environments, he explains. Ruotolo claims that his company's Ants Data Server processes all transactions in parallel and "virtually eliminates" locking. Plus, he says, the software was designed to take advantage of huge amounts of memory as well as disk space, so it can use an entire storage-area network as its database memory if necessary. Ants Data Server 2.5 is due in the first quarter of 2005 with support for systems based on Advanced Micro Devices Inc.'s Opteron chip. The software costs $25,000 per CPU.

ID 51002

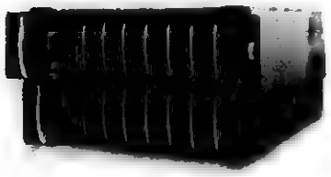


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• HP Systems Insight Manager™: Web-based networked managment through a single console	• Up to 93% fewer cables
• Flexible/Open: Integrates with existing infrastructure	• Hot-swappable server design
• Rapid Deployment Pack: For ease of deployment and ongoing provisioning and reprovisioning	• Single interface for integrated remote management



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CIOs, Recruiters Split On IT Job Prospects

CIOs say full-time hiring remains flat but contract workers are still in demand

BY THOMAS HOFFMAN

RECRUITMENT agency officials and corporate CIOs are painting very different pictures of the current outlook for IT hiring.

More than a dozen CIOs and corporate recruiters interviewed last week said their organizations are being prudent about adding full-time IT workers in order to hold down expenses. These companies are typically opting for contract workers to help meet their near-term project and support requirements.

At the same time, executives at recruiting agencies said at this month's Recruiting 2004 Conference in New York that job postings for IT workers have reached the highest levels since the dot-com bust in 2001, signaling a rebound in the U.S. IT job market.

Dennis Callahan, CIO at The Guardian Life Insurance Company of America, said "we're close to flat in permanent staff from year to year." Any near-term additions to New York-based Guardian's 401-person IT staff — which is augmented by 200 offshore IT consultants — will focus on replacing workers who leave and hiring specialists in technologies like WebSphere and IT security, Callahan said.

Wyndham International Inc. has no plans to expand its 82-person IT department with more full-time staffers, said senior vice president and chief technology officer Mark Hedley. Instead, the Dallas-based hotel chain will round out its workforce with contract workers as needed to meet peak demands. "We have taken a conservative approach on the economy and will match our IT spending with the growth of the company," Hedley said.

Mixed Outlook

That's consistent with the sentiment of other CIOs as economic forecasts continue to be mixed. For example, while some signs, such as the stock market's recent rise, have been positive, a composite index of economic indicators compiled by The Conference Board Inc. fell in October for the fifth consecutive month.

An uncertain economy is a key reason for the increased use of contract IT workers, said conference attendee Peter Weddle, CEO of Weddle's, a research, publishing and recruiting consultancy in Stamford, Conn.

Rick Stockfield, managing partner at Talenthire.com, an Atlanta-based business-to-business online recruiting exchange, said demand for IT workers has increased over the past three to six months. Stockfield cited particularly strong demand for IT auditors in response to the Sarbanes-Oxley Act, as well as demand for IT security experts.

While many CIOs remain cautious about adding to their payrolls, there are exceptions. For instance, Science Applications International Corp. in San Diego plans to increase its IT staff by a whopping 29% by early next year — from 556 to 716 workers — by adding both full-time and contract employees and by partnering with business units that deliver systems to customers, said CIO Cora Carmody. The company is hiring people with a broad range of skills, including architects, software developers and business analysts.

Juniper Networks Inc., a networking equipment vendor in Sunnyvale, Calif., expects to have an IT staff of 140 people by the end of the year, up from the 70 it had prior to its April acquisition of NetScreen Technologies Inc., said CIO Kim Perdikou. The company added 35 IT personnel from NetScreen and expects to hire 35 more by year's end to help support its growth. Perdikou estimated that Juniper will grow its IT staff by another 10% to 15% in 2005.

Truman Medical Centers Inc. has a few openings for full-time IT workers, said CIO Bill McQuiston. But he said he's somewhat concerned about the Kansas City, Mo.-based organization's ongoing use of contract IT workers to meet some of its short-term needs. The contract workers can't always transfer their knowledge to the health care company before they complete their assignments, McQuiston said. ● 51082

CIOs Take Steps to Keep Pace With Change

New requirements muddle the search for top talent

BY LUCAS MEARIAN
COLUMBUS, OHIO

When recruiting a new CIO, companies look mostly outside their own walls because they lack confidence in internal IT management. Many CEOs fear the internal candidates lack well-rounded experience, a technology recruiter told about 150 CIOs gathered at the 2004 CIO Symposium here this month.

Several Fortune 25 CIOs spoke of their rapidly changing profession and of the search for a new breed of IT managers. The goal is to develop those managers internally, but that goal hasn't been met, they said.

"The one thing we found that companies don't do too well is engage their future leaders," said Gerry McNamara, senior partner at financial services and technology recruiting firm Heidrick & Struggles International Inc. in Chicago. In a speech at the symposium, McNamara said most companies are sorely lacking in IT leadership training programs.

A Heidrick & Struggles survey of its U.S. clients found that 61% of Fortune 250 companies hire outside talent as chief technologists, and 70% of companies use profile testing to help identify the ideal IT manager rather than turn to internal talent.

The findings weren't surprising to CIOs attending the conference, hosted by the Columbus Technology Council and Ohio State University.

Several CIOs from large companies acknowledged the need for better training of IT managers, particularly when it comes to understanding the business side of the company and managing projects.

Joseph Calvaruso, CEO of Mount Carmel Health System in Columbus, instituted a leadership development program in July 2000 to address a 24% annual employee turnover rate at his operation. "Employees join organizations, but they leave managers," he said. After the program was implemented, the attrition rate dropped to 4% this year, Calvaruso said.

Dealing With Mergers

Jody Davids, CIO at Cardinal Health Inc. in Dublin, Ohio, a distributor of medical supplies and equipment, said the biggest technical challenge facing CIOs in large enterprises is integrating multiple lines of business after mergers and acquisitions, a task that demands business expertise from the CIO and the managers he hires.

Cardinal Health is a year into a 24-month business and IT realignment to pull together more than a dozen companies that is has acquired over the past decade. "You cannot lead with technology. There needs to be some understanding of the business [by IT managers] if the investment is going to be wisely made," she said.



Davids also advised her counterparts to "deal decisively with those who cling to the past" and won't change as needed.

John Deane, CIO of Wendy's International Inc. in Dublin, Ohio, said he has seen a dramatic change in corporate expectations as CIOs are changing "from someone who is technical in philosophy to someone who is a value creator. CIOs are [becoming] part of the strategic process."

"You need people in your organization who understand business first and IT second," added Fred Siff, CIO at the University of Cincinnati. IT managers must be able to help create business value and competitive advantage, he added. ● 51009

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Microsoft

"For midsized and large organizations, a significant Linux deployment will neither be free nor easily accomplished. In fact, respondents at large organizations reported that a wholesale switch to Linux from Windows® or Unix would significantly increase TCO for the forseeable future."

–Laura DiDio, The Yankee Group, April 2004
Linux, Unix, and Windows TCO Comparison

The Yankee Group, a global research and consulting firm, concluded that a significant switch to Linux from Windows or Unix could cost three to four times as much without delivering tangibly better performance or business value. These findings are based on a non-sponsored worldwide survey of 1,000 IT administrators and C-level executives in midsized and large enterprises.

To get the full study, visit **microsoft.com/getthefacts**



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GLOBAL DISPATCHES

An International IT News Digest

U.K. Mulls Unplugging Faulty EDS System

LONDON

CONTINUOUS COMPUTER failures at the U.K.'s Child Support Agency have led the agency's chief to resign and prompted the government to consider scrapping a welfare case management and telephony system developed mostly by Electronic Data Systems Corp.

At a parliamentary committee hearing on Nov. 17, Doug Smith, chief executive of the Child Support Agency, said he's "seriously disappointed" that just 61,000 out of 478,000 single parents have received payments from the system and that $1.4 billion worth of support payments remain uncollected. Smith said he's resigning from his job.

Alan Johnson, secretary of the U.K. Department of Work and Pensions, which oversees the agency, said he's considering the "nuclear option" of pulling the plug on the system. Launched in March 2003, the system includes a Java-based application written by EDS and call center software created by BT Group PLC. The parliamentary committee issued a damning report about the system in July [QuickLink 49246]. During the hearing, Johnson read from what he said was an internal EDS memo that described the system as "badly designed, badly delivered, badly tested and badly implemented." A representative from EDS U.K. declined to comment or to confirm the legitimacy of the memo.

■ LAURA ROHDE, IDG NEWS SERVICE

GLOBAL FACT

Number of Wi-Fi sessions per week at the British Library in London.

Start-up Claims Low-Cost RFID Chip

AUCKLAND, NEW ZEALAND

A START-UP VENDOR called Sandtracker claims to be on the verge of cracking the 5-cent cost barrier for radio frequency identification (RFID) tags. The Auckland-based company is producing a low-silicon chip that can be made for 6 cents and contains only a number identifying the goods that are tagged.

Sandtracker said the tags are being tested in several applications. A sports-event company is putting the cheap tags on the number bibs of runners to count how many cross the finish line during races. Another customer is using a special RFID assembly across the closure of crates and containers. Any tampering triggers an alarm, Sandtracker said.

Some versions of the tags don't conform to the emerging Electronic Product Code standard, but Sandtracker said it plans to work with the EPC standards body on the new chips.

■ STEPHEN BELL, COMPUTERWORLD NEW ZEALAND ONLINE

Intel to Spend $40M On India Chip Center

BANGALORE, INDIA

INTEL CORP. said on Nov. 19 that it will invest $40 million over the next two years at its 43-acre development center in Bangalore. That's on top of a similar investment in the past two years.

The new funding will be used to develop next-generation Centrino chip sets, laptop motherboards and Windows-based graphics drivers. The center will also develop enterprise-class microprocessors, including work on all of Intel's chips that support very large-scale integration technology. **51007**

■ JOHN RIBEIRO, IDG NEWS SERVICE

Compiled by Mitch Betts.

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BAA PLC, a London-based airport operator, plans to use enterprise service bus (ESB) technology developed by Sonic Software Corp. in Bedford, Mass., to integrate flight, baggage and passenger information systems at Heathrow Airport's Terminal 5, which is under construction. BAA also tapped Sonic ESB to support its overall service-oriented architecture.

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Continued from page 1

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Swainson, 50, was added to CA's board and given the title of president and CEO-elect for the time being. At his most recent job at IBM, he served as vice president of the company's worldwide software sales force. Prior to that, he was general manager of the application integration tools and middleware division within IBM's software group.

Interim Period

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Jeff Clarke, CA's chief operating officer and chief financial officer, will report to Cron during the transition period. Clarke, who joined CA last March, is responsible for sales, marketing, business development and finance.

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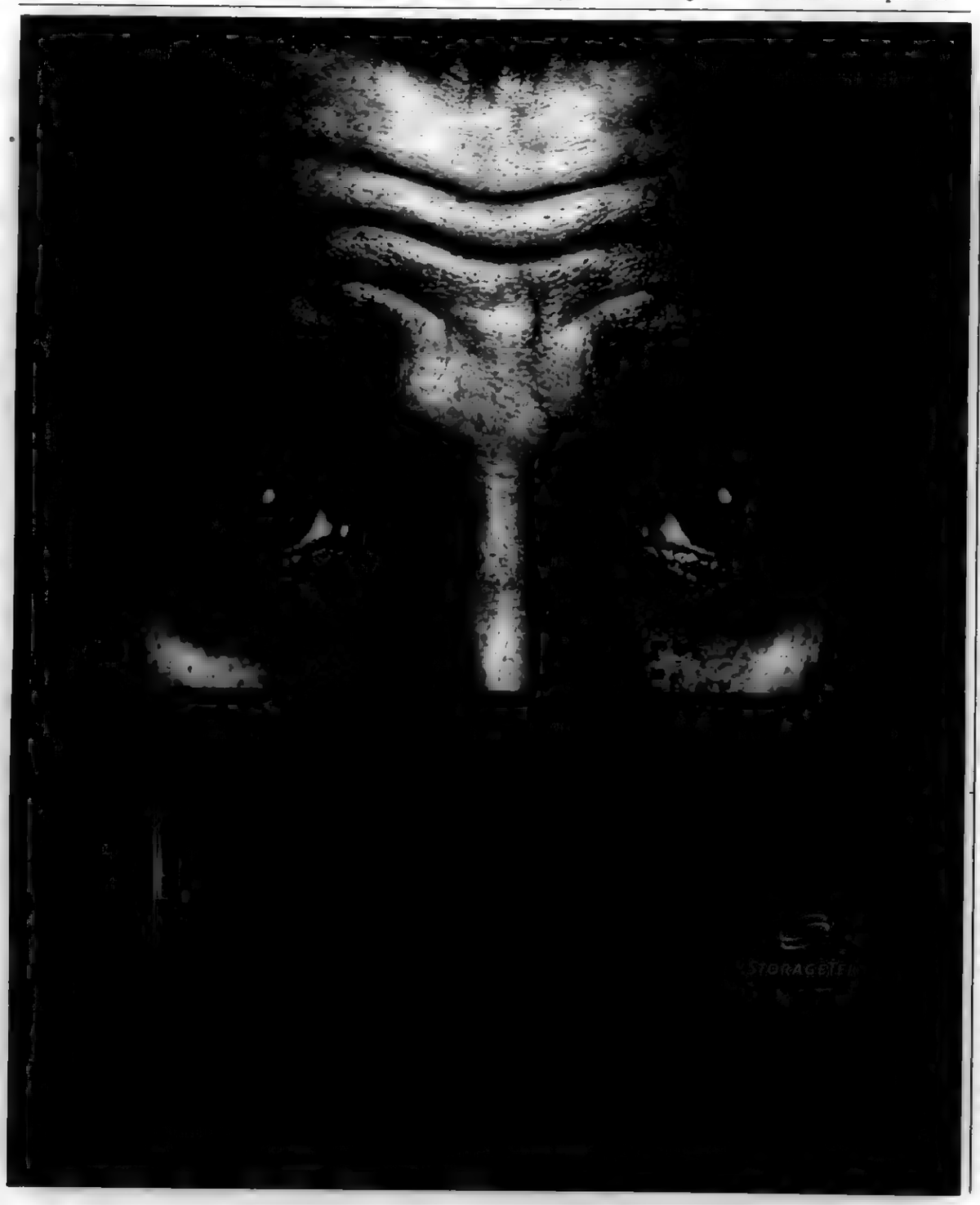
Tools Bring Desktop Features to Browsers

BY HEATHER HAVENSTEIN

Macromedia Inc. and Nexaweb Technologies Inc. have brought out upgraded XML development offerings with updates for building thin-client applications with rich features native to the desktop.

Cambridge, Mass.-based Nexaweb this month enhanced its Nexaweb Client 3.3 tool with support for searching XML and the ability to take part of the application off-line, said CEO Larry Geisel.

Meanwhile, San Francisco-based Macromedia this month began shipping Flex 1.5, the latest version of its presentation server and application framework, with improved data display and visualization, more versatile skinning and styling, and support for new systems.



Geisel said Nexaweb plans to update its Nexaweb Studio add-in for third-party integrated development environments (IDE) by adding a visual JavaServer Pages (JSP) editor. It also plans to add a .Net client and open-source access to the Client engine by next year.

The Nexaweb tools can run in any J2EE application server, allowing developers to use JavaBeans, JSP and other coding structures to build XML user interfaces for Internet applications that need rich features like drag and drop.

Best Western International Inc. in Phoenix used Nexaweb's tool set to replace an HTML-based reservation, room rate and inventory application. An XML-based user interface reduced the time the system takes to respond to changes made at the company's 4,000-plus properties from 15 seconds to two seconds, said Harold Dibler, managing director of application development at Best Western. The interface also reduced network traffic by more than 90%, he said.

Macromedia Flex 1.5 allows developers to use a text editor or IDE to build rich-client applications, said Jeff Whatcott, Macromedia's vice president of product marketing.

Rotech Healthcare Inc., a medical equipment maker in Orlando, used Flex to build an Internet application for collecting orders and linking to billing systems via a controlled user interface. "You are able to make it look like what people are used to in a Windows application," said Michael Prichard, Rotech's IT manager.

Tim Farmer, software development manager at Choice Homes Inc. in Arlington, Texas, said his Microsoft-centric development staff used Flex to build a user interface for a dashboard application in about a week, which was much quicker than it would have taken without the tool. 50997


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DON TENNANT

A Thanksgiving Rebuttal

HERE WE ARE on the Monday after Thanksgiving, and with the taste of burped-up cranberry sauce still fresh and every bathroom in the house still reeking of Glade Lavender Meadow, it's a time for requisite reflection. As it does every year, the long Thanksgiving weekend provided an opportunity for us all to articulate what it is we're thankful for without anyone sarcastically humming "Kumbaya" in the background. At least not loudly enough for us to hear. If the kids know what's good for them.



Following all that giving of thanks, journalistic balance compels me to report from the other side of the fence and articulate what it is I'm bummed about — to list some of the things that make me about as thankful as a fiftysomething IT worker at Best Buy. (Go to QuickLink 50984 if you said, "Huh?" when you read that.)

I'm bummed that Chris Stone, the former No. 2 executive at Novell, left the company earlier this month, just as it was beginning to jell on the strength of its Linux strategy. CEO Jack Messman is a really nice guy, but I know I'm not the only one who questions his wherewithal to run the company without somebody like Stone serving as puppeteer. Big-time loss for Novell's users.

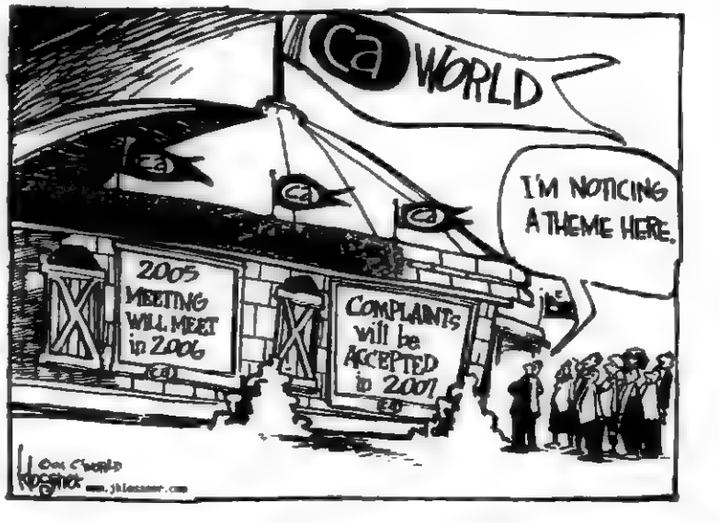
I'm bummed that Computer Associates can't get its act together to hold the CA World user conference in April as planned. CA users will have to wait until the fall of 2005 for the event, after being told that it would be postponed until the spring of 2006. But at least the company finally found a CEO after seven months of acting-CEO limbo [QuickLink 51033]. CA had issued a statement on Oct. 1 proclaiming that it would name a new CEO "in the next 30 to 45 days," and it missed that deadline by only about a week. I'm not sure, but I think the way CA counts days, it just made it.

I'm bummed that Congress popped open the H-1B visa cap the weekend before last by including a provision for 20,000 exemptions to the cap in an omnibus budget bill [QuickLink 50999]. I'm not bummed that 20,000 more people will get H-1Bs this year — hey, I say let the most qualified individual get the job, regardless of his citizenship or the ranting of xenophobes. I'm bummed that the system allows provisions like this to be tucked into appropriations bills rather than passing or failing on their own merits and forcing individual members of Congress to be accountable.

I'm bummed that a senior software engineer in Florida did a much better job than I did of making the point I was trying to make about offshore outsourcing in my Nov. 15 editorial [QuickLink 50699]. Here's an excerpt from a letter he wrote: "My attitude about the matter is that I know what I am doing. I am excellent at software development. If my company decides that this present job I am in must be filled by someone else (for financial reasons or otherwise), then that's fine — I'll simply go find something else to do. The whiners must live in constant fear that someone is going to take something away from them. Unfortunate. If they just realized that what they have should be what they have *earned*, then no one can take what they truly own away from them. The successful people in this country don't make excuses, they make themselves valuable and do the work." Brilliant.

I'm bummed that I'm out of space. This is fun. **51029**

Don Tennant



DAN GILLMOR

Priorities Are Askew At the FCC

IT MUST BE TOUGH being America's nanny, especially when there's so much real work to do.

Michael Powell, chairman of the Federal Communications Commission, and his feckless colleagues are on a roll these days. They're chasing so-called indecency from the airwaves with a zeal we haven't seen in decades, causing broadcasters to turn what's already a Pablum medium into even worse junk.

What does this have to do with the world of business and IT? Plenty — the serious telecom issues on the FCC's plate need attention, and they're not getting enough of it.



There's been at least a tiny bit of progress on one key issue: whether Internet-based telephony, or VoIP, should be regulated, and if so, by whom. The FCC recently said that it alone should have regulatory authority in this arena.

That's a good idea. Many states have been eyeing VoIP in a variety of ways, especially as something they might tax. But if anything in today's communications world is an interstate system, it's the Internet. And VoIP is just one more bit of software using the Net.

Now, one could make an argument that Internet calls to or from phones served by fixed-line carriers should come under the authority of the state agencies that regulate the regional telephone monopolies. That would create chaos, however, in an industry that's just beginning to be a serious player on the telecom scene. It would create chaos for customers, too. Federal preemption makes sense in this case.

If only this nod to common sense was matched by other recent FCC moves. Susan Crawford, a cyberlaw and intellectual property specialist who teaches at Yeshiva University's

Cardozo Law School in New York, recently spotted some remarkable language in an FCC legal brief.

The issue is related to the FCC's water-carrying for the copyright industry, which won a regulatory requirement that future digital video displays contain "broadcast flag" technology, a system in which a television will refuse to allow copying of digital content designated by the copyright owner.

Now, Crawford writes in her blog (*http://scrawford.blogware.com/blog*) that the FCC is saying this applies to any kind of digital device — and that the law gives these unelected federal bureaucrats "regulatory power over all instrumentalities, facilities and apparatus 'associated with the overall circuit of messages sent and received' via all interstate radio and wire communication." Yikes.

We can blame Congress for some of this. It writes laws that let regulators assume wide authority.

But like the spate of airwave censorship cases, such regulatory overreaching is a threat to basic freedom of speech. Now that Howard Stern is taking his act to satellite — an act that I personally find distasteful, but not nearly as worrisome as the bluenoses who want to censor it — look for moves to regulate cable and satellite transmissions, too.

We all have a stake in freedom of expression. But even if some of us don't care about that, these trends are bad for business, too. If technology innovators need permission to market inventions, as the copyright holders and their friends in Congress and the FCC seem to believe, then we'll get less innovation. And we'll all suffer if that happens.

I realize it's not IT's job to yell out in favor of freedom. It's everyone's job. **50986**

MICHAEL H. HUGOS

Agility Is a Frame of Mind

AGILITY results from a way of looking at the world. It doesn't come from any specific technique or a particular collection of technologies. Agility starts with the ability to accurately size up a situation in a timely manner. That means seeing potential problems and opportunities and devising bold and simple ways to avoid the problems and seize the opportunities.



IT can be a big part of what makes a company agile, or it can be a big part of what makes it a clumsy, slow-moving bureaucracy. One of the major determinants of this is the way your company answers the question, "Should we build our systems fast, or should we build them good?" The agile answer is to build them fast and good enough for now.

What does "good enough for now" mean? In a fast-paced, competitive world, opportunities arise quickly and then either fade away or evolve into something else. The advantage goes to companies that can develop systems that are ready when the business needs them and don't cost more than the opportunity is worth. The best way to do this is to create systems out of combinations of simple building blocks and repeatable processes.

Here's an example: My company is a cooperative of member companies (each with its own internal systems) that band together to serve national accounts bigger than any single member can handle alone.

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DON TENNANT

A Thanksgiving Rebuttal

HERE WE ARE on the Monday after Thanksgiving, and with the taste of burped-up cranberry sauce still fresh and every bathroom in the house still reeking of Glade Lavender Meadow, it's a time for requisite reflection. As it does every year, the long Thanksgiving weekend provided an opportunity for us all to articulate what it is we're thankful for without anyone sarcastically humming "Kumbaya" in the background. At least not loudly enough for us to hear. If the kids know what's good for them.



DON TENNANT is editor in chief of *Computerworld*. You can contact him at [redacted]

Following all that giving of thanks, journalistic balance compels me to report from the other side of the fence and articulate what it is I'm bummed about — to list some of the things that make me about as thankful as a fiftysomething IT worker at Best Buy. (Go to QuickLink 50984 if you said, "Huh?" when you read that.)

I'm bummed that Chris Stone, the former No. 2 executive at Novell, left the company earlier this month, just as it was beginning to jell on the strength of its Linux strategy. CEO Jack Messman is a really nice guy, but I know I'm not the only one who questions his wherewithal to run the company without somebody like Stone serving as puppeteer. Big-time loss for Novell's users.

I'm bummed that Computer Associates can't get its act together to hold the CA World user conference in April as planned. CA users will have to wait until the fall of 2005 for the event, after being told that it would be postponed until the spring of 2006. But at least the company finally found a CEO after seven months of acting-CEO limbo [QuickLink 51033]. CA had issued a statement on Oct. 1 proclaiming that it would name a new CEO "in the next 30 to 45 days," and it missed that deadline by only about a week. I'm not sure, but I think the way CA counts days, it just made it.

I'm bummed that Congress popped open the H-1B visa cap the weekend before last by including a provision for 20,000 exemptions to the cap in an omnibus budget bill [QuickLink 50999]. I'm not bummed that 20,000 more people will get H-1Bs this year — hey, I say let the most qualified individual get the job, regardless of his citizenship or the ranting of xenophobes. I'm bummed that the system allows provisions like this to be tucked into appropriations bills rather than passing or failing on their own merits and forcing individual members of Congress to be accountable.

I'm bummed that a senior software engineer in Florida did a much better job than I did of making the point I was trying to make about offshore outsourcing in my Nov. 15 editorial [QuickLink 50699]. Here's an excerpt from a letter he wrote: "My attitude about the matter is that I know what I am doing. I am excellent at software development. If my company decides that this present job I am in must be filled by someone else (for financial reasons or otherwise), then that's fine — I'll simply go find something else to do. The whiners must live in constant fear that someone is going to take something away from them. Unfortunate. If they just realized that what they have should be what they have *earned*, then no one can take what they truly own away from them. The successful people in this country don't make excuses, they make themselves valuable and do the work." Brilliant.

I'm bummed that I'm out of space. This is fun. **51029**

Don Tennant



DAN GILLMOR

Priorities Are Askew At the FCC

IT MUST BE TOUGH being America's nanny, especially when there's so much real work to do.

Michael Powell, chairman of the Federal Communications Commission, and his feckless colleagues are on a roll these days. They're chasing so-called indecency from the airwaves with a zeal we haven't seen in decades, causing broadcasters to turn what's already a Pablum medium into even worse junk.

What does this have to do with the world of business and IT? Plenty — the serious telecom issues on the FCC's plate need attention, and they're not getting enough of it.



DAN GILLMOR is a columnist at the *San Jose Mercury News* and author of *We the Media: Grassroots Journalism by the People, for the People* (O'Reilly Media Inc., 2004). Contact him at [redacted]

There's been at least a tiny bit of progress on one key issue: whether Internet-based telephony, or VoIP, should be regulated, and if so, by whom. The FCC recently said that it alone should have regulatory authority in this arena.

That's a good idea. Many states have been eyeing VoIP in a variety of ways, especially as something they might tax. But if anything in today's communications world is an interstate system, it's the Internet. And VoIP is just one more bit of software using the Net.

Now, one could make an argument that Internet calls to or from phones served by fixed-line carriers should come under the authority of the state agencies that regulate the regional telephone monopolies. That would create chaos, however, in an industry that's just beginning to be a serious player on the telecom scene. It would create chaos for customers, too. Federal preemption makes sense in this case.

If only this nod to common sense was matched by other recent FCC moves. Susan Crawford, a cyberlaw and intellectual property specialist who teaches at Yeshiva University's

Cardozo Law School in New York, recently spotted some remarkable language in an FCC legal brief.

The issue is related to the FCC's water-carrying for the copyright industry, which won a regulatory requirement that future digital video displays contain "broadcast flag" technology, a system in which a television will refuse to allow copying of digital content designated by the copyright owner.

Now, Crawford writes in her blog (*http://scrawford.blogware.com/blog*) that the FCC is saying this applies to any kind of digital device — and that the law gives these unelected federal bureaucrats "regulatory power over all instrumentalities, facilities and apparatus 'associated with the overall circuit of messages sent and received' via all interstate radio and wire communication." Yikes.

We can blame Congress for some of this. It writes laws that let regulators assume wide authority.

But like the spate of airwave censorship cases, such regulatory overreaching is a threat to basic freedom of speech. Now that Howard Stern is taking his act to satellite — an act that I personally find distasteful, but not nearly as worrisome as the bluenoses who want to censor it — look for moves to regulate cable and satellite transmissions, too.

We all have a stake in freedom of expression. But even if some of us don't care about that, these trends are bad for business, too. If technology innovators need permission to market inventions, as the copyright holders and their friends in Congress and the FCC seem to believe, then we'll get less innovation. And we'll all suffer if that happens.

I realize it's not IT's job to yell out in favor of freedom. It's everyone's job. **50986**

MICHAEL H. HUGOS

Agility Is a Frame of Mind

AGILITY results from a way of looking at the world. It doesn't come from any specific technique or a particular collection of technologies. Agility starts with the ability to accurately size up a situation in a timely manner. That means seeing potential problems and opportunities and devising bold and simple ways to avoid the problems and seize the opportunities.

IT can be a big part of what makes a company agile, or it can be a big part of what makes it a clumsy, slow-moving bureaucracy. One of the major determinants of this is the way your company answers the question, "Should we build our systems fast, or should we build them good?" The agile answer is to build them fast and good enough for now.



Michael H. Hugos is CIO at Network Services Co., a distribution cooperative in Mount Prospect, Ill., that sells food-service and janitorial supplies. He is the author of *Building the Real-Time Enterprise: An Executive Briefing* (John Wiley & Sons Inc., 2004). He can be reached at [illegible]

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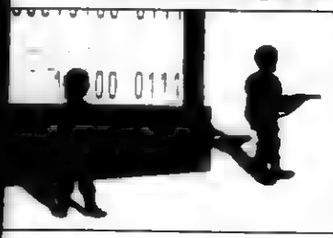
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Guarding the Grid

Grid computing architectures have a way of amplifying the security issues that companies routinely deal with in nongrid environments. So it's important not to overlook those vulnerabilities when deploying grids, users say. **Page 32**

QUICKSTUDY

Digital Light Processing

This system for projecting images, based on a unique optical semiconductor chip from Texas Instruments, contains millions of tiny mirrors that are individually moved by digital signals in synchronization with a light source and color wheel. **Page 34**

SECURITY MANAGER'S JOURNAL

VPN Evolution Progressing to SSL

One VPN technology is decommissioned, but the replacement causes new problems, writes Mathias Thurman. Secure Sockets Layer offers some answers, but there are still problems to be resolved. **Page 36**



DAVID COOPER

MESH MOVES INTO THE WIRELESS OFFICE

OUTLOOK: Nascent 802.11 meshes make network installs and changes a snap. But compared with traditional wireless LANs, mesh networks have throughput limits and, for now, lack multivendor interoperability.

BY JOANIE WEXLER

A COSTLY AND COMPLEX aspect of today's wireless networks can sometimes be the very component they're supposed to eliminate: cabling. Emerging 802.11-based mesh networks attempt to resolve this irony by using more radio spectrum and less wire in the form of Ethernet cabling than traditional wireless LANs.

EMERGING TECHNOLOGIES

These are early days for WLAN meshes, but proprietary infrastructure products are commercially available. Organizations with difficult-to-cable environments and those that frequently move their WLAN nodes are among mesh's early adopters.

A wireless mesh infrastructure is, in effect, a router network minus the cabling between nodes — with the inherent rerouting for fault tolerance that such networks deliver. It's built of peer radio devices that don't each have to be cabled to a wired port like traditional WLAN access points (AP) do. Rather, each simply plugs into an AC power supply. It automatically self-configures and communicates with other nodes over the air to determine the most efficient multihop transmission path.

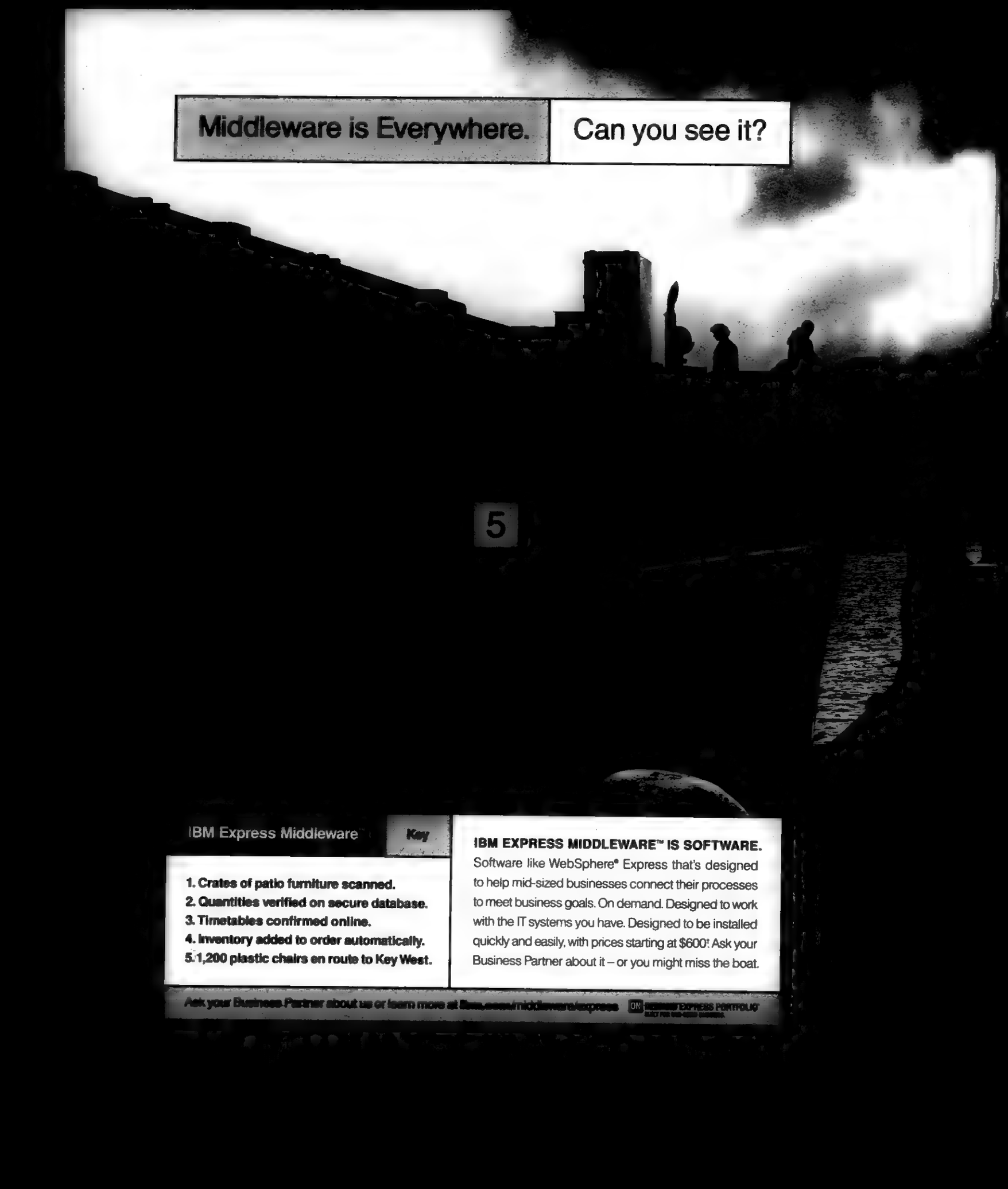
Today, the way these functions work is unique to each vendor. So enterprises that build mesh networks will likely use one vendor for a few years until standards are in place.

"Mesh is a reasonably important enterprise architecture going forward, because it dramatically simplifies installation," says Craig Mathias, a principal at Farpoint Group, a consulting firm in Ashland, Mass. "You take a node out of the box, plug it into the wall — end of discussion."

Supplying power to a mesh node can still be problematic. However, electrical outlets are usually far more abundant in buildings than Ethernet ports are, Mathias notes.

Only devices at the very edge of the wireless mesh hit wire — either to con-

Continued on page 30


Middleware is Everywhere.
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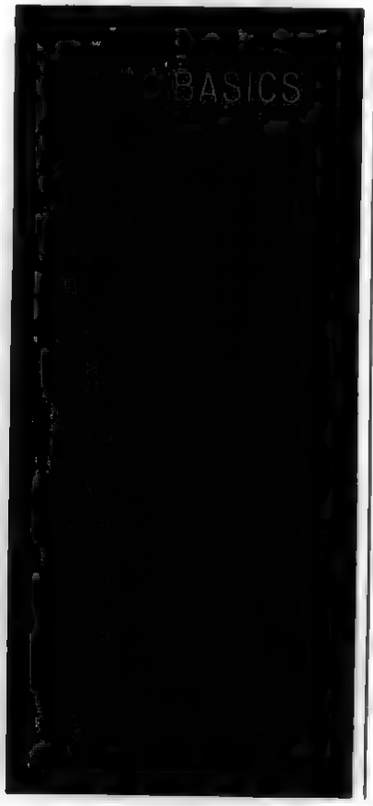
Continued from page 27

nect to a network switch or to standalone cabled devices such as printers and video cameras.

A design goal is to minimize the number of those wired devices and allow network managers to easily move wireless nodes as needed for capacity and coverage.

In a wireless mesh network, as devices are added and moved, the network automatically discovers topology changes and adjusts traffic-forwarding paths to optimize throughput.

Urology Clinics of North Texas replaced a traditional WLAN with a meshed Access/One system from Strix Systems Inc. in Calabasas, Calif., for just this reason. "We had intermittent problems with interference and shifting coverage holes," explains Kyle Nash, IT manager at the Dallas-based facility. This required him to frequently move APs to tune the network, which was laborious and time-consuming because cabling ran from each AP to an Ethernet switch.



"Now I just move APs on the fly. This means the network is up longer. It will also make things much easier as our network continues to expand," says Nash, whose goal is for the five-office, 200-plus user facility to eventually be about 90% wireless.

Early Players and Users

The flexibility provided by mesh networks is particularly helpful over large geographies and in hard-to-wire buildings. Cisco Systems Inc., for one, says it helped kick off the effort to develop the IEEE 802.11s mesh networking standard when it discovered that some of its customers were running Cisco Aironet APs in "repeater mode," whereby one AP backhauls packets to another.

"This was happening in large warehouses where customers either couldn't get to a location or were running into Ethernet's 100-meter cabling limitation," says Jon Leary, product line manager in Cisco's wireless networking business unit.

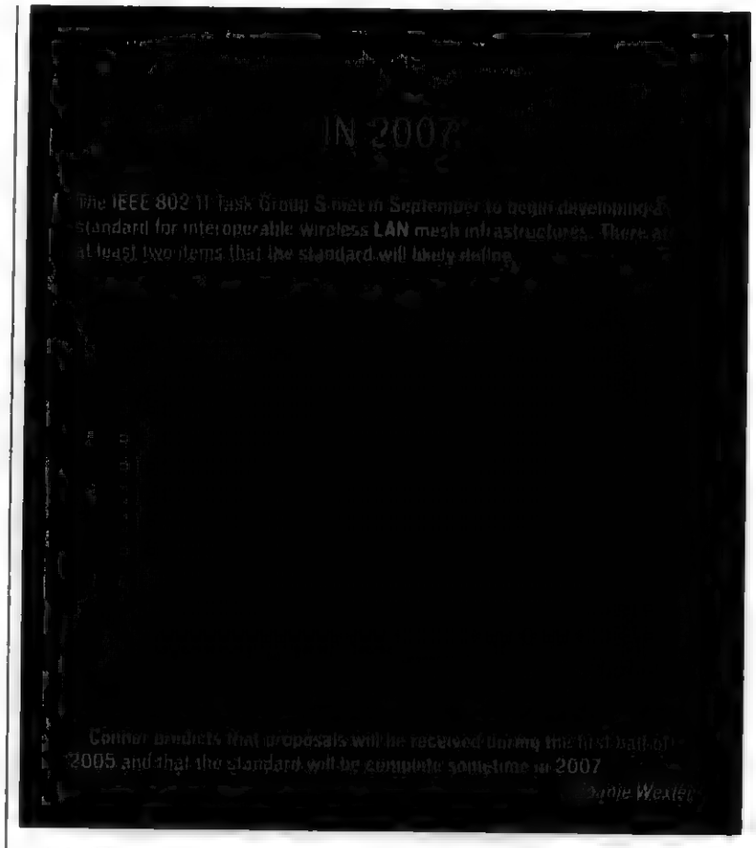
Similarly, consider hospitals using the services of Shared P.E.T. Imaging LLC in Canton, Ohio. The company offers mobile positron emission tomography (PET) diagnostic medical imaging services to facilities that can't support the service full time in-house.

Mobile scanning labs are equipped with an $800 Firetide Inc. 802.11b HotPoint mesh router attached to a PET scanner. The router in the mobile coach communicates images to another router inside the hospital, where they are relayed to a reader, says Marc Simms, director of IT at Shared P.E.T. Previously, the company dragged Category 5 Ethernet cabling outdoors after drilling a hole in the building.

Simms describes the cabling as "flaky and susceptible to weather." In one instance, cabling beyond the 100-meter Ethernet limit required the installation of more-costly fiber optics.

Simms says that before the company took the wireless mesh approach, an installation with a new customer took four to eight weeks and cost $2,000 to $4,000 — or $10,000, if fiber was involved. "Now, setup time is about an hour," he says.

Strix and Los Gatos, Calif.-based Firetide are the two mesh vendors that have made the greatest enterprise inroads. Firetide focuses strictly on wireless backbone applications — the company added 54Mbit/sec. 802.11a nodes to its portfolio this month — while



Strix builds nodes that perform double duty as wireless backbone routers and traditional WLAN APs.

Strix supports 802.11a/b/g in a modular, stackable mode that costs $800 to $900. It also uses the faster, shared 54Mbit/sec. 802.11a or g for backhaul and 802.11b for user access. In addition, Strix says it can use the proprietary 802.11g channel-bonding mode supported in some WLAN chips to achieve 108Mbit/sec. optimum-shared bandwidth.

Like Strix and Firetide, Tropos Networks Inc. in San Mateo, Calif., makes both indoor and outdoor Wi-Fi mesh products that could be used by enterprises or public network operators. To date, though, Tropos products have been installed in metropolitan applications, such as citywide 802.11 hot-spot networks.

Similarly, Nortel Networks Corp., which began shipping mesh products last month along with BelAir Networks Inc. and RoamAD, focuses on outdoor applications such as municipal and campus backbones. Like Strix, Nortel mesh nodes also support traditional AP access, and Kanata, Ontario-based BelAir's products offer indoor coverage from the same, outdoor-mounted node. Nortel provides indoor WLANs via a product line from Airespace Inc., which it resells.

The enterprise applications for mesh are fairly targeted, given the relatively low speeds of Wi-Fi networks compared with gigabit-speed cabled Ethernet backbones. The actual throughput speeds of Wi-Fi are about one-half to two-thirds of their stated optimum bandwidth because of wireless overhead and interference.

Generally, adding more mesh nodes increases capacity. However, Wi-Fi bandwidth is shared, and while both Strix and Firetide cite per-hop latency of less than 5 msec, this could add up as meshes scale, particularly as voice applications emerge and more hops eat into the total voice-latency budget.

Throughput Considerations

"The concept of sustained [wireless mesh] backbone bandwidth is not applicable," says Sunil Dhar, director of product management at Firetide. "End-to-end throughput is determined by the number of wireless hops required to traverse the mesh, the density of the mesh deployment and the amount of interference."

"For backhaul, you're going to pay,

performance-wise," says Yuval Goren, a wireless consultant at Goren International in Saratoga, Calif. "Mesh is for applications where you can't get access wherever you want, such as temporary applications where it makes no sense to pay thousands of dollars to run cables."

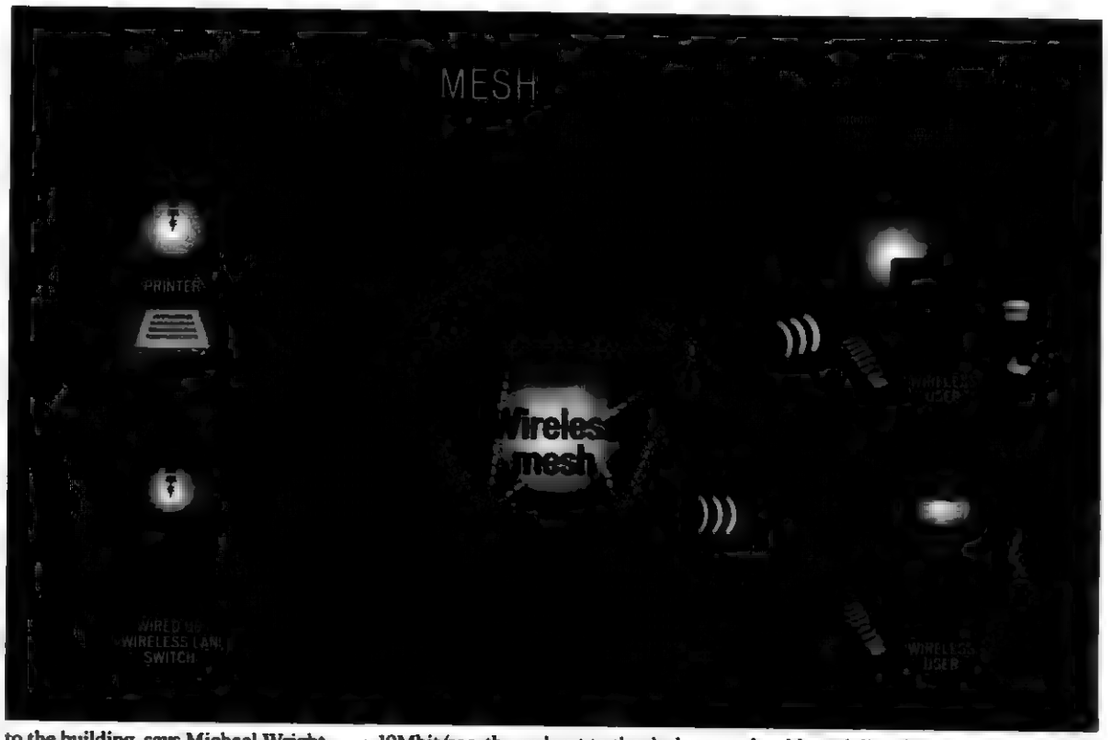
The Computer History Museum in Mountain View, Calif., has such an application. When the previous occupant vacated the building a few years ago, it cut much of the Ethernet cabling out of the 120,000-square-foot building.

So the museum is using Firetide nodes for temporary exhibits and outdoor events, where generator power is used, and in small, inaccessible areas indoors, according to Mike Walton, the museum's director of IT.

The Computer History Museum runs a Hewlett-Packard Co. AP infrastructure hanging off the Firetide 11Mbit/sec. backbone, which serves places such as the lobby for event registration.

"The lobby had no options for an Ethernet drop. Now, if I want registration computers, all I have to do is plug a [Firetide] node into an electrical outlet," Walton says.

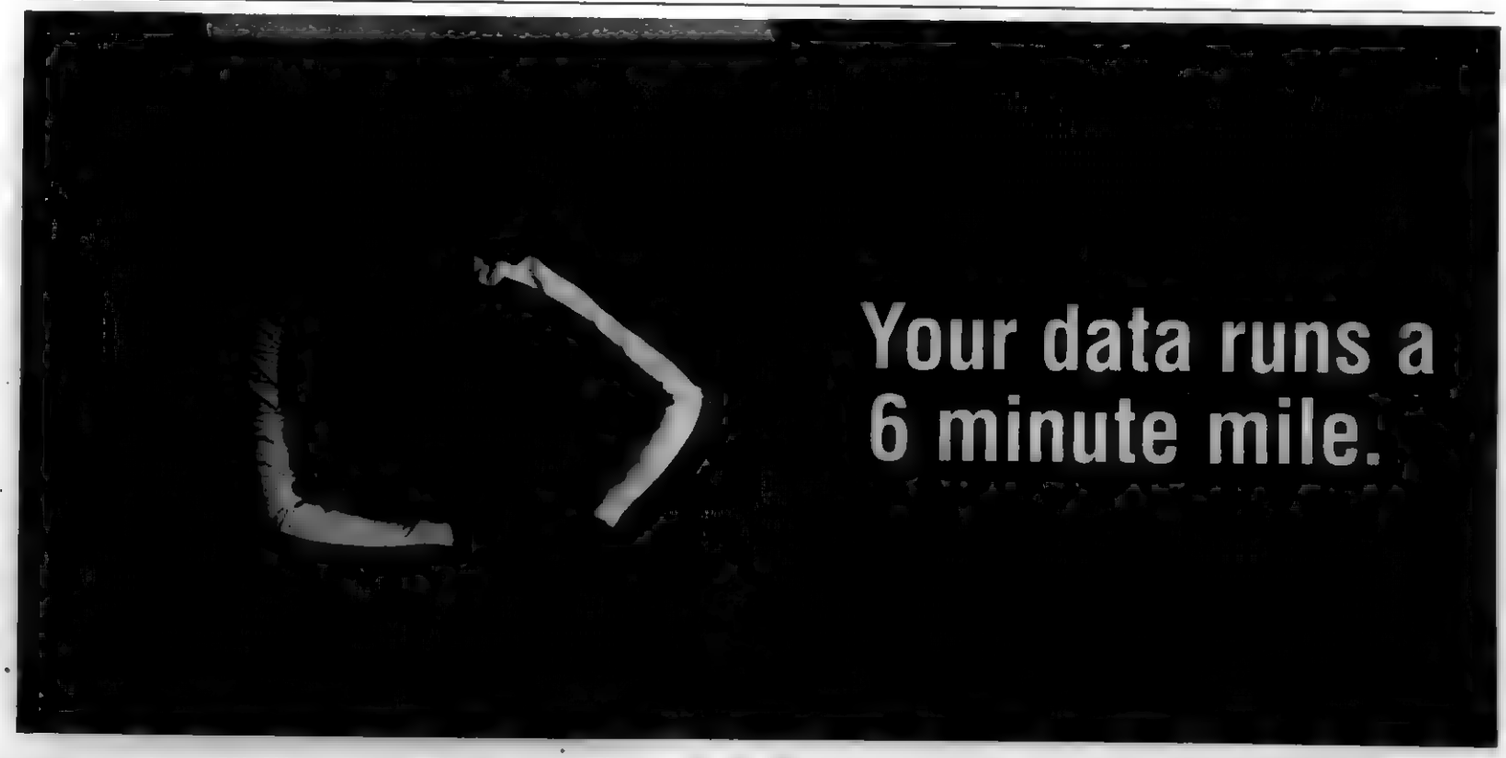
Similarly, The Science Place, an interactive museum in Dallas, has exhibits requiring both LAN and Internet access that are frequently moved. The 38,000-square-foot, two-building facility has 20-foot ceilings, 6-foot limestone walls and strict laws about what can be done to the building, says Michael Wright, director of IT.



The Strix network runs through both buildings "without having to string wires across the floor," Wright says. However, the organization retains a wired Fast Ethernet backbone with 10Mbit/sec. throughput to the desktop for permanent administrative uses.

Jose Villarreal, director of technical marketing at Strix, counters that it won't be long before wireless is on par with wired speeds. "Some seriously smart engineers used to say we would never be able to deliver broadband over twisted pair. How many DSL deployments are being done each day now?" 50712

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> **You take a node out of the box, plug it into the wall – end of discussion.**
>
> **CRAIG MATHIAS,** PRINCIPAL
> FARPOINT GROUP

Continued from page 27

nect to a network switch or to standalone cabled devices such as printers and video cameras.

A design goal is to minimize the number of those wired devices and allow network managers to easily move wireless nodes as needed for capacity and coverage.

In a wireless mesh network, as devices are added and moved, the network automatically discovers topology changes and adjusts traffic-forwarding paths to optimize throughput.

Urology Clinics of North Texas replaced a traditional WLAN with a meshed Access/One system from Strix Systems Inc. in Calabasas, Calif., for just this reason. "We had intermittent problems with interference and shifting coverage holes," explains Kyle Nash, IT manager at the Dallas-based facility. This required him to frequently move APs to tune the network, which was laborious and time-consuming because cabling ran from each AP to an Ethernet switch.

"Now I just move APs on the fly. This means the network is up longer. It will also make things much easier as our network continues to expand," says Nash, whose goal is for the five-office, 200-plus user facility to eventually be about 90% wireless.



Early Players and Users

The flexibility provided by mesh networks is particularly helpful over large geographies and in hard-to-wire buildings. Cisco Systems Inc., for one, says it helped kick off the effort to develop the IEEE 802.11s mesh networking standard when it discovered that some of its customers were running Cisco Aironet APs in "repeater mode," whereby one AP backhauls packets to another.

"This was happening in large warehouses where customers either couldn't get to a location or were running into Ethernet's 100-meter cabling limitation," says Jon Leary, product line manager in Cisco's wireless networking business unit.

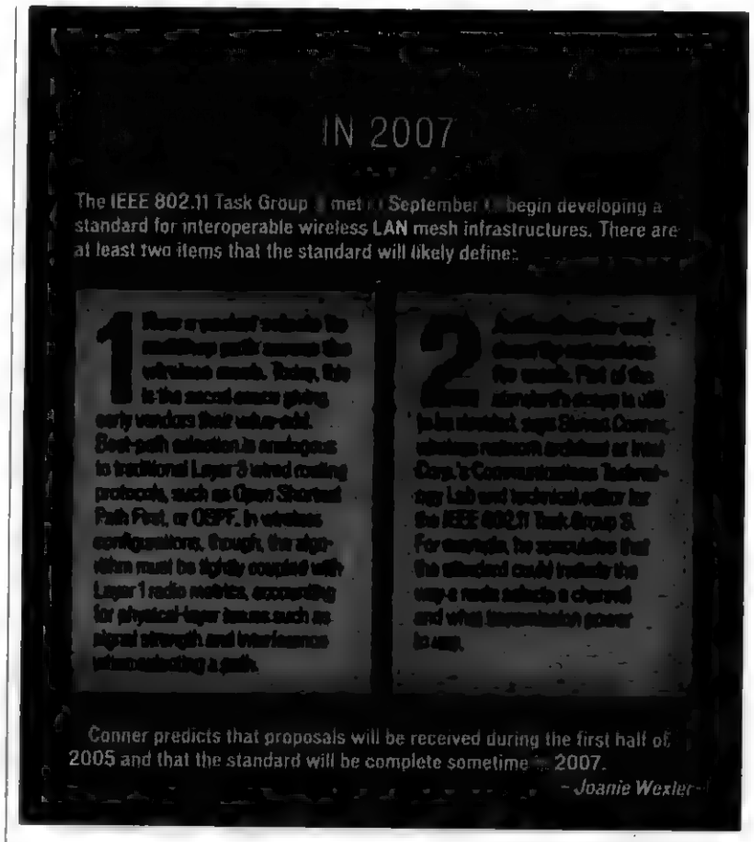
Similarly, consider hospitals using the services of Shared P.E.T. Imaging LLC in Canton, Ohio. The company offers mobile positron emission tomography (PET) diagnostic medical imaging services to facilities that can't support the service full time in-house.

Mobile scanning labs are equipped with an $800 Firetide Inc. 802.11b HotPoint mesh router attached to a PET scanner. The router in the mobile coach communicates images to another router inside the hospital, where they are relayed to a reader, says Marc Simms, director of IT at Shared P.E.T. Previously, the company dragged Category 5 Ethernet cabling outdoors after drilling a hole in the building.

Simms describes the cabling as "flaky and susceptible to weather." In one instance, cabling beyond the 100-meter Ethernet limit required the installation of more-costly fiber optics.

Simms says that before the company took the wireless mesh approach, an installation with a new customer took four to eight weeks and cost $2,000 to $4,000 — or $10,000, if fiber was involved. "Now, setup time is about an hour," he says.

Strix and Los Gatos, Calif.-based Firetide are the two mesh vendors that have made the greatest enterprise inroads. Firetide focuses strictly on wireless backbone applications — the company added 54Mbit/sec. 802.11a nodes to its portfolio this month — while Strix builds nodes that perform double duty as wireless backbone routers and traditional WLAN APs.



Strix supports 802.11a/b/g in a modular, stackable mode that costs $800 to $900. It also uses the faster, shared 54Mbit/sec. 802.11a or g for backhaul and 802.11b for user access. In addition, Strix says it can use the proprietary 802.11g channel-bonding mode supported in some WLAN chips to achieve 108Mbit/sec. optimum-shared bandwidth.

Like Strix and Firetide, Tropos Networks Inc. in San Mateo, Calif., makes both indoor and outdoor Wi-Fi mesh products that could be used by enterprises or public network operators. To date, though, Tropos products have been installed in metropolitan applications, such as citywide 802.11 hot-spot networks.

Similarly, Nortel Networks Corp., which began shipping mesh products last month along with BelAir Networks Inc. and RoamAD, focuses on outdoor applications such as municipal and campus backbones. Like Strix, Nortel mesh nodes also support traditional AP access, and Kanata, Ontario-based BelAir's products offer indoor coverage from the same, outdoor-mounted node. Nortel provides indoor WLANs via a product line from Airespace Inc., which it resells.

The enterprise applications for mesh are fairly targeted, given the relatively low speeds of Wi-Fi networks compared with gigabit-speed cabled Ethernet backbones. The actual throughput speeds of Wi-Fi are about one-half to two-thirds of their stated optimum bandwidth because of wireless overhead and interference.

Generally, adding more mesh nodes increases capacity. However, Wi-Fi bandwidth is shared, and while both Strix and Firetide cite per-hop latency of less than 5 msec, this could add up as meshes scale, particularly as voice applications emerge and more hops eat into the total voice-latency budget.

Throughput Considerations

"The concept of sustained [wireless mesh] backbone bandwidth is not applicable," says Sunil Dhar, director of product management at Firetide. "End-to-end throughput is determined by the number of wireless hops required to traverse the mesh, the density of the mesh deployment and the amount of interference."

"For backhaul, you're going to pay,

performance-wise," says Yuval Goren, a wireless consultant at Goren International in Saratoga, Calif. "Mesh is for applications where you can't get access wherever you want, such as temporary applications where it makes no sense to pay thousands of dollars to run cables."

The Computer History Museum in Mountain View, Calif., has such an application. When the previous occupant vacated the building a few years ago, it cut much of the Ethernet cabling out of the 120,000-square-foot building.

So the museum is using Firetide nodes for temporary exhibits and outdoor events, where generator power is used, and in small, inaccessible areas indoors, according to Mike Walton, the museum's director of IT.

The Computer History Museum runs a Hewlett-Packard Co. AP infrastructure hanging off the Firetide 11Mbit/sec. backbone, which serves places such as the lobby for event registration.

"The lobby had no options for an Ethernet drop. Now, if I want registration computers, all I have to do is plug a [Firetide] node into an electrical outlet," Walton says.

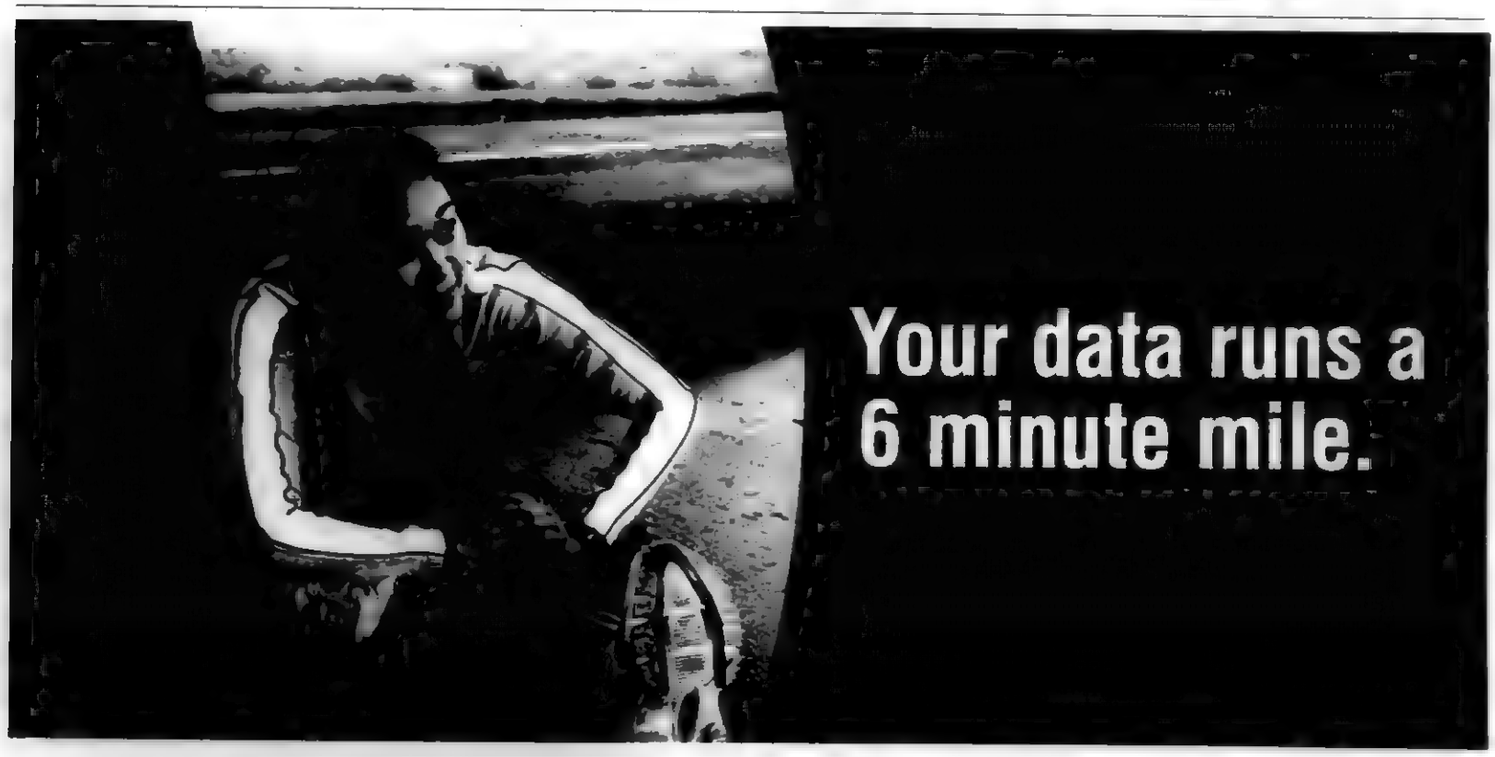
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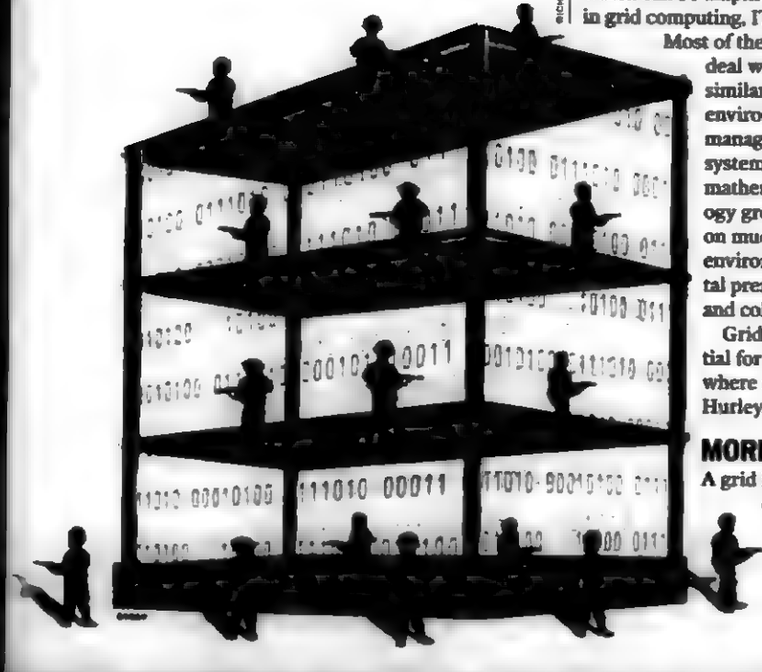
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Guarding THE Grid

Security issues around grid computing are not new or different, but they grow with the grid. By Jaikumar Vijayan



RICHARD BORGE

DEPLOYING A GRID INFRASTRUCTURE can help companies dramatically improve hardware utilization rates and boost computing power. But the massive resource aggregation and wider end-user access enabled by grids also have the potential to magnify security risks, implementers say.

As a result, companies that are implementing grid technologies need to pay special attention to issues such as user authentication, authorization and access control, as well as auditing and data integrity — both when data is in storage and while it's in transit.

Ensuring that adequate measures are in place for responding to the effects of worms and viruses, which can be amplified in a grid setup, is also crucial in grid computing, IT managers say.

Most of the problems that IT staffs have to deal with in a grid environment are similar to the ones they face in nongrid environments, says John Hurley, senior manager for distributed software and systems integration at The Boeing Co.'s mathematics and computing technology group in Seattle. "But [they] take on much greater significance in a grid environment because of the fundamental premise of grids — access, sharing and collaborative computing," he notes.

Grid computing creates the "potential for gateways into an environment" where none existed before, says Hurley.

MORE POWER, MORE RISK

A grid installation harnesses the combined power of numerous servers and PCs to run applications and services as one large system. Grids have been used for years to run compute-intensive applications in academic and research organizations. The improved resource utilization and power delivered by grids have also begun to attract the attention of corporate America. A survey of 550 database professionals, released in January by Santa Cruz, Calif.-based Evans Data Corp., showed that one in five companies is planning to deploy grids during the next two years.

The potential severity of grid-related security problems depends largely on the context in which grids are being used, says Dane Skow, deputy computer security executive at the Fermi National Accelerator Laboratory in Batavia, Ill. "When you talk to people about grids, they have different scenarios in mind — everything from clusters in the same room run by the same infrastructure team to global power-grid-like infrastructures," says Skow.

Research grids, for instance, typically provide access to users from multiple organizations and security domains. Fermi operates a grid for high-energy physics applications that's accessed by more than 5,000 users in some 80 organizations — several of which are in Europe.

User access, authentication and authorization in such an environment can be a big challenge, given the fact that there's no single identity authority, says Skow, who is also part of the security group at the Global Grid Forum, a Lemont, Ill.-based organization with members from more than 400 vendors and user companies.

In contrast, a grid being run by a private-sector company typically uses internal resources and is accessed by users whose identities are already stored in an internal directory. As a result, it's easier to get a grip on identity management in a company grid than it is with grids in a research setting, Skow says.

CENTRAL MANAGEMENT NEEDED

Regardless of the manner in which grids are being used, there is "more of a requirement for a centrally managed ID infrastructure, whether it is PKI-based or Kerberos-based," says Clifford Neuman, associate director at the University of Southern California's Information Sciences Institute in Marina del Rey, Calif.

What's also required is a way to authenticate the clients and servers that are attached in a grid configuration, he notes. Because of the wider access enabled in a grid environment, it becomes crucial to ensure that data flowing through the network comes from a trusted source and not an imposter.

There are several methods currently available to do this, Neuman says. In a public-key infrastructure environment, for instance, servers and clients could mutually authenticate each other using digital certificates issued by a trusted authority. In a Kerberos setup, the same thing could be accomplished via encrypted keys stored in advance on a Kerberos authentication server, he suggests. Other methods include the use of Secure Sockets Layer technology to authenticate servers by clients before starting an encrypted session.

Companies that are deploying grids also must protect data during transmission on the network via encryption, says Jikku Venkat, chief technology officer at United Devices Inc., an Austin-based vendor of technologies for aggregating computing resources

into clusters and grids. In addition, companies must put mechanisms in place to guarantee that the data isn't tampered with in any manner while it traverses the grid, according to Venkat.

Both measures are needed because anyone connected to the grid could access, modify or delete data flowing through it, either accidentally or maliciously, Venkat says.

United Devices attaches checksums to data before it's encrypted and then verifies that the checksum is the same when the message is being decrypted to ensure that nothing has been tampered with, Venkat explains. "We also recommend that only digitally signed code modules are permitted on a grid. If it is not signed, don't run it on a grid," he says.

There are also certain security concerns that get "amplified" in grid architectures, says Lee Cooper, chairman of the Enterprise Grid Alliance, a San Ramon, Calif.-based consortium of vendors and users.

One obvious example is the threat from worms and viruses. The same highly automated and efficient manner in which resources are allocated on a grid could be used by a malicious attacker to his advantage, Hurley warns. As a result, "keeping all grid resources fully patched and configured securely begs for some sort of centralized solution," Cooper says.

Good incident-response mechanisms should help minimize the impact of such attacks in case one occurs, Hurley says.

CAREFUL WITH POLICIES

Another crucial area with security implications is policy reconciliation on a grid, according to Skow.

Because grids can run different applications at different times, companies should have a clear understanding of the various policies — such as user-access restrictions or the authentication requirements — that are attached to each application, Skow says.

"There needs to be some consistent and congruent way to mediate those rules. And it has to be done in a very significant way" before companies can take full advantage of grids, Hurley says.

Addressing grid security may not involve new technologies, but because of the increased potential vulnerability, protective measures become more urgent.

Grid architectures in the enterprise face the same security issues that one sees in a nongrid environment, so "clearly, these need to be addressed," Cooper points out.

But, he adds, "the same tools and technologies that are used today to secure storage, computing and network resources all apply in a grid architecture."

50770

SEVERAL INDUSTRY GROUPS are researching grid security as more companies begin looking at grids as a way to improve resource utilization and computing power.

For example, The Globus Alliance is working on a wide range of grid-related technologies and standards issues. The group has developed the Globus Toolkit, which is designed to enable secure communication, mutual authentication and single sign-on in a grid environment.

The tool kit is based on an open-source implementation of the Grid Security Infrastructure standards that adds support for single sign-on and delegation of administration, according to the group's Web site.

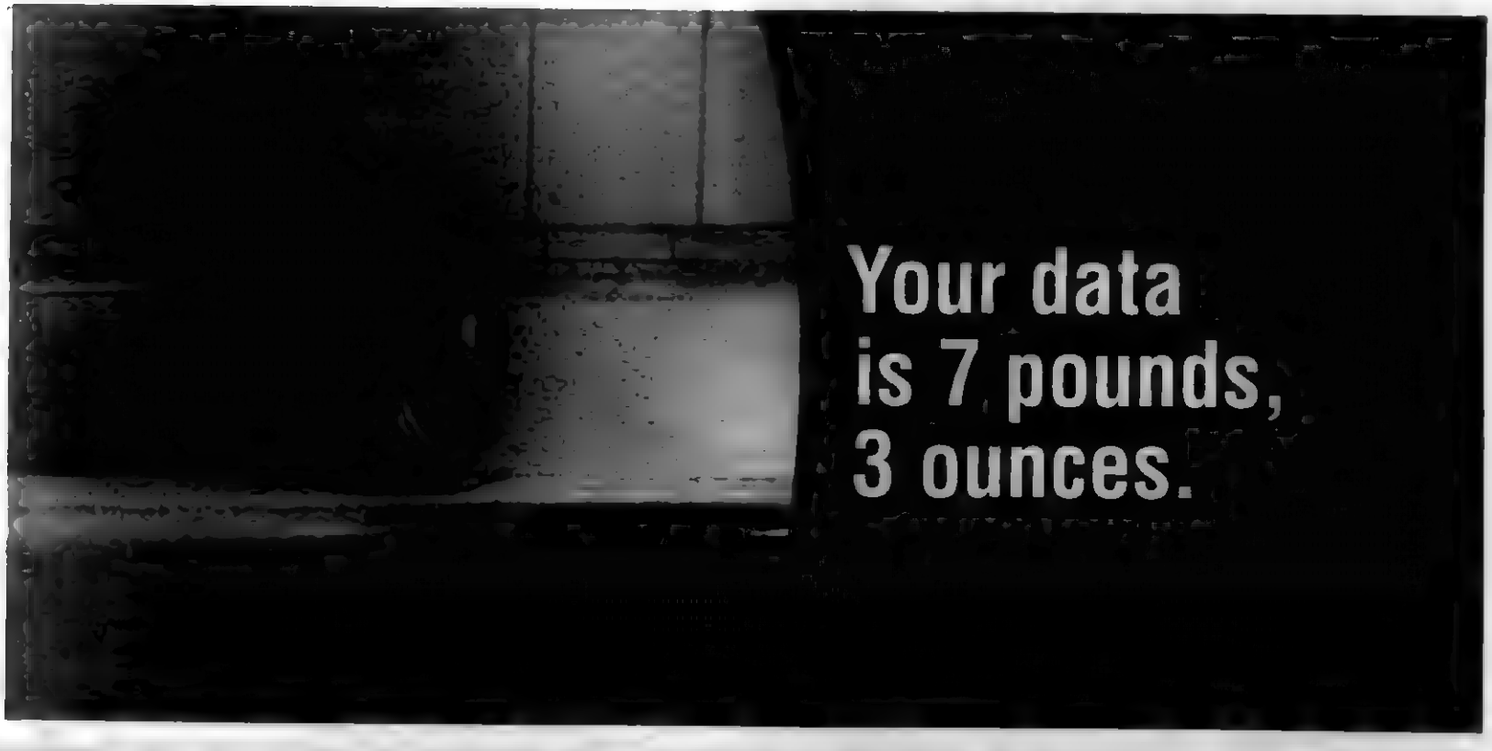
The Globus Alliance is made up of a number of organizations, including the Argonne National Laboratory, the University of Chicago and the University of Southern California's Information Sciences Institute.

The Global Grid Forum (GGF) is working to develop security specifications within The Globus Alliance's Open Grid Services Architecture. According to Dane Skow, one of the area directors in charge of security at the GGF, the effort is focused on functions such as user authentication and authorization in a grid infrastructure.

For instance, the group is developing a conceptual grid authorization framework to help developers enable better user authorization on grid networks. Another project involves developing procedures and guidelines for enabling the use of X.509 and other technologies for cross-grid user authentication, according to the group's Web site.

The Enterprise Grid Alliance is a coalition of users and vendors that's working on grid security as part of a broader effort to address security concerns resulting from the use of shared components in a grid network. The group's goal is to use existing technologies to handle such issues.

– Jaikumar Vijayan



Digital Light Processing

DEFINITION

Digital Light Processing (DLP) is a system for projecting images that's based on a unique optical semiconductor chip from Texas Instruments. The chip contains millions of tiny mirrors that are individually moved by digital signals in synchronization with a light source and color wheel. The result is a sharp projected image that's clearly visible in a normally lit room.

BY RUSSELL KAY

When one first hears about digital light processing (DLP), it seems almost impossibly complex, even magical — millions of tiny mirrors on a chip the size of your thumbnail, each of them capable of moving thousands of times per second to create a digital image. In fact, DLP (a trademark of Texas Instruments Inc.) gives new meaning to the phrase "smoke and mirrors" as it applies to computer-related technology.

QUICK STUDY

How DLP Works

In essence, DLP is a nanotechnology implementation of the old survival technique of using a mirror to signal for help — its purpose is to shine a controlled series of light flashes on a target to send a message. The mirror in this case is part of an optical semiconductor called a digital micromirror device, or DMD. The DMD chip contains not one but an array of up to 2.1 million microscopic mirrors, each just 16 micrometers square (less than one-fifth the size of a human hair) and 1 micrometer apart.

The DMD chip is driven by a digital video or graphic signal in which each digital pixel corresponds to a single mirror on the DMD. Add a light source and a projection lens, and the mirrors can reflect a digital image onto a viewing screen or other surface. Each mirror is mounted on tiny hinges, so it can be tilted 12 degrees toward or away from the light source, creating a light or dark pixel on the projection surface.

The control electronics direct each mirror to tilt — in other words, to switch on and off — up to 5,000 times per second. When a mirror is switched on more frequently than off, it reflects a light gray pixel; a mirror that's switched off more often reflects a darker-gray pixel. This lets DLP project up to 1,024 shades of gray.

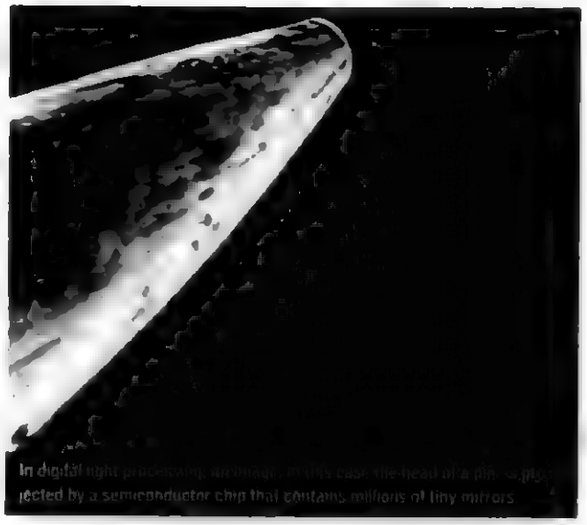
To get color, such as for a TV set, a rotating color wheel (with red, green and blue filters) is put between the white light source and the DMD. The control input delivers separate signals for each of the three colors, and each mirror (i.e., each pixel) is switched on and off as the filter rotates each color between the lamp and DMD.

For example, to project a yellow pixel, a mirror will reflect only red and green light to the projection surface. To project a purple pixel, that mirror will be switched off while the blue filter is in position, and the blue and yellow flashes will alternate so rapidly, our brains will blend them together and we'll see purple. This process allows a DLP system to produce up to 16.1 million colors. Older DLP systems also included a clear segment to bump up overall brightness at the expense of color saturation.

Consumer-grade television monitors use the system described above. For very large projection, such as in movie theaters and auditoriums, a more sophisticated system uses three DMD chips, one for each color, plus an optical prism. The prism splits white light into colors and then recombines the three images before sending them through the projection lens. This system, called DLP Cinema, can produce 35 trillion colors.

In most applications, DLP competes directly with LCD projection. DLP typically offers greater contrast (up to 5,000-to-1 vs. LCD's 800-to-1), with better blacks, while LCD produces greater color saturation. Side by side, an LCD display looks slightly sharper than a DLP in text display applications, but DLP has the edge with moving video, reducing pixelation, or the "screen-door effect."

The brightest projectors still use LCD technology, which is slightly more efficient, but the smallest, lightest projectors use DLP. In 2003, DLP systems accounted for 13% of the market for large-screen televisions (over 40 inches), according to The NPD Group Inc., a Port Washington, N.Y.-based consultancy. In the past year, the number of models of DLP TVs has tripled.



In digital light processing, an image, in this case the head of a pin, is projected by a semiconductor chip that contains millions of tiny mirrors



The TI optical semiconductor chip that makes DLP possible.

DLP's Origins

The DMD chip was invented in 1987 by TI scientist Larry Hornbeck, who had been exploring the manipulation of reflected light since 1977. In 1992, TI started a project to explore the DMD's commercial viability. A year later, it named the new technology DLP and formed a separate group (now called the DLP Products division) to develop commercial display applications.

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Kay is a Computerworld contributing writer. You can reach him at russkay@charter.net.

THE RAINBOW EFFECT

DLP's spinning color wheel results in viewing problems for some people.

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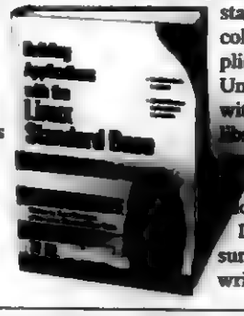
LINING UP YOUR LINUX LIBRARY

These four titles will help provide the guidance you might need to the open-source operating system.

BOOK REVIEWS *One given in the world of IT is that to succeed, you must never stop learning. With that in mind, four recent books on Linux are definitely worth your time.*

— Todd R. Weiss

Building Applications With the Linux Standard Base, by Theodore Ts'o and the Linux Standard Base Team (IBM Press; 246 pages, $44.99). Now that the Free Standards Group has adopted its Linux Standard Base 2.0 specifications, Linux advocates hope to see more developers writing applications that will run on any LSB-compliant Linux. That's where this book comes in. Written by key developers of the LSB team, it's a step-by-step guide to making applications LSB-friendly. The book covers development issues in detail, including binary compatibility, application packaging and installation protocols, porting applications from Unix, working with runtime libraries and application troubleshooting and testing.



If you weren't sure how to start writing useful programs for Linux, here's a good place to begin.

Linux Troubleshooting Bible, by Christopher Negus and Thomas Weeks (Wiley Publishing Inc.; 586 pages, $29.99). For users of Red Hat Inc.'s Fedora Linux or Enterprise Linux, this is a valuable nuts-and-bolts guidebook to the intricacies of the open-source operating system. Information about every kind of technical snafu can be found in this book, which covers installation problems, backup and migration issues, printer glitches, intrusion and security concerns and more. The sections are well thought out, with background theory on key subjects as well as detailed instructions on how to approach, diagnose and repair problems. The book largely focuses on the free Fedora operating system, with the idea that by gaining the skills needed for Fedora, technicians will be better able to relate to Red Hat's enterprise product lines. The book also touches on software from SUSE Linux AG and the Debian Project.

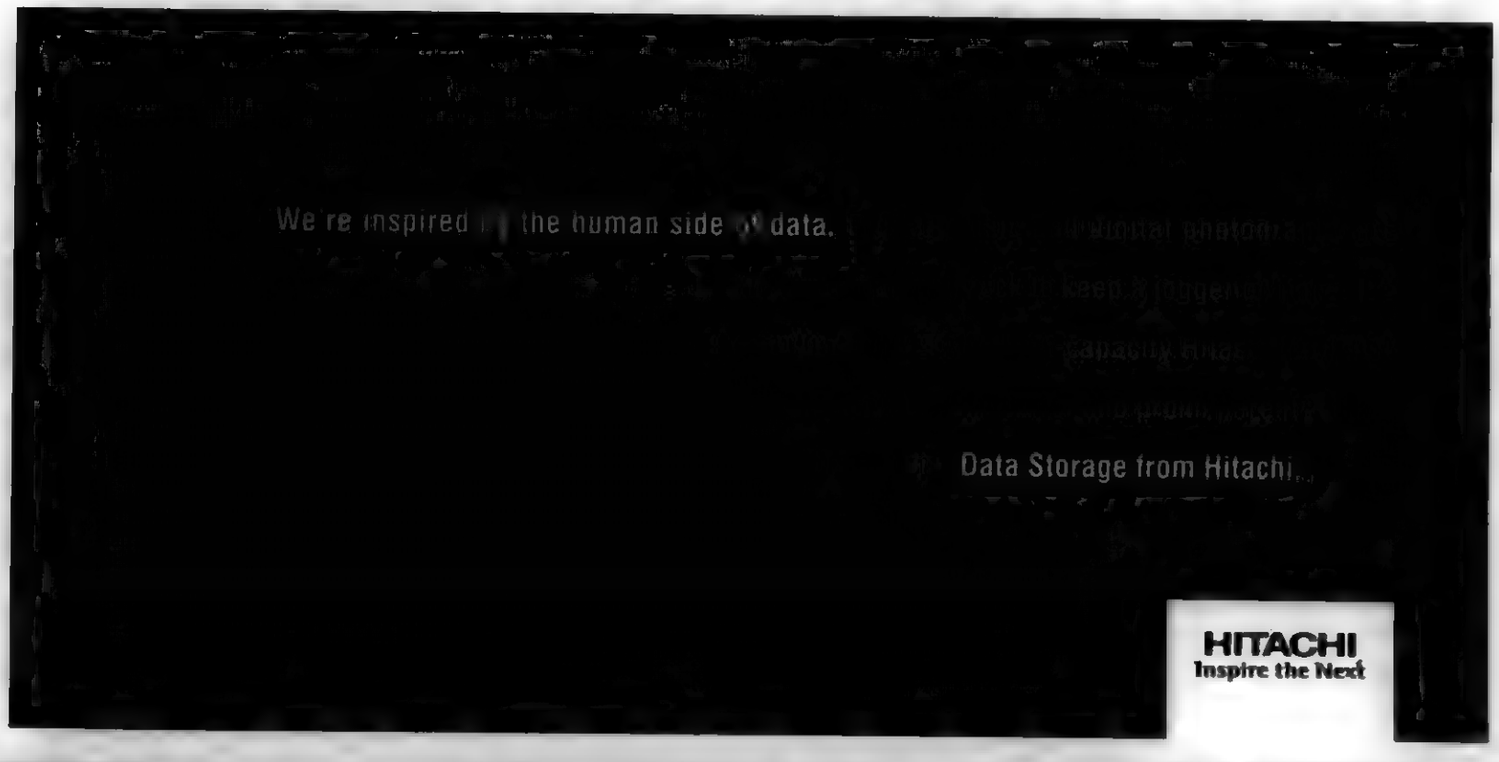


Moving to the Linux Business Desktop, by Marcel Gagne (Addison-Wesley Pearson Education; 665 pages, $44.99). This book tackles almost every conceivable question about moving a corporate desktop system from Windows to Linux. All of the unique nuances of Linux are covered, from configuring printers to file sharing, Web services, user and systems management hierarchies, the Linux command-line and shell environments, as well as dual booting and installation strategies. Also highlighted in a often humorous style are topics such as office productivity applications, Internet browsing with Linux and more. This book will help you put a feature-rich, reliable and flexible operating system on your users' PCs.



Linux for Non-Geeks, by Rickford Grant (No Starch Press Inc.; 308 pages, $34.95). After you've followed the steps suggested in *Moving to the Linux Business Desktop*, consider giving a copy of *Linux for Non-Geeks* to all employees in your company to help them get acclimated to their new Linux world. This easy-to-read handbook isn't for the Linux gurus on your staff. It's for the folks who need to know how to use Linux from the most elemental level. This will teach newbies how to feel confident and comfortable as they explore Linux, and it will open their minds to new possibilities in the workplace, making your Linux deployment a success from the start. **50971**





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DLP Products has also received two Emmy Awards, for broadcast excellence in 1998 and for technology and engineering in 2003. In 2002, Hornbeck was elected a fellow of the International Society for Optical Engineering and received the David Sarnoff Medal from the Society of Motion Picture and Television Engineers. **50670**

Kay is a Computerworld *contributing writer. You can reach him at russkay@charter.net.*

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LINING UP YOUR LINUX LIBRARY

These four titles will help provide the guidance you might need to the open-source operating system.

BOOK REVIEWS

One given in the world of IT is that to succeed, you must never stop learning. With that in mind, four recent books on Linux are definitely worth your time.

— Todd R. Weiss

Building Applications With the Linux Standard Base, by Theodore Ts'o and the Linux Standard Base Team (IBM Press; 248 pages, $44.99). Now that the Free Standards Group has adopted its Linux Standard Base 2.0 specifications, Linux advocates hope to see more developers writing applications that will run on any LSB-compliant Linux. That's where this book comes in. Written by key developers of the LSB team, it's a step-by-step guide to making applications LSB-friendly. The book covers development issues in detail, including binary compatibility, application packaging and installation protocols, porting applications from Unix, working with runtime libraries and application troubleshooting and testing.



If you weren't sure how to start writing useful programs for Linux, here's a good place to begin.



Linux Troubleshooting Bible, by Christopher Negus and Thomas Weeks (Wiley Publishing Inc.; 598 pages, $29.99). For users of Red Hat Inc.'s Fedora Linux or Enterprise Linux, this is a valuable nuts-and-bolts guidebook to the intricacies of the open-source operating system. Information about every kind of technical snafu can be found in this book, which covers installation problems, backup and migration issues, printer glitches, intrusion and security concerns and more. The sections are well thought out, with background theory on key subjects as well as detailed instructions on how to approach, diagnose and repair problems. The book largely focuses on the free Fedora operating system, with the idea that by gaining the skills needed for Fedora, technicians will be better able to relate to Red Hat's enterprise product lines. The book also touches on software from SUSE Linux AG and the Debian Project.



Moving to the Linux Business Desktop, by Marcel Gagne (Addison-Wesley Pearson Education; 665 pages, $44.99). This book tackles almost every conceivable question about moving a corporate desktop system from Windows to Linux. All of the unique nuances of Linux are covered, from configuring printers to file sharing, Web services, user and systems management hierarchies, the Linux command-line and shell environments, as well as dual booting and installation strategies. Also highlighted in an often humorous style are topics such as office productivity applications, Internet browsing with Linux and more. This book will help you put a feature-rich, reliable and flexible operating system on your users' PCs.

Linux for Non-Geeks, by Rickford Grant (No Starch Press Inc.; 308 pages, $34.95). After you've followed the steps suggested in *Moving to the Linux Business Desktop*, consider giving a copy of *Linux for Non-Geeks* to all employees in your company to help them get acclimated to their new Linux world. This easy-to-read handbook isn't for the Linux gurus on your staff. It's for the folks who need to know how to use Linux from the most elemental level. This will teach newbies how to feel confident and comfortable as they explore Linux, and it will open their minds to new possibilities in the workplace, making your Linux deployment a success from the start. **50971**



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VPN Evolution Progressing to SSL

One VPN technology is decommissioned, but the replacement causes problems. SSL offers some answers, but there are still issues to be resolved. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

FOR SEVERAL YEARS, my company used Microsoft Corp.'s Point-to-Point Tunneling Protocol (PPTP) to provide remote users with VPN access to corporate resources. This worked well, and almost all employees who had PPTP permissions were comfortable with this method. But after several security problems with PPTP were reported, we decided about a year ago to deploy virtual private network concentrators from Cisco Systems Inc. at all of our core points of presence.

We ran things in parallel for about six months to let users get used to this new way of connecting. Users were instructed to download the Cisco VPN client and associated profile and start using the Cisco client. During that period, if the users had problems, they could always fall back on the PPTP connection until the issue was resolved.

That option disappeared about a month ago, though, when we pulled the plug on our PPTP servers. Now, all users have to use the Cisco VPN client. Many global e-mail messages were sent to users about this impending action, but by the time we were ready to retire our PPTP servers, several hundred users were still using it. We tried to advise each of them of the change, but about 50 were traveling, on vacation or otherwise out of reach. This wasn't so bad, considering that we have more than 7,000 employees using the VPN. Our company has a global presence, so some users we have to communicate with don't speak English and work out of their homes on the other side of the world.

Now we have a new set of issues. A particularly loud group in the company is reporting problems with the Cisco VPN client. These users are mostly in sales and need access to demos on the network and sales databases. What makes them loud is that they generate revenue, so they usually get what they want.

The problem is that customers block the ports necessary for the VPN clients to communicate with our VPN gateways. Similar difficulties are experienced by users in hotel rooms for the same reason. This isn't a Cisco issue, mind you; almost any IPsec VPN client would have similar problems.

Meanwhile, we have had numerous requests for access to corporate mail from kiosks. Users have said that when they can't use their company-issued computer — be it at a conference or a coffee shop — they would like to be able to get into their Microsoft Exchange e-mail and calendar.

We have contemplated extending Microsoft Outlook Web Access externally, but we don't want to do so without robust authentication, access control and encryption.

A particularly loud group in the company is reporting problems with the Cisco VPN client. What makes them loud is that they generate revenue, so they usually get what they want.

SSL Solution

With both of these problems in mind, we've decided to explore using Secure Sockets Layer VPNs. This technology has been around for quite some time, and almost every Web browser on the market today supports SSL, otherwise known as HTTPS, secure HTTP or HTTP over SSL.

A VPN over SSL is almost guaranteed to solve the problems employees have been having at customer sites, since almost every company lets its employees make outbound Port 80 (standard HTTP) and Port 443 (secure HTTP) connections.

SSL VPN will also let us extend Outlook Web Access to remote users, but there are two more problems. First, this type of VPN is primarily beneficial for Web-based applications. Second, employees who run complex applications such as PeopleSoft or Oracle, or who need to administer Unix systems via a terminal session, will most likely need to run the Cisco VPN client. That's because it provides a secure connection between their client and our network, whereas an SSL VPN provides a secure connection between the client and the application. So we'll be keeping our Cisco VPN infrastructure and adding an SSL VPN alternative.

The second problem we anticipate concerns users who need to access internal Web-based resources from a kiosk. Many of the SSL VPN technologies require a thin client to be downloaded to the desktop. Many SSL VPN vendors claim that their products are clientless. While this may be true for pure Web-based applications, a Java applet or ActiveX control object must be downloaded to the desktop/laptop/kiosk before any specialized application can be executed.

The problem is that most kiosks are locked down with a policy that prevents users from downloading or installing software. That means we have to look at alternative means of addressing the kiosk scenario. We'll also want to find a vendor that provides a secure browser and client logoff that wipes all traces of activity from the computer, including cached credentials, cached Web pages, temp files and cookies. And we'll want to deploy an SSL infrastructure that allows for two-factor authentication, namely our SecurID tokens.

Of course, this will incur an additional cost per user, since the SecurID tokens, whether soft or hard, are pricey. In addition, the enterprise deployment of SecurID tokens is no trivial task. It is, however, on the security road map, which I'll discuss in a future article.

As for an SSL VPN, we're looking at offerings from Cisco and Sunnyvale, Calif.-based Juniper Networks Inc. Juniper recently acquired Neoteris, which has been a longtime leader in SSL.

As with any new technology we introduce, we'll come up with a set of requirements and conduct rigorous testing to ensure that we have addressed deployment, management, support and, of course, security.

WHAT DO YOU THINK?

This week's journal is written by a real security manager. "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: QuickLink a1580

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SECURITY LOG

Security Bookshelf

An Introduction to Computer Security, by Matt Bishop (Addison-Wesley Professional, 2004).



Don't be fooled by that "Introduction." I found myself scratching my head several times. This book is thorough and quite technical, especially in the area of cryptography, where Bishop does a nice job of balancing the mathematical aspects with applications. Anyone new to the computer security field will want to check out that section. And anyone studying for a CISSP certification will benefit as well, as Bishop covers some of the areas within the common bodies of knowledge, such as integrity models (Clark-Wilson, Bell La Padula).

—Mathias Thurman

Cybersecurity Views to Be Aired

Amid concerns that the White House has put insufficient stress on cybersecurity, current and former administration officials will address the two-day Physical-Cyber Security Summit at George Washington University in Washington, opening Dec. 7. Robert F. Liscouski, assistant secretary for infrastructure protection at the U.S. Department of Homeland Security, will discuss how the Bush administration is differentiating cyber and physical security. Amit Yoran, who recently resigned as the DHS's top cybersecurity official, will also be a keynote speaker. His topic is "Who Will Lead in Critical Infrastructure Protection?" The conference comes in the wake of conclusions debate over Homeland Intelligence Bill H.R. 10, which included a provision to establish an assistant DHS secretary for cybersecurity. The scholarly conference will also explore [illegible] issues.

Nokia for Business



Time Zone Tim

If it's Thursday, it must be Brussels. Or Bangkok. Or maybe Birmingham. Come to think of it, intrepid road warrior Time Zone Tim often has to look at the local phone directory when he wakes up to know where his travels have taken him. But no matter where in the world Time Zone Tim may be, he's always in touch with the information he needs thanks to some innovative tools for mobile warriors like him. We caught up with Tim—where else but on his way to the airport, sipping on a double latte.

As usual, you are on the road. What are your most pressing needs when traveling the globe on business?

The first thing that pops into my mind is a business-class seat courtesy of a free upgrade, but if you mean a pressing business need, let me put it this way. When I'm with customers in Rome and they need the current status of pending orders, they don't care that the data is sitting on a server back in the main office in Phoenix. I need secure, wireless access to vital information and I can't be jumping through hoops to get it.

Has email been a problem for you?

No, not since my company began working with Nokia to provide road hounds like me with reliable wireless email. It used to be that a long cab ride in heavy traffic was just unused downtime for me. Now I use all that time to check email and message my clients. It sure beats trying to converse with a cabbie in a language I don't understand! With wireless email, I'll bet I gain another hour per day of real productivity given all the running around I do.

About the Interviewer



Bill Laberis was editor in chief of *Computerworld* for ten years (1986-1996). He is president of Bill Laberis Associates, a custom publishing and content company (www.laberis.com). His columns, Webcasts, supplements and magazines are well-known and respected throughout the high-tech industry.

Would you say that staying connected is mission-critical for you, no matter where you are?

Mission-critical—you mean like the way proper nutrition is to the human body? For people like me staying connected is everything. Last week in Tokyo, I followed a competitor into my client's office. While my competitor was trying to phone someone back home about the availability of some parts, I placed the order right there and won the business. Then we went out for some sushi. Thanks, Nokia!

What are your devices of choice for staying in touch?

I have a few, depending upon my needs. My Nokia 9500 Communicator gives me a full set of business-critical applications, fast network connectivity, and mega memory storage, sort of like taking my office on the road. And my smartphone based on the Nokia Series 60 software platform is just dynamite for voice and data communications. I use it for email, Internet browsing, and occasionally—just occasionally—a quick game of hearts.

What are the most important features of these devices?

For one thing, they have to really help me blast-through my work so I can have a bit of time for one of my favorite hobbies—napping. Look, you're talking to a guy with five thumbs on each hand, technically speaking. All my access devices have to be easy enough for any normal business professional to use to quickly communicate with important contacts and access critical data. If it isn't real user friendly, chances are it isn't Nokia. Oh yeah, our IT department wants all mobile devices to be both cost-effective as well as future-proof. That's Nokia, too.

Traveling as you do and needing access to such sensitive information, aren't you worried about data security?

Yes and no. Yes I am worried about what might happen if a competitor or just about anyone else were able to get to the same data I can. That would be bad for my company and therefore bad for me. But no, I'm not really worried because Nokia has worked wonders with something our IT guys call Secure Sockets Layer or SSL, as well as with firewalls and secure VPNs to ensure that people like me practice nothing less than safe computing, anywhere and any time.

Sounds like Nokia is an excellent traveling companion for you?

You can say that again. Nokia is my traveling security blanket. Like a first-run in-flight movie, Nokia makes me feel good.

One final question: Why all the watches?

They seem to sell them everywhere I go these days and I'm a compulsive shopper. I just wish one of them would work as well as my Nokia mobile technology.

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BRIEFS

IBM Claims Record Computing Speed

■ IBM last week announced that it achieved 3.2 million transactions per minute on its DB2 v8.2 database running on an IBM eServer p5 595 with 64 Power5 processors. The company claimed that it has set a world record for computing speed and said that the previous record was 1.2 million transactions per minute. The Transaction Processing Performance Council, a nonprofit industry group that sets benchmarking standards, reported the results.

Constant Data Adds Linux Support

■ Constant Data Inc. in Minneapolis has announced the availability of the latest version of its Constant Replicator software, featuring expanded support for all major 2.4 and 2.6 kernel Linux operating systems, as well as Mac OS X, Sun Solaris and IBM AIX. Constant Replicator is a continuous, real-time data replication application for use in business continuity, data distribution and high-performance computing projects, according to the company. Pricing starts at $7,200 for one primary and one remote server with a year of support.

ObjectWeb Gains Open-Source Portal

■ Paris-based eXo Platform SARL has joined the ObjectWeb Consortium and is making its enterprise portal code available under the GNU General Public License. EXo Platform is an open-source enterprise portal that enables users to have a customized single point of access to their companies' information systems and resources. ObjectWeb said the portal should encourage wider use of its open-source Java 2 Enterprise Edition software. With eXo Platform, ObjectWeb adds a Web application suite layer to its open-source middleware components for corporate computing, which includes the J2EE 1.4 application server.

DANIEL J. WEITZNER

Buildings Become Information Systems

THE TRANSPARENT ENTERPRISE is characterized by increased data integration possibilities across formerly stovepiped databases. Now, even the buildings that house our transparent enterprises are becoming transparent themselves. In response to the demands of energy efficiency, security, lower operating costs and the need to increase space-planning flexibility, the physical structures in which we work are on their way to becoming more closely integrated with our information infrastructure.



Consider these new requirements in the design of building systems and some of the issues they raise:

■ **Secure access control:** Linking the provisioning of RFID-type security systems to human resources systems will ensure that the right employees get through the right doors. This will require organizations to make sure appropriate privacy policies and practices are in place.

■ **Energy efficiency:** Electric power demand-monitoring systems promise cheaper power and higher levels of availability from the public power grid. Enterprise users must be ready to have their power utilization monitored and possibly even controlled down to the individual device level for this to work.

■ **Security:** Video monitoring of premises for both external and internal security purposes is increasingly common. We can hope that this improves the physical security of our buildings, but whether it does or not, it certainly makes the environment more transparent — or intrusive, depending on which side of the camera one sits.

■ **Building signage:** Even building signs (e.g., lobby directories, special-purpose meeting-instruction signs and emergency exits) are being integrated in the interoperable building of the future. On arrival in an unfamiliar building, it will be nice to have signs that are dynamically configured to point us in the right direction. I'm not sure how I'll feel, however, when information screens in every elevator lobby of a high-rise inform me — and every other occupant — that my car has been towed out of the parking lot because I'm two months late on my parking fees.

In support of these goals, building systems, once the domain of HVAC engineers and security services, are becoming just one more information system. As with our other information systems, the first design requirement is that it be built on open standards for interoperability. The International Standards Organization has even released a standard (ISO 16484-5:2003) that "defines data communication services and protocols for computer equipment used for monitoring and control of heating, ventilation, air conditioning and refrigeration, and other building systems." The aim of the standard is to facilitate "the application and use of digital control technology in buildings."

As buildings become more automated, formerly disparate components (HVAC, LANs, security systems and even signage) will become interoperable with one another and with other information systems traditionally considered beyond the boundaries of the building systems themselves [QuickLink 47651].

This is the fourth in a series of columns on the transparent enterprise.

New "interoperable" building systems represent a dramatic change in design and function from even the most complex systems of the past. The critical change is that today's "smart" buildings have APIs that allow the buildings' physical systems to be linked, as any other piece of software, to other parts of an enterprise information system. The interface between building systems and the rest of the enterprise information infrastructure will now be defined by a series of SOAP message formats and the exchange of XML-formatted data.

In my own workplace — the new Frank Gehry-designed Stata Center, home of the MIT's Computer Science and Artificial Intelligence Laboratory — some of the world's leading computer scientists are trying to sort out technical and policy designs to make our new, whiz-bang security system function in a more privacy-friendly and transparent way. Addressing these issues when new systems are being considered, or even when buildings are designed, may save a lot of trouble. We can learn to live with transparency if we give it some advance thought and take the time to discuss what to expect with the people who are about to participate in this new technology. I'll have more to say about developments in the building where I work in another column.

The transparent building raises the design stakes for efforts to ensure the integrity, reliability and accuracy of enterprise information systems. Today, system faults may result in a sales order being lost or an employee's paycheck being delayed. Tomorrow, with more transparent and dynamic links between building systems and current information systems, the results could be an employee locked out of the office, power shutting down in a building at the wrong time or embarrassing information being flashed across the building's public information displays. 50988

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IT MENTOR
So You Want to Be a Consultant
Think you're ready to take the leap from IT practitioner to hired expert? CIO Doug Lewis has been there, and he says you'd better answer these five questions first. **Page 44**

BOOK REVIEWS
Alignment, Alignment, Alignment
Thomas Hoffman reviews three books on the topic du jour in IT — business/IT alignment. And he appraises his already dog-eared project management bible. **Page 46**

OPINION
One Born Every Minute
When projects tank, people often act surprised. But Gopal Kapur says only a sucker wouldn't see these failures coming. **Page 48**

Anything BUT IT

Many students see an advanced degree in IT as a ticket to obsolescence and outsourcing. They have other plans. BY DAN VERTON

EDUCATORS and IT industry executives are warning that a crisis is looming in the IT job market. Only this time, it's not that there are too many job hunters seeking too few positions. To the contrary, they say that the U.S. isn't producing IT experts in the quantity and quality that it needs to remain the leader of the global IT market.

In an effort to search out the views and perceptions that may be fueling this approaching crisis, *Computerworld* interviewed a dozen undergraduate and graduate students who are preparing for careers in IT, as well as professors responsible for training them and executives who are recruiting them into the workforce.

Students told us that advanced technical degrees are expensive and may not provide the skills they need to be competitive in the job market. Many plan to seek business degrees instead of technical degrees in graduate school because they fear that they are more likely to be outsourced if they don't have business qualifications

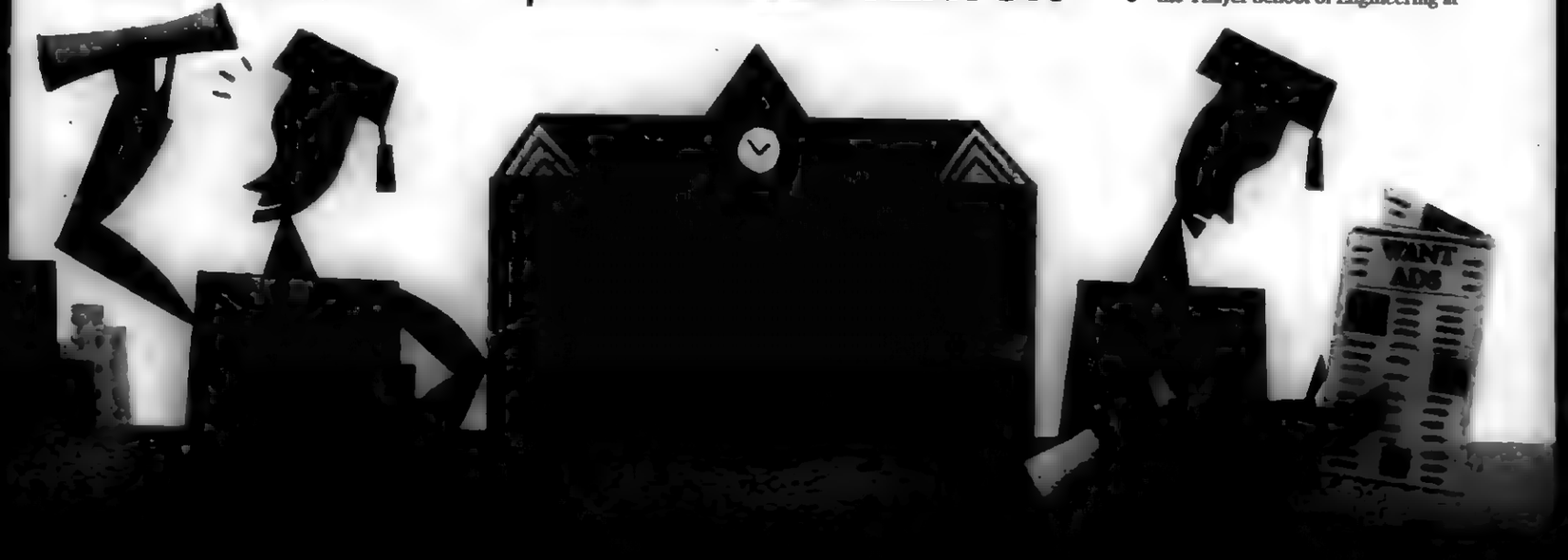
Elsewhere in academia, prominent academics have been warning for years that the U.S. is producing far too few advanced degree holders in the computer science and IT research fields. In 1997, for example, Eugene Spafford, a professor of computer science at Purdue University in West Lafayette, Ind., warned members of Congress that of 5,500 doctorates in computer science and engineering awarded by North American universities between 1992 and 1997, only eight were awarded to U.S. citizens.

In a new study, Corey Schou, director of the National Information Assurance Training and Education Center at Idaho State University in Pocatello, says that the dearth of people with advanced degrees in IT continues. And while the number of two- and four-year degree programs in IT-related fields is rising, the student base has dropped.

Fears of Outsourcing

"At present, there is a lack of interest in this discipline," says Mathew J. Palakal, chairman of the Department of Computer and Information Sciences at Purdue. "This could be due to the uncertainties in the job market. Outsourcing is on everybody's mind, and computer science is considered as a high-risk career choice."

Students echo that concern. Fears of outsourcing played a role in Katherine Farmer's decision to seek an advanced degree. Farmer is studying computer engineering and computer science at the Thayer School of Engineering at



RICH LILLARD

Students Speak Out

HAYDEN HAYES
Senior
University of Alabama
Tuscaloosa

MARINA KOLOMIETS
Graduate student
Thayer School of Engineering,
Dartmouth College
Hanover, N.H.

JUSTIN LIGAS
Senior
Marist College
Poughkeepsie, N.Y.

WILLIAM MOSLEY
Senior
Pace University
New York

MICHAEL ARMBRUST
Junior
Purdue University
West Lafayette, Ind.

Dartmouth College in Hanover, N.H. She expects to see a greater demand in the U.S. for high-level design and development work as more low-level jobs are moved offshore.

But others shun IT altogether. "I think new students are scared to get into the IT field of study," says Jeremy Bucchi, an undergrad at Marist College in Poughkeepsie, N.Y. "With all the news of shifting jobs offshore, [prospective] IT students may be tentative about pursuing a career in computers."

Palakal and others say they also fear that colleges and universities aren't teaching students what they need to know to succeed in the U.S. IT job market, particularly as new security pressures raise the bar for what it means to be skilled in IT.

"There is a disconnect between what most universities teach and what is needed in the job market," says Palakal. "A traditional computer science curriculum prepares students for academic pursuit and not necessarily for the business world. The business community then must train the graduates to make them employable."

Scott Orr, a network engineer at Purdue, says many universities are now establishing industrial advisory boards to counsel faculty about current IT needs and to better prepare students for the workforce.

Yet despite the impending crisis, current demand is still low. Mike Kendall, president of Kendall Placement Group Inc. in St. Louis, says most firms slowed recruiting during the recession and are only now beginning to once again hire recent college graduates.

After suspending university and college recruiting for several years, ThoughtWorks Inc., a systems integrator in Chicago, resumed recruiting recent graduates in 2004.

Despite having hired only five recent U.S. graduates so far, the global IT professional services firm is launching an intensive immersion program for new recruits. In an interesting twist, the ThoughtWorks boot camp is based overseas.

"As part of our new-hire program, we are sending all of our entry-level hires to a three-month boot camp located in our Bangalore, India, office," says Sonia Muhaimeen, a senior recruiter at ThoughtWorks U.S.

In the new world of global IT, workers need more than just technical skill, she says. "Our people must be a cultural fit as well as being extremely savvy technical individuals." **50655**

PUBLIC OR PRIVATE?

KATHERINE FARMER is a graduate student studying computer engineering and computer science at Dartmouth's Thayer School of Engineering. She's keeping her eyes open for a government job because government programs often involve cutting-edge technologies, she says. She's also considering the public sector as a career option because she has concerns about the number of private-sector jobs being outsourced.

Unlike Farmer, many students view a career in government, where IT skills are desperately needed and where critical research and development is often done, as a road to technical irrelevancy. Kevin Decker, a Purdue computer science undergrad, says he would never apply for a government position. "Most government organizations lack a free-thinking, progressive culture," he says. "That's not where I want to be."

Purdue undergrad Stephen Senesac says he would consider a government job, but he shares Decker's fears about the culture. "My only concern would be that the nature of working within the bureaucratic system could become stifling," he says.

Hazel Thomas obtained a bachelor's degree in computer science at Pace University in New York and is now pursuing a master's degree in computer information systems. She says she hasn't considered government work because of the salary gap between public- and private-sector employment.

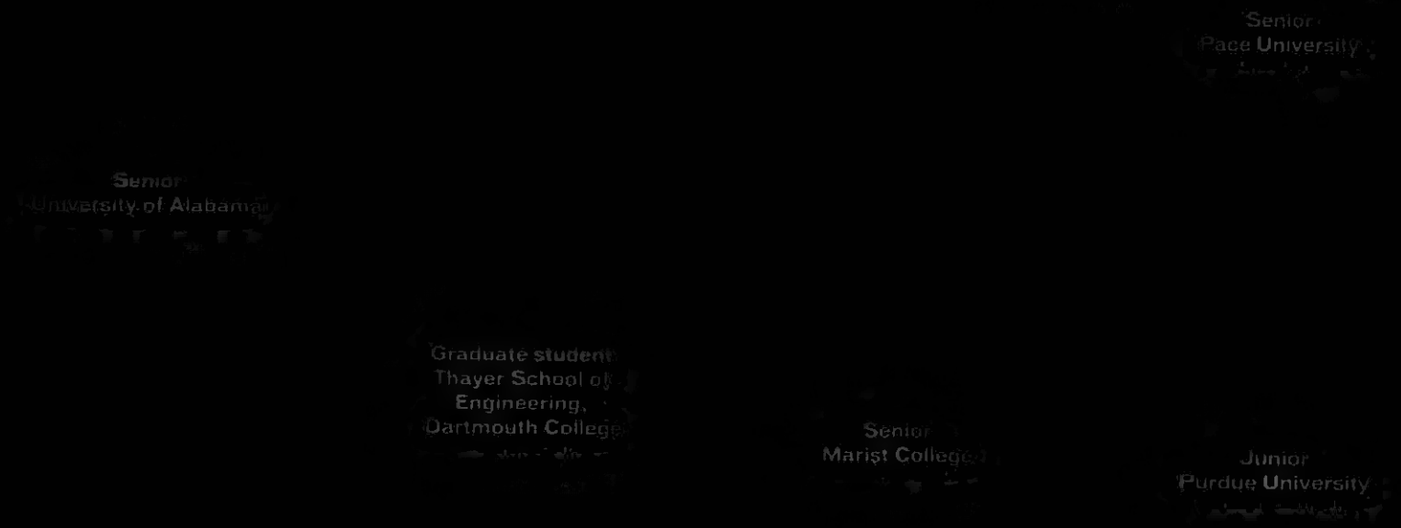
Justin Ligas agrees. "The government's largest problem is that often the pay isn't competitive," says the Marist College senior. What if the pay improved? "There would be no reason not to," he says.

– Dan Verton

LUKEWARM JOB MARKET

Career Watch: High-tech companies hired fewer college graduates this year than they did in 2003.

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Dartmouth College in Hanover, N.H. She expects to see a greater demand in the U.S. for high-level design and development work as more low-level jobs are moved offshore.

But others shun IT altogether. "I think new students are scared to get into the IT field of study," says Jeremy Bucchi, an undergrad at Marist College in Poughkeepsie, N.Y. "With all the news of shifting jobs offshore, [prospective] IT students may be tentative about pursuing a career in computers."

Palakal and others say they also fear that colleges and universities aren't teaching students what they need to know to succeed in the U.S. IT job market, particularly as new security pressures raise the bar for what it means to be skilled in IT.

"There is a disconnect between what most universities teach and what is needed in the job market," says Palakal. "A traditional computer science curriculum prepares students for academic pursuit and not necessarily for the business world. The business community then must train the graduates to make them employable."

Scott Orr, a network engineer at Purdue, says many universities are now establishing industrial advisory boards to counsel faculty about current IT needs and to better prepare students for the workforce.

Yet despite the impending crisis, current demand is still low. Mike Kendall, president of Kendall Placement Group Inc. in St. Louis, says most firms slowed recruiting during the recession and are only now beginning to once again hire recent college graduates.

After suspending university and college recruiting for several years, ThoughtWorks Inc., a systems integrator in Chicago, resumed recruiting recent graduates in 2004.

Despite having hired only five recent U.S. graduates so far, the global IT professional services firm is launching an intensive immersion program for new recruits. In an interesting twist, the ThoughtWorks boot camp is based overseas.

"As part of our new-hire program, we are sending all of our entry-level hires to a three-month boot camp located in our Bangalore, India, office," says Sonia Muhaimeen, a senior recruiter at ThoughtWorks U.S.

In the new world of global IT, workers need more than just technical skill, she says. "Our people must be a cultural fit as well as being extremely savvy technical individuals." **50655**

PUBLIC OR PRIVATE?

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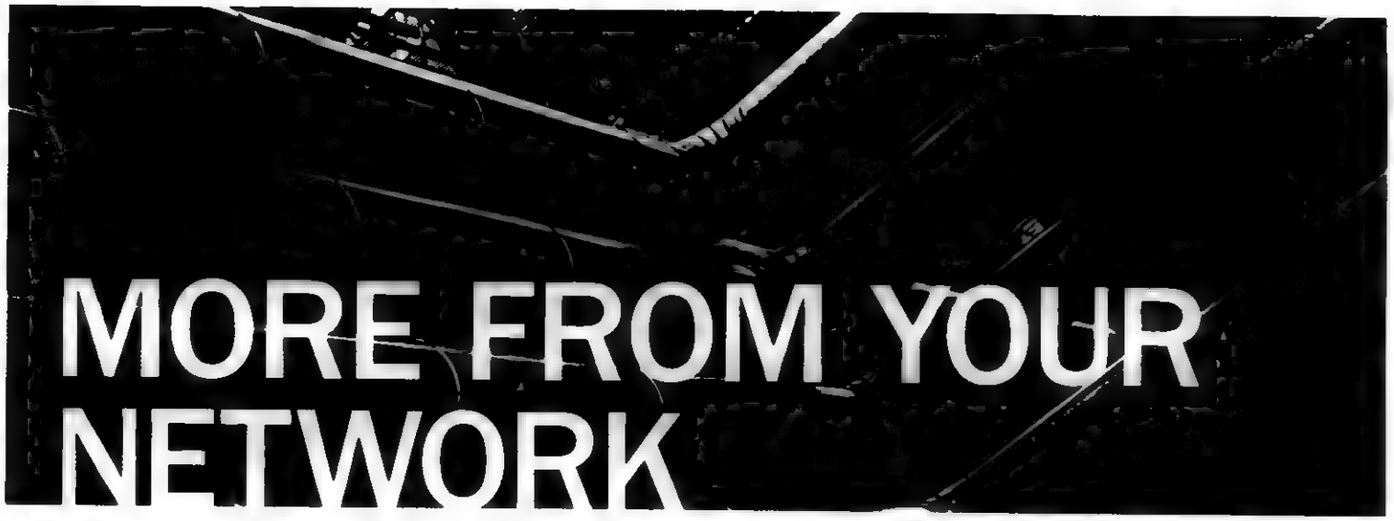
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ANDRZEW TYKOFF / SILVER IMAGE

Doug Lewis, ... an opportunity to ... as a consultant.

So You Want to Be a Consultant

A CIO who's been there tells how to take the leap. By Doug Lewis

IT MENTOR

I HAD BEEN RETIRED exactly one week, and panic had already set in. What was I going to do every day? I had worked since I was 14, and I'd been in a corporate environment for the past 37 years.

After that agonizing week, I knew I wasn't emotionally ready to join the ranks of the grizzled retired guys sleeping on benches in the mall. Financially, I was ready. Emotionally, I wasn't.

OK, back to work, but doing what? I felt I was good at my chosen profession of CIO, but I didn't want to get back into the day-to-day hassle the job brings with it. I had thought many times about trying consulting but had always opted for the security of a "real job." It was a big decision, so I decided to use the outplacement service that came as part of my retirement package to help me make it.

My outplacement counselor listened to my story and introduced me to a staff member who specialized in consulting start-ups. He gave me some fantastic advice. He told me that to be successful, I had to have answers to the following five questions:

1 WHAT ARE YOU SELLING?
You need to understand and clearly state what you're offering. Perhaps more important, you need to understand what you're *not* selling. Unless you're perfectly clear on this point, you'll confuse potential customers.

For example, I was selling 17 years of experience as a CIO of four Fortune 100 companies and an executive-committee perspective on business and technology solutions. I was selling what I knew, what I could do with what I knew, and credibility. I certainly wasn't selling technical expertise!

2 WHO IS YOUR CUSTOMER? WHO IS LIKELY TO BOTH NEED WHAT YOU'RE SELLING AND BE ABLE TO WRITE THE CHECK?
I knew that my customer was going to be either a midsize-company CEO or a big-company CIO. Below that level, they couldn't afford me; above that level, they were going to buy from McKinsey. I didn't want a protracted sell cycle, so I "pitched" only to the decision-maker and not below that level.

3 HOW ARE YOU SELLING?
To build a compelling value proposition and get your story in front of a potential buyer, you have to understand and connect to one or more of your customer's key problems. The drivers may be monetary, regulatory, contractual, competitive or emotional. Unless you make a strong visceral connection between what you're selling and the customer's key challenges, you're wasting your time.

Research the company and the client *before* you make contact. Exercise your network of contacts to learn as much as possible. A quick Google search for news about both can yield insight about problems that you may be able to help solve. Hoovers.com gives companies' detailed financial results as well as lists of key executives. After you've done your research, match up what you have learned with what you can do for potential clients.

Unless you find a way to get in front of your customer, you can't even start to make any connection. You need to realistically match your "access privileges" to your selling ambitions. Unless you personally know GM's CEO, don't build your business goals around selling to him face to face.

My value proposition was to apply my experience to solve a customer's business problem. I needed not just to understand his view of his problem, but to determine the underlying causes and how to fix them.

I knew my customers would either already know me or know of me through a trusted source. I wasn't going to sell myself through a Web site, so my Rolodex was my source of potential clients.

4 HOW ARE YOU PRICING YOUR PRODUCT?
Your product is your time, your knowledge and what you can do with your knowledge. You must know how much to ask for your time as a consultant and how to best package the bill. There are a few heavy hitters getting $600 to $1,000 an hour, but there are a ton of little guys happy to get $100 an hour. Set your price below a certain point, and you're better off bagging groceries. Above a certain level, you will go a long time between engagements . . . like forever.

I decided to position my price below the heavy hitters who get $600 and up but high enough to set myself apart from the hoard of guys at $100 an hour. For some engagements, I charged on a per-hour basis at $400. I set a policy of never discounting my rate. People talk, and no one wants to pay more than the last guy paid for your services.

"You need to understand and clearly state what you're offering. I was selling what I knew, what I could do with what I knew, and credibility."

For other engagements, I did a "package price." I would negotiate a price where the hourly rate was never disclosed. Some customers get riled when they see you getting $400 an hour — more than they are making — but they don't bat an eye paying a lump sum for an engagement that nets out to $400 an hour. I also charged half time for travel, and I traveled in a style consistent with that of my customer. I didn't want to be sitting in first class as my customer walked back to his seat in coach.

Sometimes, it's easier to sell the engagement in "chunks" than as a whole. I preferred to break up an engagement into discovery, planning, execution and wrap-up phases, with each phase priced separately. The discovery phase let both the client and me get a better handle on how much the rest of the engagement was going to cost. It also gave both of us an opportunity to bail out of the engagement gracefully if it wasn't a good fit. Adjust your billing strategy to the customer. After all, it's his money.

5 HOW ARE YOU GOING TO FIND YOUR NEXT BUYER?
That first customer sometimes comes easily, but when the job ends, that next engagement isn't always waiting. You have to know how you will find your second and third customers — how you will fill your "sales funnel." Lots of prospects go into the wide part of the funnel, and precious few come out the narrow end. Unless you have a way to fill it, you're in a heap of trouble.

My outplacement adviser gave me a great tip for filling the sales funnel. Ask your client for five referrals. Ask him to personally call the five and insist that they agree to a visit from you. This is much stronger than providing favorable feedback on your engagement. My adviser further suggested asking each of the five for advice on potential business outside their companies. He also recommended that I take speaking engagements and write articles.

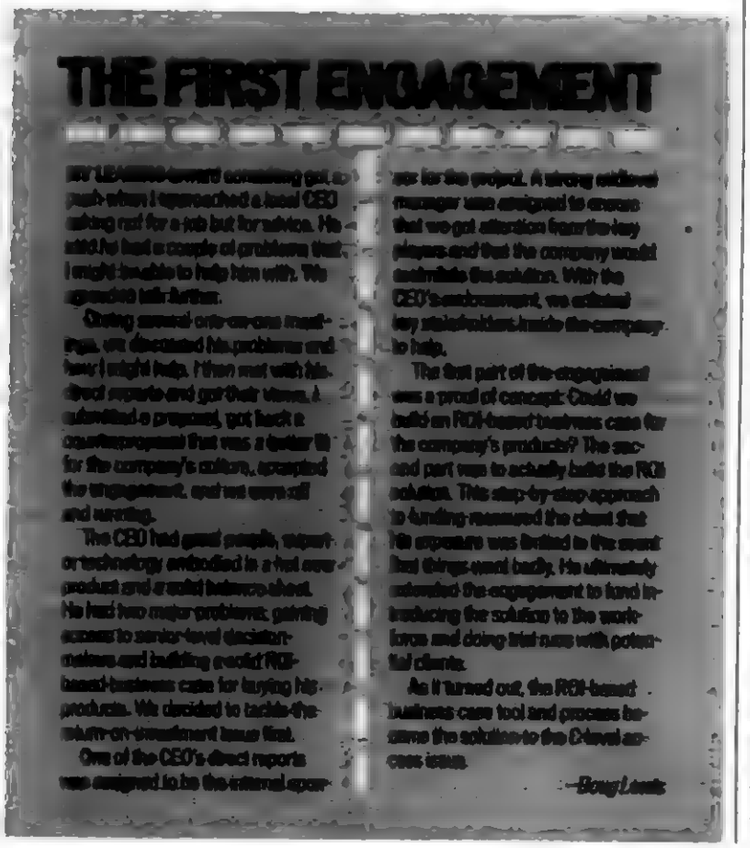
I found the advice to be excellent. I allocated about 20% of my time to new business development. I wrote articles on subjects that interested me with the idea that other CIOs would find them interesting and might want to do business with me. I made time to speak at CIO gatherings.

I also learned to assess speaking engagements upfront after a disastrous hour discussing senior management information security strategy before an audience of ultratechies. (I had violated my principle of selling only to decision-makers who can write the check.) I helped start a regional CIO group that met monthly to hear noted speakers. I used my current engagements to leverage access to decision-makers in other companies.

In summary, the advice worked for me as a company of one. I stayed in consulting for only nine months, but I was busy the entire time. I had great clients, and I think they believe they received good value for their money. **50660**

Lewis is CIO at Carnival Corp. in Miami. Connect him at dlewis@carnival.com.

THE FIRST ENGAGEMENT



MY LEADERS toward something got its push when I approached a local CEO asking not for a job but for advice. He said he had a couple of problems that I might be able to help him with. We agreed to talk further.

During several one-on-one meetings, we discussed his problems and how I might help. I then met with his direct reports and got their views. I submitted a proposal, got back a counterproposal that was a better fit for the company's culture, accepted the engagement, and we were off and running.

The CEO had good people, support or technology embedded in a hot new product and a solid balance sheet. He had two major problems: gaining access to senior-level decision-makers and building a solid ROI-based business case for buying his products. We decided to tackle the return-on-investment issue first.

One of the CEO's direct reports was assigned to be the internal sponsor for the project. A strong midlevel manager was assigned to ensure that we got attention from the key players and that the company would assimilate the solution. With the CEO's endorsement, we enlisted key stakeholders inside the company to help.

The first part of the engagement was a proof of concept: Could we build an ROI-based business case for the company's products? The second part was to actually build the ROI solution. This step-by-step approach to funding reassured the client that his exposure was limited in the event that things went badly. He ultimately extended the engagement to fund introducing the solution to the workforce and doing trial runs with potential clients.

As it turned out, the ROI-based business case tool and process became the solution to the C-level access issue.

—*Doug Lewis*

Alignment, Alignment, Alignment

It's the topic du jour in management books. Some takes on how to achieve it; plus, a project management bible.

BOOK REVIEWS *I read lots of IT management books and try to narrow down the best ones to recommend to Computerworld's readers. It drives my wife crazy because the books keep pouring in and filling up my cramped home-office (a.k.a. the Cockpit). Here are some keepers (and now I can finally clear out the others).*

— Thomas Hoffman

From Business Strategy to IT Action: Right Decisions for a Better Bottom Line, by Robert J. Benson, Thomas L. Bugnitz and William B. Walton (John Wiley & Sons; 328 pages, $45).

This book's central thesis is that an organization should invest in IT only when it directly supports business strategies and operational effectiveness. Tough to argue against that.

The book provides a road map for C-level executives, including CIOs, on how to manage and invest in IT to deliver business value. The authors, each of whom is a principal at The Beta Group, an IT consulting firm in St. Louis, describe a "strategy-to-bottom-line value chain" framework that can help guide a company from business strategies to the right IT decisions.

The authors touch upon areas you'd expect them to, such as advocating the use of portfolio management tools to help organizations prioritize IT and business investments. But they take those concepts a step further by suggesting actions readers can take to achieve the right results.

One of the features that I liked most is a section at the end of each chapter in which the authors pose questions that senior executives should ask themselves on a given topic, such as, "Are we investing new IT resources in the right places?"

This is very practical tome that takes a structured approach to slaying the old IT/business alignment dragon.

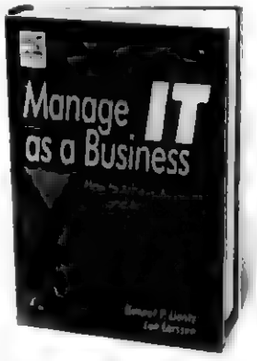


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While *From Business Strategy to IT Action* seems to be geared more toward senior executives, *Managing IT as a Business* appears to be written for IT and business managers who are in the trenches doing the actual work. This book is very straightforward about the problems that have afflicted IT organizations over the years, such as business alignment shortcomings and the burden of managing day-to-day operations, and it offers some fresh ideas about how to deal with these issues. One, for example, is to rate the IT organization using comprehensive performance metrics that measure such variables as the duration of projects, the use of repeatable processes and the amount of knowledge transfer gained from vendors.

The book also tackles the misallocation of IT resources and the tendency among organizations to select projects for tactical rather than strategic reasons.

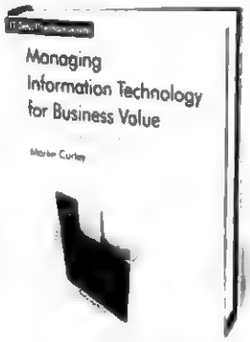
The authors have hands-on project management experience, and it shows. Lientz, a professor of information systems at the UCLA Anderson Graduate School of Management, was a project leader involved in the development of Arpanet, the precursor to the Internet. Larssen has served as an IT manager, business manager and consultant for more than 40 companies over the past 25 years. The techniques they draw upon have been implemented in more than 60 organizations around the world.



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And it is. Curley, who is director of IT innovation for Intel Information Technology in Ireland, focuses primarily on ways to measure and manage IT's business value.



He rightly notes that return-on-investment metrics can be notoriously difficult to extrapolate from IT. That's because so many factors — from business and technical risks to the difficulty of quantifying strategic alignment — can influence the outcome.

Curley suggests that IT and business leaders consider adopting a tool that Intel has developed called the IT business value index (BVI).

According to Curley, the BVI is a decision-support tool that, when combined with portfolio management techniques, can help organizations more accurately calculate the business value generated by an IT investment. Since the BVI contains a common methodology and vocabulary, managers can use it to compare disparate IT and business investments.

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Kapur, who's a *Computerworld* columnist, lists some of the primary reasons for project failures, including unclear business objectives, complexity and risks discovered too late in the project life cycle. He then offers advice on how to achieve success. Readers will likely be intrigued by "the mocking post" concept found on page 49 of the book.

50625



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BOOK REVIEWS

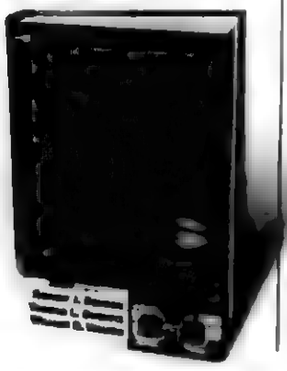
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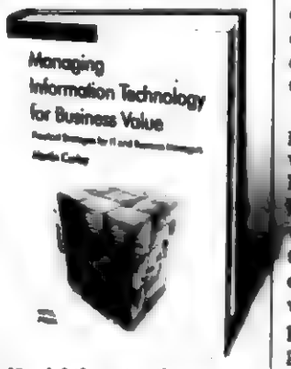
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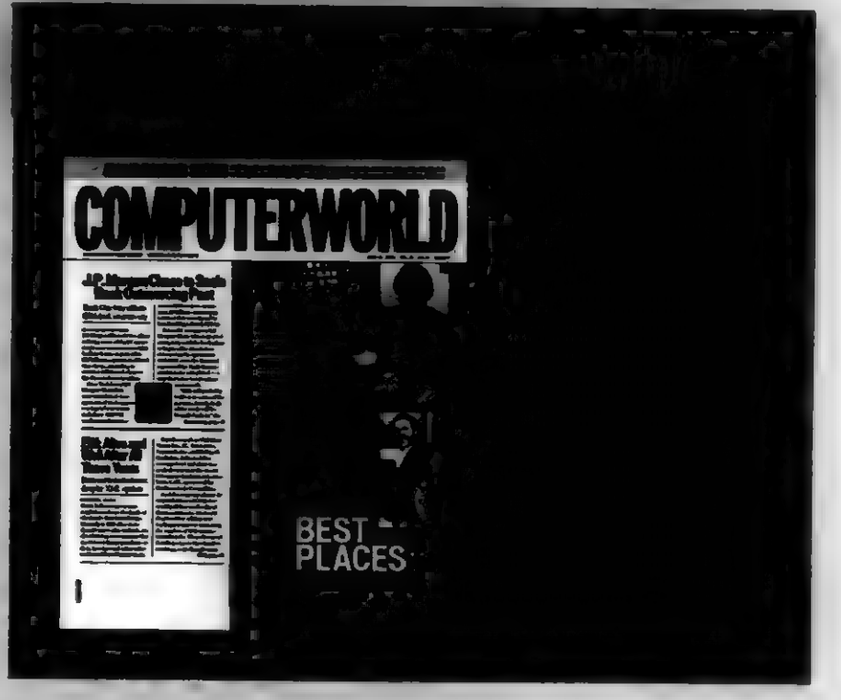
Is your IT department a to work?

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If your IT department offers great benefits, competitive salaries, opportunities for training and advancement, and access to interesting projects, then get your company recognized! Computerworld is conducting its 12th Annual Best Places to Work in IT survey, and we need your help. Our special report will honor the top 100 companies that offer their IT staffs a challenging and satisfying work environment.

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For more information, go to www.computerworld.com/services/research/bestplaces
or send e-mail to bestplaces@computerworld.com.

EXEC TRACK

Webb to Join Equifax as CTO

Equifax Inc. announced that ROBERT J. WEBB will join the company as chief technology officer. Webb will report to Chairman and CEO Tom Chapman and be responsible for managing the Atlanta-based company's global IT infrastructure. Previously, Webb served as CIO in several divisions of General Electric Co. Most recently, he was managing director of Canadian vendor financing at GE.

CIO Takes COO Role at HomeGoods

ROBERT CATALDO will be promoted to chief operating officer at HomeGoods from his post as CIO of The TJX Companies Inc., a Framingham, Mass.-based retailer. Cataldo has been CIO since 2001. Prior to that, he held senior systems and finance positions at the HomeGoods division, which he joined in 1997. He also held financial positions at TJX predecessor Zayre Corp.

Healthcare Partners Names New CIO

ZAN F. CALHOUN has joined HealthCare Partners Ltd. in Los Angeles as CIO. Previously, he was president of OAO HealthCare Solutions Inc., and before that, he was director of the commercial health care consulting practice at BearingPoint Inc. (formerly KPMG Consulting).

Powell Tapped as CTO at HighBeam

HighBeam Research Inc., a Chicago-based operator of an online research engine for individuals, announced that KEITH POWELL has joined the company as vice president and CTO. He will be responsible for managing all technology functions and for the company's research and development efforts. Powell was previously a senior manager at BearingPoint.

GOPAL K. KAPUR

One Born Every Minute

THERE WE GO AGAIN. "Technical glitches in a $52 million installation of PeopleSoft Inc.'s applications at Indiana University have left thousands of students without access to promised financial aid . . ."

[QuickLink 49349]. What is the explanation? According to university spokeswoman Norma Holland, "The glitches were not caused by the system proper."

From this statement I would gather that Holland seems to think that software is the "system proper." She doesn't realize that a system is the *amalgamation* of software, processes and people.



Gopal K. Kapur is president of the Center for Project Management in San Ramon, Calif., and author of *Project Management for Information, Technology, Business and Certification* (Prentice Hall, 2004). Contact him at www.gkapur@center4pm.com.

Any project manager worth her work-breakdown structure knows that for a system to be successful, it is imperative that the work processes be aligned to the system processes and that users be trained in a timely manner — far ahead of the delivery of the technology. As part of due diligence for any proposed system, the project manager must ask the following questions:

- What degree of change will the new system bring to the processes currently being followed?
- Will the users be willing to make the necessary changes?
- Are the users ready to make the necessary changes?
- What is the latest time by which the users must be made ready?

Obviously, either these questions weren't asked, or if they were asked, no follow-up plans were put into place at the university. As a result, with classes looming, the IT team ran out of time for system testing and user training.

Was the date for the start of classes an unknown? If the team had any project management sense, it would have established "runaway triggers" for system testing and end-user training. Those would have made the project manager aware of the impending delays, and the team could have done one of the following:

- Speed up the project to finish the system testing and user training in a timely manner.
- Implement contingency procedures and work-arounds.
- Suspend the project in an orderly way until the next window of opportunity — the following semester.

Obviously, IT staffers didn't have a systematic status-tracking process in place and simply ran into the start-of-classes wall. Then they blamed the wall for being there. And apparently they waited until the end of the project to start training the users. Smart project managers (and sponsors) know that user training must begin well in advance of the system implementation.

But there's more. Another university spokeswoman, Sue Williams, said, "Most problems were caused by interface issues between the PeopleSoft application and the loan systems at lending institutions. . . ."

Is one to believe that the interface was unexpected and sprung onto the university's PeopleSoft system out of left field? The data interface with external systems, a perennial problem, must be investigated as a part of the project planning process. These questions should have been asked:

- What is the quality of incoming data?
- What volumes of data will need to be handled?
- What will be the frequency of data transmission?
- Will there be any media/infrastructure incompatibility?
- Will the data be available in a timely manner?
- Are there any cross-system data dependencies?

Obviously, none of that took place or this fiasco wouldn't have happened.

Williams says the financial aid module is "big and complex." That is what scope parsing is all about: chunking a big project into smaller, progressive scope modules. Why didn't the sponsor (if there was one) make sure that the complex project was broken into smaller chunks? Instead, the IT team brought all eight campuses live in a single cycle, knowing very well the inherent complexity of the endeavor. As a result, 3,000 students, many of their parents and hundreds of landlords were left in the lurch.

How many ways did this project violate project management best practices?

1. Poor or no due diligence.
2. No user training.
3. Absence of system status alerts.
4. System interface problems were ignored.
5. The complex project wasn't broken down into progressively delivered smaller chunks.

If after all the missteps the university is still a "happy customer," as stated by PeopleSoft, then it should step right up and buy a ticket to see the genuine two-headed double-talking happy monkey from Mars. 50622

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EXEC TRACK

Webb to Join Equifax as CTO

Equifax Inc. announced that ROBERT J. WEBB will join the company as chief technology officer. Webb will report to Chairman and CEO Tom Chapman and be responsible for managing the Atlanta-based company's global IT infrastructure. Previously, Webb served as CIO in several divisions of General Electric Co. Most recently, he was managing director of Canadian vendor financing at GE.

CIO Takes COO Role at HomeGoods

ROBERT CATALDO will be promoted to chief operating officer at HomeGoods from his post as CIO of The TJX Companies Inc., a Framingham, Mass.-based retailer. Cataldo has been CIO since 2001. Prior to that, he held senior systems and finance positions at the HomeGoods division, which he joined in 1997. He also held financial positions at TJX predecessor Zayre Corp.

Healthcare Partners Names New CIO

ZAN F. CALHOUN has joined HealthCare Partners Ltd. in Los Angeles as CIO. Previously, he was president of OAO HealthCare Solutions Inc., and before that, he was director of the commercial health care consulting practice at BearingPoint Inc. (formerly KPMG Consulting).

Powell Tapped as CTO at HighBeam

HighBeam Research Inc., a Chicago-based operator of an online research engine for individuals, announced that KEITH POWELL has joined the company as vice president and CTO. He will be responsible for managing all technology functions and for the company's research and development efforts. Powell was previously a senior manager at BearingPoint.

GOPAL K. KAPUR

One Born Every Minute

THERE WE GO AGAIN. "Technical glitches in a $52 million installation of PeopleSoft Inc.'s applications at Indiana University have left thousands of students without access to promised financial aid . . . "

[QuickLink 49349]. What is the explanation? According to university spokeswoman Norma Holland, "The glitches were not caused by the system proper."



From this statement I would gather that Holland seems to think that software is the "system proper." She doesn't realize that a system is the *amalgamation* of software, processes and people.

Any project manager worth her work-breakdown structure knows that for a system to be successful, it is imperative that the work processes be aligned to the system processes and that users be trained in a timely manner — far ahead of the delivery of the technology. As part of due diligence for any proposed system, the project manager must ask the following questions:

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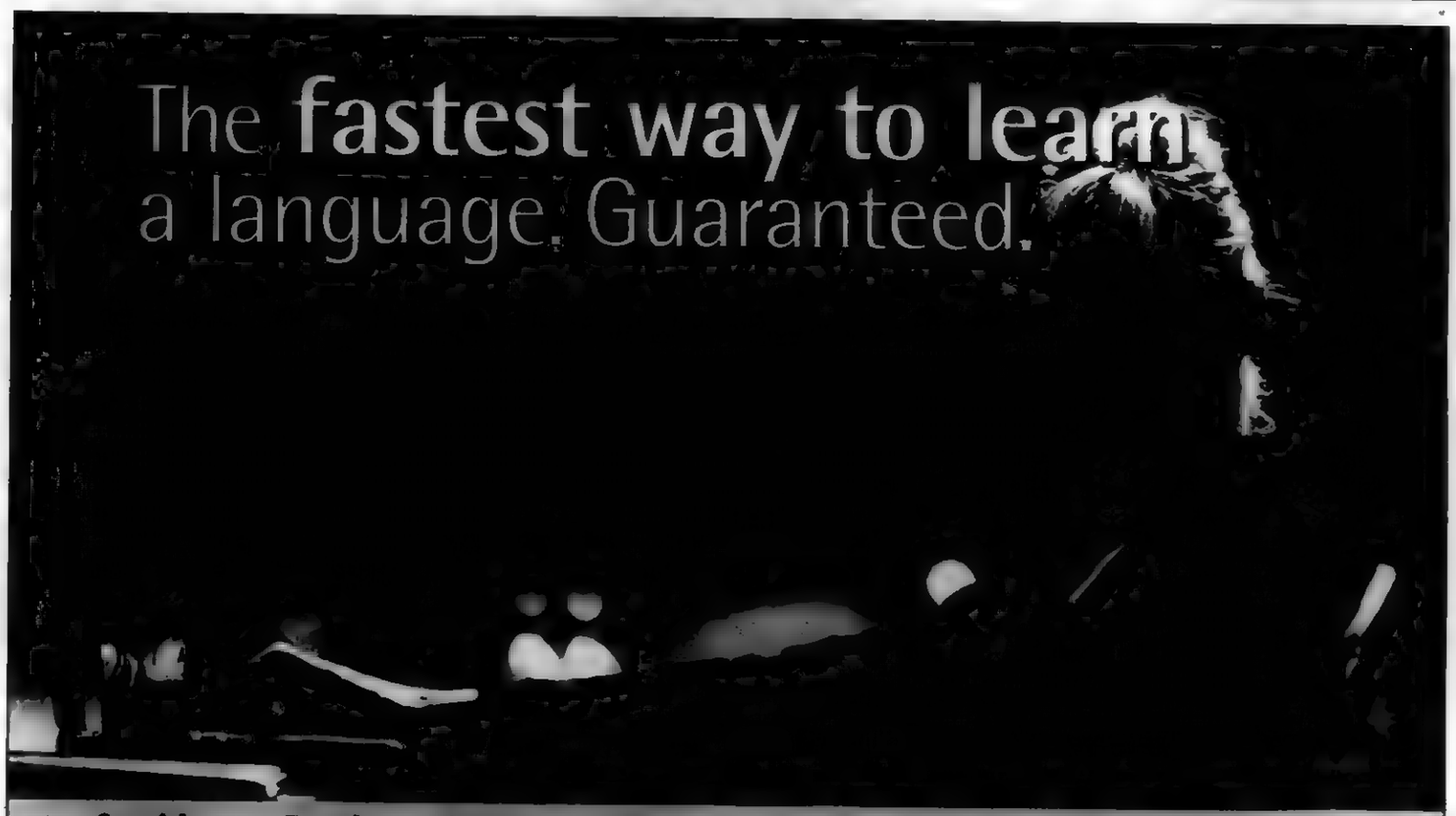
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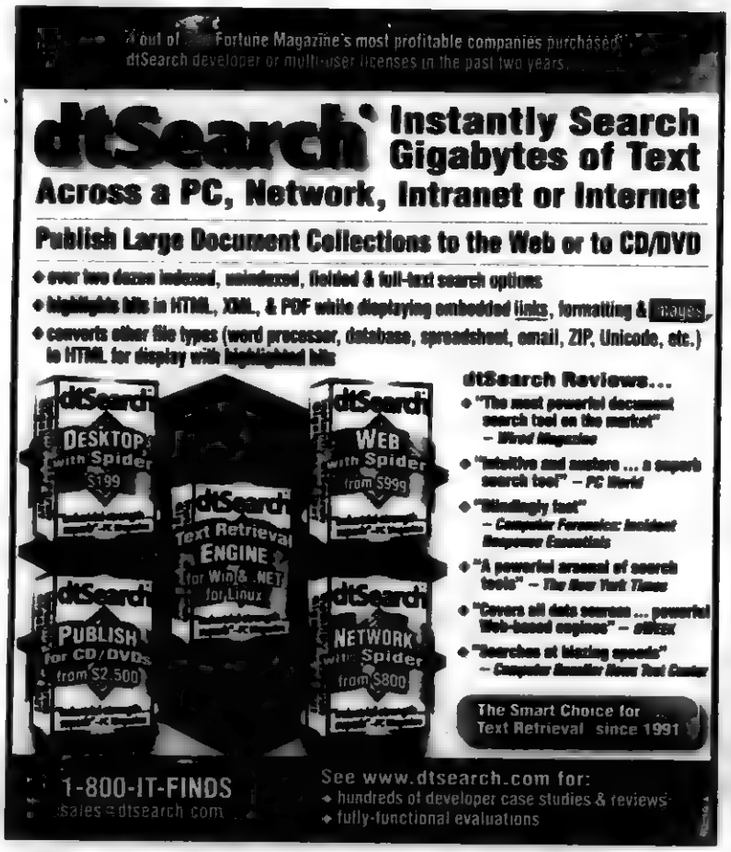


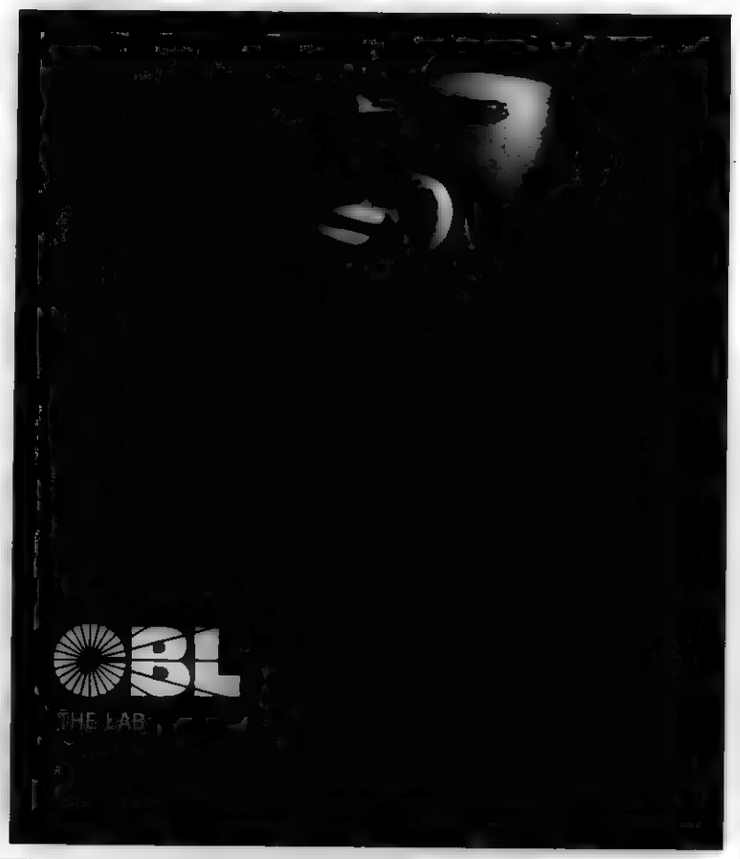
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- Datawarehousing
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- Oracle Developer or Designer 2000
- JAVA, HTML, Active X
- Web Commerce
- SAP/R3, ABAP/4 or FICO or MM & SD
- Oracle Applications & Tools
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SOFTWARE ENGINEER (4 positions) to provide on-site consulting in design, development and maintenance of large object oriented network management applications for telecom industry including NMS Applications and NetExpert VSM Rules Development using OO analysis and design, NetExpert, Unix, Java, Oracle, SQL, TL1, SNMP, SONET, ATM and FrameRelay. Require Master in Computer Science/ Information Systems/ Business Administration or closely related with three years experience in the job offered or any experience providing skills in described duties. 40% travel required to client sites within the U.S. Competetive salary and benefits. 40-hour week, M-F. Mail resume to: Amanda McGannon, Operations Manager, Chemtech Ltd., 1948 Raymond Drive, Northbrook, IL 60062.

Lead Software Engineer to serve as Technical Lead in the development & implementation of preset filters per business unit requirements. Will write technical design document for team members, conduct design and code reviews, liaise with project team members directly on task status & report to project management. Will lead in the design of a new logic to create partial bar data for ATP Charts; design, develop and implement performance test tools for measuring Charts, Filters and Time and Sales request response, and will be responsible for system integration testing of different Vhayu components. Will extensively use TCL scripts, Tibco Timer API, Vhayu API and PERL scripts in a Windows 2000 Server, Visual C++, Solaris 2.8, JAVA and UNIX Shell script environment in performing above duties. Requires B.Sc. in Computer Science, Engineering, Math, or Physics plus 4 years exper in job offered, OR four 4 yrs in client server development in a UNIX environment. Candidate must also possess demonstrated expertise in the following real-time data processing applications using TCL and Vhayu API; in using OLTP filters in TCL and PERL; and in developing financial marketing data feed middleware using RV timer and PERL. Salary: $88,200/yr, M-F, 9AM-5PM. Send 2 resumes to Job Order # 2004-1373, P.O. Box 989, Concord, NH 03302-0989. EOE. Applicants must be U.S. workers eligible to accept full-time employment in U.S.

Comp Software Engr. Analyze and design systems & programs. Design interface btwn mainframe & and client server database. Formulate engrg quality stndrs. Provide engrg support & functions for software & system problems. Determine feasibility of design, train in-house staff. Requirements: BA in computer Science or equiv or foreign equivalent and 2 yrs related experience. 40 hours/ week 8:00 A.M. to 5:00 P.M. Location of employment will be Highway 269-E, North Williamsboro, North Carolina. Send resumes to Marc L. Kinney, Project Manager, Comforce Technologies, 6470 East Johns Crossing, Suite 170, Duluth, GA 30097.

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Send Resume to: Exelpoint, Inc. 125 Belle Forest Circle, Ste 203, Nashville, TN 37221. E-mail: recruiting@exelpoint.com.

Seeking qualified applicants for the following positions in Orlando, FL: Senior Programmer Analyst. Formulate/ define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent" in computer science, MIS, mathematics, engineering or related field plus 5 years of experience in systems/applications development. Experience with C++, UNIX and Shell Scripting (UNIX Shell Script or Perl Script) also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sudhir Jahagirdar, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Programmer/Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design, develop, and integrate CRM based applications. Use SQL server, HTML, XML, and COM. Use object oriented technologies. Applicant must have B.S. degree in Computer Science, Business, Math or Engineering. Applicant must also have 2 yrs. exp. in the job duties described above or in any computer related occupation which must include skills listed above. 40hrs/wk, 8:00am-5:00pm, Mon-Fri. $60,000/yr. Send resumes to: Job No. 23794, P.O. Box 468, Montpelier, VT 05601-0468.

Software Dev. Co. req. Software Eng w/MS & 1yr exp. & Prog. Analyst w/BS & 24 mos. exp. in foll: Visual Basic, Oracle, PowerBuilder, Sybase, Java, Unix, C++, AS/400, SQL Serv, Synon, Cobol, Lotus Notes, SAP, Java Script, HTML, DB2, Corba, CICS, ILE, RPG, EJB, Siebel, JD Edwards, WebLogic, Rational Rose. Equiv. Deg. & exp also accepted. Travel & Relocation req. anywhere in U.S. Send res. to Attn: Recruiter, Allied Informatics, Inc, 926 Broadwater Ave, Suite 203, Billings, MT 59101.

IT Technicians needed. Seeking qual. candidates with BS or equiv. &/or rel. work exp. Part of req. rel. exp. must include 1 year working w/network routers. Duties include: provide technical assistance & training for users in 20 Houston facilities, maintain backup & Lotus Notes Domino Server/Client, purchase computer equip. for all Houston facilities. Fwd. resume & ref. to The Salvation Army, Attn: I.T. Department, 1500 Austin St., Houston, TX 77002.

System Administrator (Elmhurst, NY): Conduct system set-up, integration & maintenance in Windows 98/NT; configure TCP/IP protocols & d'base server; Dsgn & dvlp interfaces btw systems & d'base w/ C, VB & Oracle; Set up multilanguage-supported program; Implement backup, recovery strategy on d'base; Dsgn & maintain intranet w/ HTML & ASP. Must have MS in CS, Comp Engg or Telecommunications & Network Management + 1 yr exp. Must have skills in C, VB, TCP/IP, HTML & Oracle. Resume to HR Dept. Happy Dragon of New York, 86-02 57th Ave, Elmhurst, NY 11373.

PROGRAMMER ANALYSTS (multiple positions) sought by Edison, NJ-based s/ware consultancy firm. Must have 2 yrs of relevant software experience. Respond to: AK Systems, Inc, 100 Metroplex Drive, Suite 303, Edison, NJ 08817 or http://www.aksystems-inc.com/joinnow.htm.

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Siebel Technical Architect Customize & implement Siebel CRM package with information systems including analysis, requirements definition, design, construction & integration with company applications. 40 Hrs., M-F, 9am-5:30pm, Job located in Miami, FL, $73,000. Req: B.S. or equiv. in Computer Sc., Engineering or Math & 2 yrs of exp. Resumes to: Agency for Workforce Innovation P.O. Box 10869 Tallahassee, FL 32302. Ref. Job Order #FL-2579777

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Programmer/Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design, develop and implement computer applications for clients located throughout the U.S. Use Java, XML, Tomcat, Rational Rose, Oracle and J2EE technologies. Applicant must have B.S. degree in Computer Science, Business Math or Engineering. Applicant must also have 1 yr. exp. in the job duties described above or in any computer related occupation which must include skills listed above. 40hrs/wk, 8:00am-5:00pm, Mon-Fri, $60,000/yr. Send resumes to Job No. 29816, P.O. Box 488, Montpelier, VT 05601-0488.

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SAware Consultancy firm in Metro Atlanta area seeks following people with B.S. in Comp. Sci, Engg or equiv plus 2 yrs exp as indicated:

- Software Engineers (multiple positions) 2 yrs exp in Web apps with ColdFusion or ASP, Oracle or SQL server reporting, Crystal Reports, and JavaScript
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Programmer/Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design, implement and code applications for clients located throughout the U.S. Use J2EE technologies, WebLogic, EJB, Webmethods, and Ariba. Applicant must have B.S. degree in Computer Science, Business, Math or Engineering. Applicant must also have 2 yrs. exp. in the job duties described above or in any computer related occupation which must include skills listed above. 40hrs/wk, 8:00am-5:00pm, Mon-Fri, $60,000/yr. Send resumes to: Job No. 29790, P.O. Box 488, Montpelier, VT 05601-0488.

Software Engineers: Design/ develop internet appls. in Windows/Unix applying OO tech & using C/C++, Java, JSP, Servlet & EJB, design appls. for pricing engine to obtain data fr Oracle db using Tuxedo, ProC, Triggers, Unix Shell Scripts, PL/ SQL, & Weblogic; develop GUI screen using JavaScript, HTML and VB, troubleshooting, testing and debugging. Require BS/BA or the equivalent in Comp.Sci., Engr, MIS, or in a closely related field plus min.3 yrs exp. and be able to perform all duties on the day of employment. Full time. Resume to The Crawford Group, Inc. at: jobs@crac.com. Refer to CW11/29/04SRSWE in the subject line. NO CALL/EOE.

Senior Software Engineer to serve as development lead in design & development of real time pricing application servers and adapters and run time libraries on UNIX (Solaris) platform using C/C++, Java, Perl, Rogue Wave libraries, TIBCO APIs and locally developed FPX-API. Responsible for project management, definition of technical requirements, vendor & client communication and task coordination among team members. Assist infrastructure team in installation & verification tasks in production environment, develop User Exit shared libraries for release 3.0 reengineering project, support & maintain mapping tables and TIBCO data dictionary, provide technical & application support for pricing applications & TIBCO software components, solve data content issues that occur in production & provide training courses to support engineers. Requires Bachelor's in Comp Sci Eng Math, or Physics plus 3 years exper in Job Offered OR 3 yrs in design & implementation of market data feed middleware. Candidate must also possess demonstrated expertise in the following: developing data extraction and normalization applications and middleware using Rogue Wave APIs and TIBCO APIs in UNIX/LINUX environment; in object-oriented design, analysis & programming in C++, Java Perl and Shell scripts; and in performance tuning and memory management using Rational Quantify and Purify and in source control management and defect tracking using Rational ClearCase and ClearQuest. Salary $86,200/yr. M-F 9PM--5PM. Send 2 copies of resume/letter of application to Job Order # 2004-484, P.O. Box 988, Concord NH 03302-0988. EOE. Applicants must be U.S. workers eligible to accept full-time employment in U.S.

F/T Jr. Software Engineer Responsible for developing full life-cycle object oriented software. Design of application's specifications using JNI, JMS, Signed Applet, JAAS Security using Struts 1.1, JMX, XML, Apache Tomcat, Visual Source Safe, UML modeling using Rational-Rose 98 and ErEwin. Enhancement of applications documentation of software user requirements, running a real time operating system viz Windows 95, 98, 2000, NT, and LINUX using JAWA RMI Application server deployment using JRUN 3.2, JBOSS 3.0.0 and Netscape Application Server 4.0. Must have a Bachelor's degree in Electronics Engineering, related field or foreign degree equivalent. Must have 2 yrs. of exp in job offered or a position with same duties. Salary Competitive. Send resume to: Srivatsan Ramchandran, AMI, 6145-F Northbelt Pkwy., Norcross, GA 30071.

Client Server Operations Specialist - Clarify Administration

Provide technical administration & customization for the Clarify CRM product (application) in Windows NT/2000/XP, i.e., Clarify maintenance, customizing forms, system architecting, system re-engineering, database optimizations, integrating user interface, database modeling, database tuning. Creating prototypes, writing shell scripts, triggers, stored procedures, code migration & testing. 40 Hrs., M-F, 8am-6pm, Job located in Miami, FL. $86,000. Req: B.S. or equiv. in Computer Sc., Engineering or Math & 2 Yrs. Exp. Resumes to: Agency for Workforce Innovation P.O. Box 10869, Tallahassee, FL 32302. Ref. Job Order #2579780.

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Senior Software Engineer to provide 7x24 production support for web applications associated with HR/payroll. Design, develop & debug complex HR web reports using Reports 6i. Provide on-call production support (7x24) periodically during semi-monthly payroll weeks & off-cycle payrolls to support production operations. Work closely with WEB/TK/DBA/CORE/INTERFACE teams to resolve issues and provide solutions. debug & develop various inbound & outbound interfaces to send files to other practices. write process design documents to share among the group to facilitate knowledge sharing of complicated new processes and debug procedures. create and maintain documentation for production issues & clearly state problems and solutions; manage work items by prioritizing incidents using experience & handle issues based on criticality & their visibility to clients & other business practices. Requires B.Sc in Comp. Sci., Eng., Math, or Physics plus 4 years exper in job offered OR 4 years in Oracle and SQL database development. Candidate must also possess demonstrated expertise in the following: in developing and debugging PL/SQL, Triggers, and Procedures using Oracle and SQL Server databases; in the design and support of Oracle reports and forms using Developer 2000; and in object-oriented & web application design, development, and support using Java, Servlets, JSP, and ASP. Sal: $85,200/yr, M-F, 8A–5P. Send 2 copies of resume/letter of application to Job Order #2004-552, P.O. Box 989, Concord, NH 03302-0989. EOE. Applicants must be U.S. workers eligible to accept full-time employment in U.S.

Systems Analyst to design, develop, test, implement, support, and maintain computer software for business applications using Java, HTML, VB Script, XML, SQL, PL/SQL, UML, CSS, ASP, SAS, Oracle under Window 95/98/2000/NT, UNIX, and MS-DOS Operating system. Require: B.S. Degree in Computer Science, Business Administration/Management, Information Systems or a closely related field with one year of experience in the job offered or as a Programmer/Analyst. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to Ju Jhang, Techdata Service Company, LLC, 108 Charlestown Hunt Drive, Phoenixville, PA 19460. Job:KK.

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Conduct research in image processing for still & video image compression & data streaming; investigate current compression standards, design image/video codec systems, block diagrams for medical imaging applications, design novel compression techniques for human anatomical & physiological data, develop preprocessing & post-processing scheme of noisy sources. Ph.D in EE. Exp in JPEG, JPEG2000, H.263, H.264, MPEG 1/2/4/7/21, DCT, wavelet, transform. Send resume w/ salary req. to Tom Mentser, Crowley Davis Research Inc., 280 S. Academy Ave., #140, Eagle, ID 83616.

Software Engineer, Temple Terrace, FL - Technical lead responsible for the complete life cycle development of web-based telecom applications; develop, implement and test application components such as create and dispatch orders, time card systems, performance reports and quality reports utilizing J2EE, XML, DB2, WebSphere and 1XRTT on UNIX and Windows platforms, deploy applications on WebSphere and WebLogic servers, use SMS and Wi-Fi wireless technologies to submit effective, on-time cell phone, PDA and tablet PC alerts; create dynamic process flows using Flash. Requires a Bachelors degree in Computer Engineering or Computer Science and either 3 yrs. exp. in the job offered or 3 yrs. exp in developing & implementing web-based order & dispatch telecom systems using J2EE, DB2, WebSphere & 1XRTT and creating dynamic process flows using Flash. Salary $88,000/yr, 40 hrs/wk, 8 AM to 5 PM, Mon-Fri. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to Job Order #FL-2581532

Software Development Engineer (3 openings) - Ft. Lauderdale, FL. Req: Bach.'s degree or equiv foreign educ. in Computer Science, Engineering, CIS or Distributed Systems Education or exp. must include at least 3 of the following: Java, C++, XML, JavaScript, ASP.NET, Visual C++ or Windows NT operating system. Must pass company's technical review. Design and develop key elements of multiuser software enterprise applications based on Windows NT/2000 or web technology using a thin-client or browser architecture. Design, code, test, debug and localize Windows and web applications. In a Windows environment, use Java, C++ and XML to develop GUIs, DLLs and executables. In a web environment, use JavaScript, ASP.NET and Visual C++ to develop web interfaces and applications. 40 hrs/wk. Sal: $66,000-$95,900/year. Forward resume to: Workforce Program Support, PO Box 10869, Tallahassee, FL 32302-0869, Job Orders #FL-2575077, #FL-2575209 and #FL-2576774. EEO/AA Employer

Supervisor Sales Sys. Engr'r (Coral Gables, Fl.) Assist & oversee creation & implementn of functional specs, logical & physical DB design, unit & sys. testing & devel., & all related issues; troubleshoot & provide expertise to resolve customers tech probs re: sys software & applications issues; provide tech expertise & support to sales staff re: product demos & install'n efforts, & maintain co. products to ensure sys are functioning according to client specs. & needs; consult & provide guidance re: software devel & localization specs to prospective users; ensure install'n of netwk & IP Telephony Gateway products are performing effectively & efficiently at customer sites; serve as primary tech interface betw customers & w/in co's netwk. oprs; consult, educate & advise numerous parties, incl. resellers, distributors & end users re: the co's Internet telephony products; supervise Jr & Sr Sales Engineers, w/in Caribbean & Latin America region & the Asia Pacific region. Req'd: BA Comp. Sci., Acct., Eng'ng or Math, or its'eu of BA, will accept a combo of education & experience. 2 yrs. exp in the job offered or IT mgmt, prior exp must incl: Windows NT, UNIX, LAN, WAN, H.323 & SIP VoIP protocols; Internet routing, implementation & config'n of inter-domain routing protocols: BGP, OSPF, RIP, EIGRP, IGRP; Public Switched Telephone Network (PSTN) protocols: US & Int'l's (ISDN, PRI, SS7, C7, CAS, R2), & analog networks; Cisco routers & VoIP platforms. 40 hrs/wk, 9am-6pm, $85,500/yr. Please send resume to: Agency for Workforce Innovation, P.O. Box 10869, Tallahassee, FL 32302, ref: Job Order #FL-2573083

INFORMATION TECHNOLOGY
Senior Software Engineer (Low Level Development) - Requires Master's degree (or equiv. foreign educ.) in Comp. Sci., Computer Eng., or MIS & 2 years' exp. in the job offered or 2 years' exp. in the devel. of security protocols for wireless mobile enterprise solutions. The stated exp. must include six months in each of the following: development of application architectures for secure financial transactions on radio-enabled devices; design of low level application and infrastructure components; & reverse engineering of Windows components. In lieu of a Master's degree, will accept a Bachelor's degree together with 5 years of the stipulated experience. Develop security protocols for wireless mobile enterprise solutions to allow investment clients to effectuate financial transactions on a secure base utilizing radio-enabled devices such as mobile telephones and PDAs. 40 hrs./wk. Apply with resume to Alliance Capital Management L.P., Attn: Kevin Fagan, 1345 Avenue of the Americas, 20th Floor, New York, New York 10105

JUNIOR SYSTEMS ANALYST to analyze, design, develop and support information systems and computer software for various financial and business applications using Oracle Developer 2000, VB, C++ and Excel under Windows NT/XP operating systems. Require: Bachelor's degree in Computer Science Business Administration, or a closely related field. Must have a demonstrated ability to perform the stated duties gained through academic coursework/previous work experience. Competitive salary offered. Send resume to: Sultan Kurana, Kurana Pizza Inc., 1665 Lakes Parkway, Suite 101, Lawrenceville, GA30043. Attn: JobAK.

Software Engineer, Temple Terrace, FL - Architect end-to-end solutions for the development of multi-tiered telecom applications on UNIX using Oracle RDBMS, J2EE, Servlets and C++, design, develop and test software modules for service provisioning, activation and assurance using server side J2EE, EJB and JSP; design and deploy architecture for optimizing the performance of C++ and Java components of the server software, participate in requirements gathering sessions with end users and with the network operations and deployment teams to provide enhancements. Requires Masters degree in Computer Engineering or Computer Science and either 2 yrs. exp. in the job offered or 2 yrs. exp. in architecting end-to-end solutions for the development of multi-tiered telecom applications on UNIX using Oracle RDBMS, J2EE, Servlets and C++. Salary $75,000/yr, 40 hrs/wk, 8 AM to 5 PM, Mon-Fri. Send resume to Workforce Program Support, P.O Box 10869, Tallahassee, FL 32302-0869, refer to Job Order #FL-2580490

PROGRAMMER
Alcorn State University seeks a qualified Systems Programmer. Must have a Bachelor's degree or equivalent in Computer Science, Computer Engineering, or related field. Experience must 3 years in the position offered or 3 years experience developing applications. 40 hrs/wk. Must have legal authority to work in the U.S. Send Resume and cover letter to Dr. Dalton McAfee, Alcorn State University, 1000 ASU Drive, #479 Lorman, MS, 39096.

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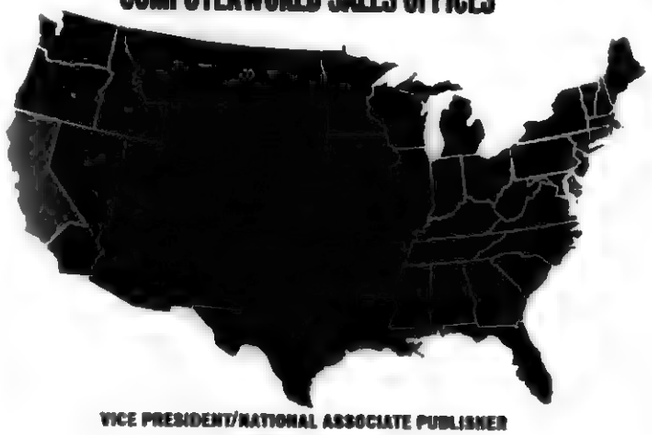
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Emulex Set to Ship Switch-on-a-Chip

Chip offers support for old and new disk technology

BY LUCAS MEARIAN

Emulex Corp. today plans to bring out a switch-on-a-chip that will let storage vendors develop devices that can mix and match Fibre Channel disk arrays with different performance characteristics. The switch also allows users to upgrade their storage without throwing out existing systems.

Jed Dobson, a system architect at Dartmouth College in Hanover, N.H., said he likes the idea of switching between Fibre Channel arrays that perform at different levels within the same enclosure, because it would let him tailor storage service levels to end users according to how critical the data is.

Dobson has about 12TB of storage on several Sun Microsystems Inc. arrays, and his switches serve up 1Gbit/sec. and 2Gbit/sec. Fibre Channel throughput. "My next purchase of Fibre Channel switches will probably be in the 4Gbit/sec. range, so that [chip is] attractive," Dobson said. "I have about 64 ports of 2Gbit/sec. Fibre Channel storage, so I'd probably want to keep those because it was a pretty big cost."

Rick Villars, an analyst at IDC, said the advent of Emulex's FibreSpy SOC 804 family of embedded storage switches will give vendors and users more flexibility, especially in larger storage arrays where there are hundreds of disks that aren't always immediately populated. Users could continue to grow the arrays as disk technology develops, he said.

"Long-term end users will have the option to use a lower-cost disk subsystem," Villars said. "You replace the controller and the disk and the switches, but you don't have to pull the whole box out."

Bob Brencic, senior director of switch marketing at Costa Mesa, Calif.-based Emulex, said the chips come with four Fibre Channel ports each but can be configured in five-chip clusters for up to 20 ports in a single storage enclosure.

The switched chip also allows array manufacturers to break Fibre Channel's 126-device barrier to allow thousands of disk drives to be attached to storage controllers in boxes, Brencic said.

He added that the internal switching will also simplify storage management because IT administrators can use the native management tools of the array instead of having to deal with external switch management tools. "OEMs can build those storage management tools right into the chip," he said. 51058

STORAGE DOWNLOAD

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Continued from page 1

Firefox

or use it on a personal basis. But 17 said that their companies have no current plans to re-evaluate their decisions to go with Internet Explorer.

"We've been standardized on Microsoft Internet Explorer for as long as we've had a standard," said Patricia Coffey, an assistant vice president in IT at Allstate Insurance Co. in Northbrook, Ill. "Basically, we run Microsoft on the desktop as our standard, so we use IE, Office, Outlook, etc."

Allstate's "big gripe . . . is the security issues with Microsoft," Coffey said. But she added that the insurer is content with IE from a features standpoint.

Security is the reason why Jefferson County in Colorado ordered its 2,000 government workers to switch to Firefox about five months ago, said David Gallaher, the county's director of IT development. Gallaher said he came to view IE as "a VDS — a virus distribution system."

"It's hazardous to your corporate health," said Gallaher. "You have to turn off everything that makes Internet Explorer interesting just to avoid the impact of the viruses. Even Microsoft employees have told us, 'You should turn off ActiveX controls.'"



... includes tabbed browsing capabilities, a built-in pop-up blocker, integrated Google search and various security features.

Jefferson County ran the beta version of Firefox and is moving to Version 1.0. Gallaher said the migration has gone well, except for components in a few applications that don't yet support Firefox, including the county's enterprise document management system. But he said the application vendors have indicated that they will fix the problems.

Mark's Work Wearhouse Ltd., a Calgary, Alberta-based retail chain, encountered Firefox support problems with the Web sites of some of its suppliers and business partners, according to CIO Robin Lynas. For example, the pages on a courier company's site wouldn't render properly with the new browser. But the courier has since fixed the problem, Lynas said.

Those glitches haven't deterred Mark's Work Wearhouse from standardizing on Firefox as the underlying browser for its in-store systems. Lynas said the decision was a natural one, since the retailer's cash registers already run Linux.

Joe Hartman, an application development manager at HydroChem Industrial Services Inc. in Deer Park, Texas, said he has used Firefox exclusively at home for about six months. He said that he would like to recommend that HydroChem switch to Firefox because he's concerned about IE's security as well as Microsoft's lack of "significant development on IE since Version 4."

"It now appears IE may well be on its way to becoming a second-class browser," he said.

What's making Hartman hesitant to recommend the switch to Firefox is the company's investment in Microsoft's Dynamic HTML technology for its intranet applications.

Feature Attraction

One alluring feature in Firefox is a tabbed browsing capability, which Internet Explorer lacks. Tabbed browsing allows users to load pages from multiple sites without having to open a new browser window for each one. The tabs make it easier to switch back and forth between the sites.

The feature is "real handy," said Gallaher, adding, "What has Microsoft done with IE for the last few years? They've ignored it."

Gary Schare, a director of product management at Microsoft, disputed that assertion. He claimed that Microsoft continues to make major investments in Internet Explorer, including significant security enhancements that were part of Windows XP Service Pack 2. Schare added that Microsoft partners and independent software vendors are developing add-ons for IE and even complete browsers with tabbed browsing capabilities built on top of it.

Carroll Pleasant, a systems associate at Eastman Chemical Co. in Kingsport, Tenn., said his company is sticking with Internet Explorer as its standard browser. "Nothing else is practical for us," he said. "We have a significant number of internal systems that are dependent on IE."

Ping Inc. also plans to continue using Internet Explorer, said David Chacon, a technical services manager at the Phoenix-based maker of golf equipment. But Firefox "has really raised the bar on functionality and usability," Chacon said. "I hope Microsoft is taking notes." 51063

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Staying a Step Ahead

THINK YOU'LL BE ABLE to choose your own schedule for utility computing? Think again. Last week, the BBC reported online that students may soon be using a pay-as-you-go computing utility on a routine basis. And not computer science students, either — these are student animators [QuickLink a5160].

Hewlett-Packard's research lab in Bristol, England, just launched a rendering service for small animation companies to test its grid computing model. The animators create their designs, then HP's computing grids turn them into 3-D animated films. Several participants told the BBC they expect students to be using the utility soon.

At that point, the grid plan will be out of our hands.

We know how it will happen. We've seen it before. As long as a technology is too difficult, complicated or expensive for anyone except IT departments to use, IT shops can keep a firm grip on how we roll it out, and when. But if the technology gets cheap and simple enough for non-IT people to use, we lose control.

It happened with PCs and spreadsheets, with the Web and handheld computers and wireless network access points. Users get their hands on a new technology. They figure it out. Then they want to use it for business — and if the IT department isn't ready, users start without us.

So now that HP Labs Bristol has started up its Frame Factory animation-rendering utility service, the clock is ticking. Today, a handful of small animation studios use the service to create short cartoons. Soon, students will use it. Then the idea will expand beyond Bristol. Other rendering services will be launched. It won't be long before we have student animators using rendering grids in our own backyards.

Those student animators won't have to be technical wizards. They'll use design software on desktop workstations, and the actual workings of how their designs are turned into fancy, textured 3-D images may be a mystery to them. But they'll understand the concept of a computing utility, and they'll have hands-on experience using it.

In fact, they'll understand it better than we do.

Let's face it — most IT shops aren't ready for utility computing today. Some of us are dipping a toe in, but we all know it's still very early. Most of us plan to wait until standards are set and someone explains it to us.

But when students get access to utility computing, our plans won't matter. Those student animators — and the college friends they hang around with — are just a few years away from landing in our marketing and sales and advertising departments.

When they tell their bosses that they were using pay-as-you-go processing when they were in school, we in IT won't be able to convince anyone that utility computing isn't ready yet. We'll have to make it happen — or they'll find utility computing vendors without us.

Then we'll have to play catch-up as we try to pull their utility computing projects back under IT's control. It'll be PCs and handhelds and wireless access points all over again.

But that's not all bad news.

Look, if users figure out utility computing, we won't have to explain it to them. They'll already understand the business value. They'll know it's useful. They'll even tell us how.

True, that means we won't be setting the utility computing agenda. But our job is to make IT serve the business, remember?

If we pay attention and time it right, we can make our jump into utility computing after the bloodiest part of the bleeding edge is past — but still just before users start asking us for it.

And if that means grids don't arrive for us exactly on the schedule we'd choose — well, at least this time we'll have a hand in the plan. 51930



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Complex World, Simple Minds

New hire doesn't seem to have a knack for IT at this bank, so pilot fish puts him to work logging ATM problems. "I stepped him through the basics as he took his first call," fish says. "He dutifully logged the location and the nature of the problem, then asked me what time he should note in that column. I nodded up at the wall clock and responded, 'Right now.' " Later, fish finds newbie has recorded the incident exactly as instructed – and filled the time column with "right now."

SHARK TANK

Penny-Wise

This company has sites in two cities that need to swap data securely. "I suggest that we purchase a router for about $1,000 and set up a VPN tunnel between the sites," says an insider pilot fish. "We only needed one because we had an extra router already." Too pricey, says the boss; just use regular phone lines. Fish does. The first month's long-distance phone bill: more than $3,000. Says fish, "Soon after that bill, the router and the tunnel got set up *real* quick."

It Happens

This server runs fine all day but crashes every night during an unattended backup, and sysadmin pilot fish can't see why. "I could run the backup during the day without problems," fish says. "I decided to start replacing hardware, opened the system and found mouse droppings in the bottom of the case." Looks like the mice are using the network card as a toilet, and it shorts out – but dries out enough by morning to work. Fish's solution? "Sealing the case, replacing the network card and putting out some mouse traps."

February, Expanded

Flash back to 1967: This company uses a complicated data translation and verification program with customers' data. Defining the input data is tricky – "Typically, you get a lot of errors or you get none," says a pilot fish working there. But for one new customer, a 10,000-record file kicks out just two errors. They're both birthdays – and they're recorded as "Feb. 30." Customer's explanation: "If we don't know the day of the month for a birthday, we default it to the 30th."

Troubleshoot This!

Each day, user runs the application this pilot fish developed, generating a spreadsheet that's then uploaded to the company's Web site. When fish takes a weeklong vacation, he leaves user his cell phone number and explains that though he'll be a continent away, with Internet access, he can remotely troubleshoot problems. Thursday afternoon, the phone rings. User: "Help me! The Internet is down! I can't send my transmission! Fix it!"

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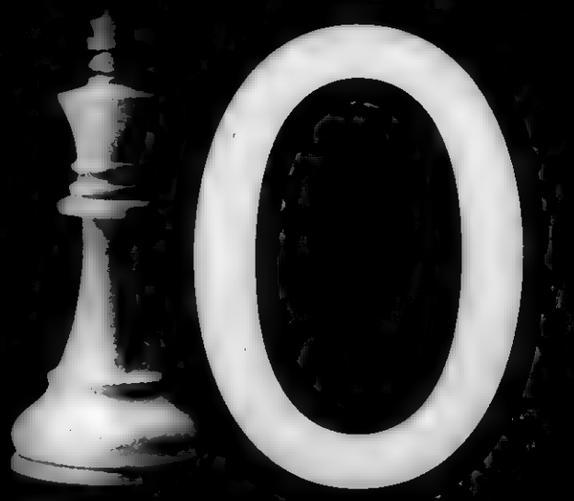
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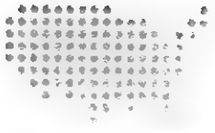
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2004

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cool stuff

Here's our annual look at the best new gadgets, from serious PDAs to exotic gizmos for techies of all ages. **Page 23**

Data Center Gains May Imperil Jobs

Gartner says half of IT operations positions could vanish in 20 years; users aren't so sure

BY PATRICK THIBODEAU
LAS VEGAS

In an eyebrow-raising forecast that was met with a mix of skepticism and nonchalance by some IT managers, Gartner Inc. analysts last week predicted that as many as 50% of the IT operations jobs in the U.S. could disappear over the next two decades because of improvements in data center management technologies.



Gartner analyst Donna Scott said at the consulting firm's annual data center conference here that IT workers face a situation similar to the one that the manufacturing industry has experienced over the past several decades. Increased standardization of IT systems, applications and processes will lead to productivity improvements and a major shift in the skills that are needed, according to Scott.

"There will be more room to automate, and that means there will be reduced labor cost," she said.

IT operations, which encompass functions such as systems administration, inci-

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Users See Slow Progress On Microsoft-Sun Alliance

Vendors provide first update on joint efforts

BY CAROL SLIWA

The progress report that Microsoft Corp. and Sun Microsystems Inc. issued last week on their joint initiatives left some IT managers and analysts wondering when or if the long-term collaboration that the two companies have promised will produce any substantial results.

Executives from the one-time bitter rivals cited collaborative efforts in areas such as Web services standards, identity management, storage and the optimization of Windows for Sun hardware (see chart, page 53). But much of the work is ongoing, and Microsoft and Sun didn't provide details about any major technology pronouncements that may be forthcoming.

"My expectation on them producing deliverables is very low," said Emanuel Joseph,

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Lack of Tests Could Block Virtualization

BY PATRICK THIBODEAU
LAS VEGAS

Server virtualization technology is expected to play a big role in increasing CPU utilization rates on x86-based servers in the next few years. But attendees at Gartner Inc.'s data center conference here last week said one potential roadblock is the need to test packaged applications on virtualized systems.

That issue could put relationships between users and software vendors to the test if vendors are reluctant to troubleshoot their applications on servers running virtualization software, according to Gartner analysts and IT managers who were at the conference.

Tony Fernandes, vice

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In naming a 'CEO-elect,' CA missed a chance to send a message of stability, says Don Tennant. PAGE 20

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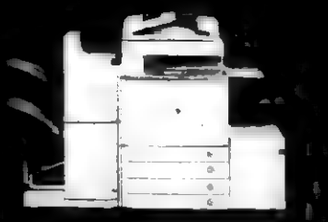
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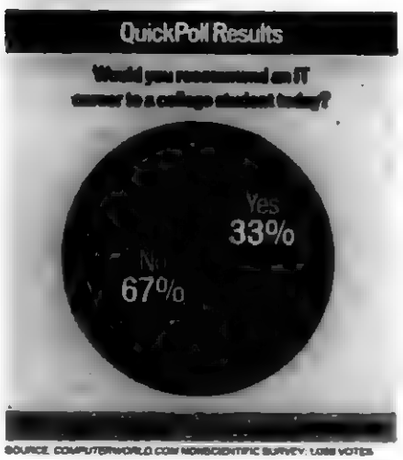
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AT DEADLINE

Borland Replaces IBM Tools at EDS

Electronic Data Systems Corp. has opted to replace its IBM Rational application life-cycle management tools with Borland Software Corp. tools, said Borland CEO Dale Fuller. Fuller described the deal in a conference call as "a multiyear, multimillion-dollar relationship." EDS late last week confirmed that it buys software from Borland but declined to comment on the deal.

Microsoft Adds New NT Support Plan

Microsoft Corp. announced last week that on Jan. 1 it will begin offering a fee-based custom support program for Windows NT 4.0 Server. The extended support period for the server product is due to expire at month's end. The new program will run through Dec. 31, 2006. Microsoft also plans to offer two years of custom fee-based support for Exchange Server 5.5 after its extended support period ends on Dec. 31, 2006.

Opsware Buys Rendition for $33M

Opsware Inc. last week agreed to buy privately held Rendition Networks, a maker of network device automation technology. Opsware plans to integrate the Rendition products with its line of IT automation and utility computing software. Once the sale is final, the Rendition R&D operation will remain in Redmond, Wash.

Dell Wins $700M Pact With Philips

Dell Inc. last week was awarded a five-year, $700 million contract to provide hardware and managed desktop services to Dutch electronics giant Philips Electronics NV. The contract calls for Dell to manage desktop computers, printers, office networks and applications and to provide technical assistance for 75,000 employees.

CA Picks SAP's Apps For Global ERP System

Says rollout will help it fulfill settlement with DOJ, address accounting issues

BY MATT HAMBLEN

COMPUTER Associates International Inc. last week said it plans to roll out SAP AG's ERP software globally, partly to help meet the requirements of the deferred-prosecution deal CA reached with the U.S. Department of Justice in September.

For CA, the project "is both a business and IT transformation," CIO Kevin Kern said in an interview. "It's the mother of all transformations, affecting just about everything."

Kern said the mySAP ERP software will replace a mix of internal applications affecting four key business areas: core financials, business intelligence, CRM, and e-procurement and sourcing.

A CA spokeswoman said the project could cost $5 million to $10 million. A consulting team from Accenture Ltd. will assist CA on the mySAP ERP rollout, which is scheduled to be completed by the end of next year.

Kern, who joined CA in July, said the new ERP system will give executives "unprecedented levels of financial transparency" across the software vendor's operations. He noted that one of the purposes of the rollout is to help CA fulfill a significant portion of its agreement with the DOJ, which was designed to let the company avoid prosecution in connection with alleged accounting fraud by former executives in 1999 and 2000 [QuickLink 49647].



"[The project is] the mother of all transformations, affecting just about everything."

KEVIN KERN, CA's CIO

The DOJ claimed that CA counted some software sales outside of the fiscal quarter in which they should have been booked in order to boost its short-term financial results. A unified ERP system should help make the company's accounting procedures more efficient and more visible to auditors, according to analysts.

Too Many Systems

"I'm kind of shocked that CA hasn't installed a big ERP system before now," said Mark Ehr, an analyst at Enterprise Management Associates Inc. in Boulder, Colo. "As a technology company, they've suffered from the 'invented here' syndrome and have in place a mishmash of internal ERP systems, which was probably part of the cause of the accounting problem."

"Of course the new system will improve financials and tighten that up," Kern said, adding that it will also help CA's sales teams to function "much more efficiently and effectively." As part of the agreement with the DOJ, CA said that it would implement an ERP system by the end of 2005. Kern said the project is "well under way," with 80 employees working on it full time.

In one of Kern's earlier jobs, he was vice president of strategic development at SAP America Inc., SAP's U.S. subsidiary. He wouldn't name the companies that competed with SAP for the ERP project. But he said CA evaluated several prominent vendors and narrowed the list to those that could handle a global rollout before settling on SAP.

CA doesn't use any SAP software now, Kern said. The company has installed a few packaged applications from outside vendors, including PeopleSoft Inc.'s human resources software and a marketing system from Aprimo Inc. Kern said those products will continue to be used for the time being while CA focuses on replacing applications such as Masterpiece, an accounting package that it once owned. CA sold Masterpiece to SSA Global Technologies Inc. in 2002.

Accenture didn't help with the selection of mySAP ERP but is providing a team of 20 workers to assist with the implementation, said Stefan Kampe, a partner at the IT services firm. 51169

Stacy Cowley of the IDG News Service contributed to this story.

ADDITIONAL COVERAGE

In this issue: John Swainson, CA's CEO-elect, says the company is overcoming its image problems with users. Page 18

Online: Visit our Web site for more stories about CA:

QuickLink 51640
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CA Looks to Ease Mainframe Management Burden

COMPUTER ASSOCIATES today will release three upgraded Unicenter products that integrate different performance management tools used on mainframes and are designed to make it easier for users to jointly manage mainframes and other systems.

"The mainframe platform presents unique problems, and it is complex, so our strategy is to modernize and simplify the process," said David Hodgson, senior vice president of mainframe systems product development at CA.

The upgrades are the first in a series of mainframe-related announcements CA plans to make over the next few months, Hodgson said. Mainframe tools "are really CA's historical strength, and we probably neglected them from a development point of view over the last couple of years," he said.

The upgraded products include Release 11 of Unicenter NetMaster, which supports TCP/IP and SNA networks connected to mainframes and includes new autonomic capabilities for finding network abnormalities. CA is also adding support for IBM's Unix System Services technology to its event management and automation tool for mainframes running z/OS.

In addition, CA is rolling out Release 11 of Unicenter CA-Sysview Realtime Performance Management, which is designed to help IT workers find the causes of reduced z/OS performance. The new version provides improved management and monitoring of IBM's WebSphere, CA said.

Patrick Barrez, an information systems officer at Fortis NV in Brussels, has beta-tested two of the new products. Barrez said there aren't that many new features, although he noted that CA appears to have given the products a common user interface and made it easier to install and configure them. He said he expects a bigger step forward with Release 12 upgrades that are due next year.

– *Matt Hamblen*

IM Spread Causing Management Headaches

Financial services firms struggle to comply with regulations, appease users

BY LUCAS MEARIAN

The spread of instant messaging in the financial services industry is causing compliance and technology challenges for IT managers who must not only monitor and archive electronic communications but also root out and shut down unauthorized IM services.

Many IT units are having difficulty managing a plethora of IM systems installed without their knowledge that are used for both personal and important business communications. And user objections to IT's efforts to rein them in are another factor to consider.

For example, Thomas Weisel Partners LLC in San Francisco tried to shut down the use of America Online Inc.'s Instant Messenger, Microsoft Corp.'s MSN Messenger and Yahoo Inc.'s Yahoo Messenger after the Sept. 11, 2001, terrorist attacks. However, user pushback forced the company to adopt monitoring software instead.

"It comes down to some of our institutional customers who required IM as the method to communicate with them," said Beth Cannon, former chief technology officer and now chief security officer at the institutional brokerage.

Thomas Weisel installed IM Auditor from FaceTime Communications Inc. in Foster City, Calif. The program runs on an internal server and monitors IM traffic, flagging any banned words or phrases while archiving all messages.



More vendors of all sizes, such as Stellar Technologies Inc., which last week unveiled the GEM content-blocking tool, are scrambling to build robust tools to monitor IM for financial firms, which must meet new government regulations requiring that electronic conversations be monitored and recorded.

Two years ago, IM monitoring was almost nonexistent in financial firms. Now it's a key IT function of most banks and brokerage houses on Wall Street, according to research firm TowerGroup in Needham, Mass.

"If they've got IM, they're logging. I can't think of a situation when I've gone into a bank and they're not logging," said Jeremy Condie, senior vice president in charge of business strategy at Thomson Financial LLC in New York.

Thomson, a provider of financial information to banks and money management firms, offers IM management services to clients based on a monitoring tool from IMlogic Inc. in Waltham, Mass.

Most IM monitoring products are gateway devices that sit on the network and monitor all incoming and outgoing messages. Some contain policy engines that search for keywords and alert managers to unacceptable conversations.

Establishing Policies

Marcelo Sciurano, MIS director at brokerage firm Libra Securities LLC in Caledonia, N.Y., said his firm chose an IM monitoring and archiving service from Stellar based on cost and maintenance features. Each quarter, Stellar sends CDs to Libra containing all IM traffic data for that period. Libra's security officer then performs keyword and phrase searches of the traffic.

"If we didn't have to deal with it, we'd be happier," Sciurano said. "But the SEC and [National Association of Securities Dealers] require it."

Many small banks and brokerages and even some large ones have yet to establish policies for internal IM use, despite the difficulties firms face in managing IM, said Sophie Louvel, an analyst at Financial Insights in Framingham, Mass.

Efforts to institute a standard enterprise-class IM product, such as IBM's Lotus Sametime, Microsoft's .Net Messenger and Jabber Inc.'s Messenger, rarely work because the more popular systems are used to communicate with customers.

"I've spoken to bank and IT managers, where they found across a global firm 10 to 20 IM applications in different guises. They've spent a lot of time whittling that down to a handful," Thomson's Condie said. "Each pocket in a bank puts their arms up and says, 'Our community is using this, otherwise we're out of touch with our client base.' "

51213

IM Growth

IM market revenue in the U.S. is expected to grow:

2004: **$158.3M**
2008: **$424.3M**

Enterprise IM per-user licenses are expected to leap:

Today: **10 million**
Next three years: **80 million**

SOURCE: FINANCIAL INSIGHTS FRAMINGHAM, MASS.

E-voting Woes Force New Election in N.C. County

Touch-screen errors led to loss of 4,400 ballots

BY HEATHER HAVENSTEIN

Voters in one North Carolina county can return to the polls next month to recast ballots that were lost due to a malfunctioning e-voting machine in the November election.

The state's Board of Elections voted last week to allow about 4,400 Carteret County residents whose votes were lost — along with 19,600 who didn't go to the polls — to cast ballots Jan. 11 for the state agriculture commissioner.

That was the only state or local race close enough for the 4,400 votes to make a difference, said Robert Cordle, one of five members of the board. In that race, challenger Steve Troxler has a 2,300-vote lead over incumbent Britt Cobb. The Jan. 11 votes will be added to the November result.

The votes were lost because the touch-screen system could store only 3,000 votes that day, far fewer than the 10,000 the machines should be able to handle, according to the manufacturer, UniLect Corp. in Dublin, Calif.

Poll workers didn't immediately see that the machine had begun displaying a notice that said it couldn't accept any more votes, Cordle said. The machines don't produce paper copies of the ballots. "As a compromise, we agreed to allow those whose vote was not counted last time to vote, [as well as] anybody who didn't vote last time," Cordle said. "It's a very unusual ruling, and each [candidate] has 10 days to appeal it in court. It may get changed if they do."

The January election will cost the county $20,000, Cordle said, adding that it will use the same machines used in November but will allow only 3,000 votes per machine.

The state has set up a legislative commission to study e-voting, and election board officials are looking into requiring the use of machines that produce a paper audit trail, Cordle added.

Will Doherty, executive director of the Verified Voting Foundation Inc. advocacy group, said the problem in Carteret County was the most serious e-voting problem nationwide because of the clear evidence of lost votes.

"At a bare minimum, you have to give people whose votes were lost a chance to vote," Doherty said. "That is the tip of the iceberg. If Carteret County is going to continue to use electronic voting machines, they should immediately provide a voter-verified paper ballot on the voting machines they use."

> **"At a bare minimum, you have to give people whose votes were lost a chance to vote."**
>
> WILL DOHERTY, EXECUTIVE DIRECTOR, VERIFIED VOTING FOUNDATION

Doherty's organization teamed with the Electronic Frontier Foundation to send letters to election officials in eight counties nationwide where voters reported incidents problematic enough to warrant "further investigation, if not full audits, recounts or redos of the election," he said. He hasn't received responses from those counties, which include Broward and Palm Beach in Florida, Mahoning and Franklin in Ohio, Mercer and Philadelphia in Pennsylvania, Harris in Texas and Bernalillo in New Mexico.

51181

IM Spread Causing Management Headaches

Financial services firms struggle to comply with regulations, appease users

BY LUCAS MEARIAN

The spread of instant messaging in the financial services industry is causing compliance and technology challenges for IT managers who must not only monitor and archive electronic communications but also root out and shut down unauthorized IM services.

Many IT units are having difficulty managing a plethora of IM systems installed without their knowledge that are used for both personal and important business communications. And user objections to IT's efforts to rein them in are another factor to consider.

For example, Thomas Weisel Partners LLC in San Francisco tried to shut down the use of America Online Inc.'s Instant Messenger, Microsoft Corp.'s MSN Messenger and Yahoo Inc.'s Yahoo Messenger after the Sept. 11, 2001, terrorist attacks. However, user pushback forced the company to adopt monitoring software instead.

"It comes down to some of our institutional customers who required IM as the method to communicate with them," said Beth Cannon, former chief technology officer and now chief security officer at the institutional brokerage.

Thomas Weisel installed IM Auditor from FaceTime Communications Inc. in Foster City, Calif. The program runs on an internal server and monitors IM traffic, flagging any banned words or phrases while archiving all messages.

MOST POPULAR

IM Archiving/ Monitoring Apps

IMlogic Inc.
- IM Manager

Akonix Systems Inc.
- Akonix L7 Enterprise

DYS Analytics Inc.
- Collaboration Control

FaceTime Communications
- IM Auditor

IM-Age Software Inc.
- IM-Policy Manager

More vendors of all sizes, such as Stellar Technologies Inc., which last week unveiled the GEM content-blocking tool, are scrambling to build robust tools to monitor IM for financial firms, which must meet new government regulations requiring that electronic conversations be monitored and recorded.

Two years ago, IM monitoring was almost nonexistent in financial firms. Now it's a key IT function of most banks and brokerage houses on Wall Street, according to research firm TowerGroup in Needham, Mass.

"If they've got IM, they're logging. I can't think of a situation when I've gone into a bank and they're not logging," said Jeremy Condie, senior vice president in charge of business strategy at Thomson Financial LLC in New York.

Thomson, a provider of financial information to banks and money management firms, offers IM management services to clients based on a monitoring tool from IMlogic Inc. in Waltham, Mass.

Most IM monitoring products are gateway devices that sit on the network and monitor all incoming and outgoing messages. Some contain policy engines that search for keywords and alert managers to unacceptable conversations.

Establishing Policies

Marcelo Sciurano, MIS director at brokerage firm Libra Securities LLC in Caledonia, N.Y., said his firm chose an IM monitoring and archiving service from Stellar based on cost and maintenance features. Each quarter, Stellar sends CDs to Libra containing all IM traffic data for that period. Libra's security officer then performs keyword and phrase searches of the traffic.

"If we didn't have to deal with it, we'd be happier," Sciurano said. "But the SEC and [National Association of Securities Dealers] require it."

Many small banks and brokerages and even some large ones have yet to establish policies for internal IM use, despite the difficulties firms face in managing IM, said Sophie Louvel, an analyst at Financial Insights in Framingham, Mass.

Efforts to institute a standard enterprise-class IM product, such as IBM's Lotus Sametime, Microsoft's .Net Messenger and Jabber Inc.'s Messenger, rarely work because the more popular systems are used to communicate with customers.

"I've spoken to bank and IT managers, where they found across a global firm 10 to 20 IM applications in different guises. They've spent a lot of time whittling that down to a handful," Thomson's Condie said. "Each pocket in a bank puts their arms up and says, 'Our community is using this, otherwise we're out of touch with our client base.'"

51213

IM Growth

IM market revenue in the U.S. is expected to grow:

2004: **$158.3M**
2008: **$424.3M**

Enterprise IM per-user licenses are expected to leap:

Today: **10 million**
Next three years: **80 million**

SOURCE: FINANCIAL INSIGHTS, FRAMINGHAM, MASS.

E-voting Woes Force New Election in N.C. County

Touch-screen errors led to loss of 4,400 ballots

BY HEATHER HAVENSTEIN

Voters in one North Carolina county can return to the polls next month to recast ballots that were lost due to a malfunctioning e-voting machine in the November election.

The state's Board of Elections voted last week to allow about 4,400 Carteret County residents whose votes were lost — along with 19,600 who didn't go to the polls — to cast ballots Jan. 11 for the state agriculture commissioner.

That was the only state or local race close enough for the 4,400 votes to make a difference, said Robert Cordle, one of five members of the board. In that race, challenger Steve Troxler has a 2,300-vote lead over incumbent Britt Cobb. The Jan. 11 votes will be added to the November result.

The votes were lost because the touch-screen system could store only 3,000 votes that day, far fewer than the 10,000 the machines should be able to handle, according to the manufacturer, UniLect Corp. in Dublin, Calif.

Poll workers didn't immediately see that the machine had begun displaying a notice that said it couldn't accept any more votes, Cordle said. The machines don't produce paper copies of the ballots. "As a compromise, we agreed to allow those whose vote was not counted last time to vote, [as well as] anybody who didn't vote last time," Cordle said. "It's a very unusual ruling, and each [candidate] has 10 days to appeal it in court. It may get changed if they do."

The January election will cost the county $20,000, Cordle said, adding that it will use the same machines used in November but will allow only 3,000 votes per machine.

The state has set up a legislative commission to study e-voting, and election board officials are looking into requiring the use of machines that produce a paper audit trail, Cordle added.

Will Doherty, executive director of the Verified Voting Foundation Inc. advocacy group, said the problem in Carteret County was the most serious e-voting problem nationwide because of the clear evidence of lost votes.

"At a bare minimum, you have to give people whose votes were lost a chance to vote," Doherty said. "That is the tip of the iceberg. If Carteret County is going to continue to use electronic voting machines, they should immediately provide a voter-verified paper ballot on the voting machines they use."

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BRIEFS

IBM Linux Servers To Support Sybase

IBM has agreed to support and jointly market Sybase Inc.'s Adaptive Server Enterprise database software on its eServer OpenPower Linux servers by early next year. The move extends IBM's support for one of its DB2 software rivals. The agreement could help IBM find new customers in the financial services industry, where Sybase has a strong presence.

EDS Wins $480M Outsourcing Pact

The provincial government of British Columbia awarded a $480 million outsourcing contract to Electronic Data Systems Corp. to develop and implement business processes and IT systems. The 10-year deal calls for the EDS Advanced Solutions Inc. unit to coordinate more than 40 revenue systems.

Hackers Mock SCO's Linux Claims

Hackers compromised The SCO Group Inc.'s Web site twice last week, posting messages that mocked the company's claims to own parts of Linux. SCO, a frequent target of online attacks since it filed a lawsuit against IBM last year, acknowledged that the site "experienced two intrusions by a malicious hacker." SCO said it quickly restored the hacked pages.

Microsoft Probes Windows Flaw

Microsoft Corp. last week said it's investigating a security flaw in Windows Server that could allow an attacker to gain control over systems running the software. The flaw lies in the Windows Internet Name Service, a network infrastructure component. Microsoft said it plans to offer a patch to protect against this flaw as part of its monthly update cycle.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FAULKNER

Isis Protects Networks From Attacks That . . .

. . . start inside firewalls. And that's most of them, according to the San Francisco-based Computer Security Institute, which estimates that 60% of attacks against networks come from machines within corporate firewalls. As IT managers know all too well, this onslaught of worms and viruses emanates from clueless employees who insist on opening .exe files promising wealth, health or a stealth look at someone in their birthday suit. Because it's still illegal and probably just plain wrong to shoot those workers, you might instead consider adopting the upcoming Isis security technology from NitroSecurity LLC in Portsmouth, N.H. Isis combines NitroSecurity IPS 4.4, an upgrade that will be available later this month, with the brand-new NitroSecurity ESE, scheduled for release in the first quarter of 2005. The upgrade of NitroSecurity's intrusion-prevention system adds reporting features and drops the IP address from the appliance so it can't be found and hacked on your network. But the most important new feature, says Bill Clark, NitroSecurity's marketing vice president, is the integration of IPS 4.4 and NitroSecurity ESE, an enterprise security engine that maintains the details of how all computing devices are connected to a network. Together with IPS 4.4, NitroSecurity ESE can quickly locate a device that's being used in an attack and shut off its access to the network by disabling its Ethernet link. That's harder than it sounds, Clark says. External worms arrive via a very small number of WAN ports that can be shut off quickly. But with tens or even hundreds of thousands of internal switched ports to sort through, finding offending desktop systems can take too long. With the god-like powers of Isis, you can banish bad machines faster than you can say "Ra." Or "Rah!" since you'll probably be in a good mood. Pricing has yet to be finalized.



Compliance needs complicate control . . .

. . . of end-user identity and access management procedures. King Moore, CEO of New York-based Secured Services Inc., argues that compliance means not only showing auditors that you know who did what where and when, but being able to prove it in court. That's why its Identiprise 6.0 identity and access management system seals ID-related event logs in a court-admissible, tamperproof file. Identiprise creates a virtual directory that other network-based directories connect to, bridging the myriad of log-on, password and ID-challenge systems that applications use. It also gives single-sign-on access to end users. The new release is due to ship later this month. Pricing starts as low as $20 per seat.

Stop writing business logic in . . .

. . . IT departments, and make your company's business analysts do it instead. That's the strategy behind the suite of tools offered by RulesPower Inc. in Burlington, Mass. "Software errors don't stem from coding, but from the transformation of business-requirements-gathering into code," claims RulesPower founder Steven Minsky. He says it's important to get code creation "out of the IT process" and put it in the hands of business analysts. Training them to write J2EE code seemed like the wrong approach, so RulesPower opted to make the creation of business logic, well, logical and drop-dead simple. The company says RulesPower Process Logic 2.0, which is scheduled to ship in next year's first quarter, makes it even easier to build if-then scenarios than the pull-down menus and drag-and-drop features in the existing release do. The upgrade includes templates that will let users pick a specific business process, choose a rule or set of rules, click a button and — *voilà* — have the system churn out compiled J2EE code that can be applied to an application. Pricing starts at $6,000.



Service provider for software developers . . .

. . . to add online file sharing to its programming tool set. Applying the application service provider business model to a set of development tools, Elementool Inc. in New York next quarter will launch its File Sharing service for corporate coders. Programmers can use the service, which offers check-out and check-in tracking features, as a source code control repository. The ASP already offers bug tracking and time tracking services, each of which starts at just under $40 per month for an unlimited number of users working on a single project. Elementool CEO Yaron Sinai says the services are ideal for working with outsourcers or for quick-and-dirty projects that don't warrant pricey product investments. **51100**



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Microsoft



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Mr. 500 Servers in 156 Countries Managed from 1 Location

Department of Foreign Affairs, Switzerland

"We have 5,000 PCs based everywhere from Argentina to Vietnam, and now our team can update them all from headquarters."

Viktor Portmann

Make a name for yourself with Windows Server System.™ Microsoft Windows Server System makes it easier for Switzerland's Federal Department of Foreign Affairs (DFA) to manage the infrastructure serving their embassies and consulates in 156 countries. Here's how: By using Systems Management Server 2003 and Microsoft® Operations Manager 2005, DFA can automatically update its 500 remote servers from a central location, saving over $600,000 in travel expenses alone in the past year. They've also been able to reduce the time and cost of maintenance, boost user productivity, and find the time to better prepare for expansion. Software that's easier to manage is software that helps you do more with less. To get the full DFA story or to find a Microsoft Certified Partner, go to **microsoft.com/wssystem**

Microsoft® Windows Server System™

Business Must Be a CIO's No. 1 Priority

Communicating with business leaders, delivering results are key to survival

BY THOMAS HOFFMAN
NEW YORK

CIOs MUST demonstrate a strong command of business requirements and the ability to effectively communicate the business benefits of IT projects, and they must deliver projects as promised to gain the trust and respect of senior management, declared IT executives attending a CIO conference here last week.

By meeting these criteria, effective CIOs are keeping their jobs for longer periods of time at some companies. "CIOs are sustaining [their tenure] longer than in the past since they have become more business-focused," said Mark Popolano, vice president and CIO at American International Group Inc. in New York. Popolano, AIG's CIO for the past seven years, was a speaker at the Forbes CIO Forum.

"We have to be business people first, strategists second and technologists third," said Ron Ponder, executive vice president of information services and CIO at WellPoint Health Networks Inc. in Thousand Oaks, Calif.

Ponder, who reports to WellPoint President and CEO Larry C. Glasscock, said he never brings an IT spending proposal to Glasscock or WellPoint's board without first gaining support from at least one business unit leader. He also attends each of the company's monthly business unit staff meetings to work on better aligning IT with the business.

The growing dependency on technology at businesses can be a double-edged sword for a CIO, according to some officials. For instance, if one of Intel Corp.'s factories stops running because of an IT-related snafu, "you don't come into the [boardroom] to talk strategy; you come into the room to get beaten up," said Stacy Smith, vice president and CIO for the information services and technology organization at Intel.

Still, Smith noted that an upside to being a CIO at a high-tech company such as Intel is that the CEO has a strong appreciation for the value of technology. After former *Harvard Business Review* editor Nicholas G. Carr's controversial 2003 article, "IT Doesn't Matter" appeared, Intel's CEO disputed the premise in public forums. As a result, Smith was able to "leverage" the CEO's predilection for the value of IT during Intel's recent budget discussions, he said.



"You've got to be able to achieve stable operations . . . and deliver on what you promise."

PATRICIA CUSICK, vice president and CIO, Xerox Corp.

Demonstrating the value of the IT organization to the business is also a crucial element in cementing CIO-CEO relationships. At Xerox Corp., the IT department has been responsible for $600 million, or one-third, of the $1.8 billion in cost-cutting that the Stamford, Conn.-based company has achieved over the past four years, said Patricia Cusick, vice president and CIO.

"You've got to be able to achieve stable operations, communicate in business language and deliver on what you promise," said Cusick, who has been Xerox's CIO for five years.

Sometimes the CIO-CEO relationship is strengthened by the culture of a company. "I don't have to sell IT projects too often to the CEO and other members of senior management, since we're a close-knit group that does strategic decision-making together," said Bill Kwelty, CIO at Automotive Resources International, a fleet services company in Mt. Laurel, N.J. **51199**

New Tools Show How Systems Affect Business Processes

BY MATT HAMBLEN

Two software vendors today are unveiling packages designed to improve IT services management capabilities in corporations by giving officials greater insight into the relationships between parts of an IT system tied to a business process.

Relicore Inc., a relatively small vendor in Burlington, Mass., will bring out Relicore Clarity Version 4.0. Separately, BMC Software Inc. in Houston will unveil Topology Discovery. Last week, FrontRange Solutions Inc. in Pleasanton, Calif., released IT Service Management, a product built on the Microsoft .Net platform and primarily intended for midsize companies.

All three products aim to meet the needs of companies that have a strong desire to improve oversight of internal processes by following guidelines from the Information Technology Infrastructure Library, said Mark Ehr, an analyst at Enterprise Management Associates Inc. in Boulder, Colo. The ITIL philosophy calls, in part, for companies to use a centralized configuration management database to store a huge assortment of information about settings on network elements, servers and applications. Such a database would let IT managers see the effect on the system if part of it fails, gains traffic or is reconfigured.

Similar Offerings

Ehr said Relicore, a 4-year-old company with 12 large customers, "is one of the best secrets around." He predicted that its software will be imitated by large management vendors — if the company isn't bought out. He noted that BMC's new Topology Discovery is "very similar" to Relicore's Clarity, but BMC built its application using technology gained by acquiring Marimba Inc. and Remedy Corp.

Kurt Hansel, senior technical officer at J.P. Morgan Chase & Co. in New York, said the bank will move to Relicore Clarity 4.0 at the beginning of 2005. J.P. Morgan has used Version 3.6 for more than a year on 50 servers that run an application called Cash on Line. More than 3,000 financial traders and cash managers use the application.

Clarity 4.0 will work with IBM Tivoli software at J.P. Morgan to give greater insight into system updates, such as a change to a configuration file, Hansel said.

Cheri Tipton, computer systems technician for the city government in Olympia, Wash., said the municipality purchased IT Service Management from FrontRange and will take it live in January. The new software will help the city be more proactive in handling system problems, she said.

With the old system, Tipton said, "we'd have a problem or incident and nobody knew what to do with it, since the root problem was hard to find." FrontRange will help manage systems used by 650 government employees in 24 buildings, she added.

Steve Balentine, a BMC product marketing manager, said Topology Discovery is the third piece of the Change and Configuration Management product group. The software builds and maintains a network map with application infrastructure information to provide modeling for IT services.

"Understanding the relationships between parts of the infrastructure is the wave of the future," explained Jasmine Noel, analyst at Ptak, Noel & Associates in New York. "It's more than just a map of a business, but a picture of how a business service is using the infrastructure at this minute." **51216**

NEW PRODUCTS

Service Management Tools

Relicore Clarity 4.0, shipping now, starts at $200,000. Supports IBM AIX and SUSE Linux. Offers global mapping of thousands of servers and applications, and integrates with third-party management systems.

BMC Software Topology Discovery is available now; pricing not disclosed. Builds and maintains network maps and application infrastructure dependency maps used by BMC's Service Impact Manager to allow faster responses to problems and improved service levels.

FrontRange Solutions IT Service Management is available now; pricing not disclosed. Includes seven modules for incident management, problem management, change management, release management, availability management, configuration management and service-level management.



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SOFTWARE, INC.

BRIEFS

Cingular Set to Deploy 3G Network

Cingular Wireless LLC last week outlined plans to begin deploying a third-generation network with average data speeds of 400K to 700Kbit/sec. and bursts to several megabits per second on capable devices. Cingular said the recent acquisition of AT&T Wireless Services Inc. provided the company with the spectrum necessary to start building the 3G networks over the next year.

Apache Group May Hire Full-Time Staff

The Apache Software Foundation may soon need to hire full-time, paid staffers to keep up with an increasing load of legal work and fundraising tasks, said Brian Behlendorf, a co-founder and director of the Forest Hill, Md.-based group. A board of nine volunteer members currently runs the not-for-profit foundation, which was set up in 1999. Roughly 1,200 developers are working on about 20 Apache projects.

AOL Adds More IE Support to Browser

America Online Inc. has brought out a preview version of a Netscape Firefox-based Web browser that includes support for Microsoft Corp.'s ubiquitous Internet Explorer browser engine. The new browser lets users easily switch to IE to show sites that don't display well in Netscape's standard Firefox-based configuration.

IBM Signs Pacts, Buys Danish Firms

IBM reached agreements with two Danish companies on outsourcing deals that together are worth more than $1 billion. IBM signed a five-year agreement with shipping container giant AP Moller-Maersk AS and a 10-year pact with Danske Bank AS. IBM also said it acquired two IT services firms related to the Danish companies, Maersk Data AS and DMData AS.

HP Revives Plan for Tool to Slow Viruses

'Throttler' meets a need, say analysts, but client tool may be more effective

BY JAIKUMAR VIJAYAN

HEWLETT-PACKARD Co.'s planned launch of so-called virus-throttler software early next year addresses a growing need for tools that can help slow the spread of viruses on corporate networks, IT security analysts said last week. But the effectiveness of HP's approach remains unproven in real-world installations, they cautioned.

HP, which has been testing the virus-throttler software internally since October, said it will make the technology available to users in the form of network drivers for its ProLiant servers and ProCurve switches. The company hasn't named the technology yet, although Virus Throttler is a possibility.

The software looks for variations in server and network behavior that might signal the presence of a virus or other malicious code. Once suspicious activity is detected, the virus throttler automatically slows it down by limiting the number of outbound connections that an infected system can make, HP said. It claimed that the technology can help limit the network congestion that typically results when infected machines try to propagate viruses to other systems.

"This is not about killing viruses. It's about caging and suppressing them," said Tony Redmond, vice president and chief technology officer at the vendor's HP Services business unit and IT security program office.

"What it does is allow administrators to get a handle on fast-moving threats," said Scott Crawford, an analyst at Enterprise Management Associates Inc. in Boulder, Colo. "Being able to slow down a virus increases the ability to get an effective response and patch-deployment process in place."

The tool doesn't replace existing antivirus technologies, Redmond said. "What we're doing is catching anything that gets past a firewall or antivirus software," he explained.

To be truly effective, the technology needs to become available at the client level, said John Pescatore, an analyst at Gartner Inc. The volume of traffic on a corporate e-mail server or a network switch, especially in big companies, makes it harder to identify malicious activity than it is when monitoring individual PCs, Pescatore said.

HP first announced plans for the virus throttler last February. But in August, the company said it was indefinitely shelving the software because of compatibility problems with Windows. Since then, the drivers have undergone thorough Windows certification testing and are now in the process of being qualified for commercial release by HP, according to Redmond.

The virus throttler was one of several IT security products and services that HP announced last week. Another new offering is the Security Incident Management Program, under which HP will offer consulting on security issues and provide a vulnerability assessment service called Active Countermeasures to help users identity and fix weak spots in their networks. **51222**

Other HP Security Additions

- New and upgraded products and online security tools, including vulnerability and patch management software for small-business models of ProLiant servers
- OpenView Select Federation identity management software

Cisco, Others Expand 10 Gigabit Ethernet Switches

BY MATT HAMBLEN

Cisco Systems Inc. last week added two supervisor engines with 10 Gigabit Ethernet ports to its midrange and high-end switch lines, and Alcatel and Hewlett-Packard Co. both plan to announce new switches that support the technology today.

The rollouts by the three vendors are further evidence that 10 Gigabit Ethernet core switching is poised to move beyond its existing uses in research centers and universities and expand into mainstream corporate applications, said Zeus Kerravala, an analyst at The Yankee Group in Boston.

"Customers want Gigabit Ethernet to the desktop, which means you need 10 Gig at the core for uplinks and server connectivity," he said.

Clarian Health Partners Inc., a group of three hospitals in Indianapolis, has already installed about 15 of Cisco's Catalyst 6500 core switches with 10 Gigabit Ethernet capability. Now Clarian plans to order more than 200 Catalyst 4500 midrange switches for use in wiring closets on every floor in its 17 buildings, which are being connected by a new OC-192 network, said Tom Jones, a technology architect at the health care provider.

Jones said some of the switches will be used to support high-bandwidth imaging applications in Clarian's cardiology and radiology departments and will include the new Catalyst 4500 Supervisor Engine V-10GE, which supports 10 Gigabit Ethernet transmission rates.

Necessary Investment

The Cisco products will cost Clarian "many millions" of dollars, Jones said. But the network and a new patient-care system are "the heart of the business," he added. "We had to make this network investment as well as [investments in] servers and applications to be successful."

The new supervisor engine for the Catalyst 4500 is available now and supports two 10 Gigabit Ethernet ports at a cost of $19,995, Cisco said. The Catalyst 6500 line is also being expanded with an engine that has the same number of ports and sells for $20,000. It's scheduled to ship in February.

All together, Cisco announced more than 20 higher-capacity switching products for the Catalyst family, as well as Power Over Ethernet capabilities for several existing switches. In addition, the company introduced its first Gigabit Ethernet-capable IP phone, priced at $845.

HP said it plans to announce the ProCurve Switch 6400cl, a series of six-port stackable switches that support 10 Gigabit Ethernet and are scheduled to ship in the spring at a starting price of $5,429.

Alcatel will introduce the OmniSwitch 6800 family of Gigabit Ethernet switches with 10 Gigabit Ethernet uplinks. Pricing starts at $4,495 for the switches, which are available now. A two-port 10 Gigabit Ethernet module is due in February, starting at $4,995. **51215**

BRIEFS

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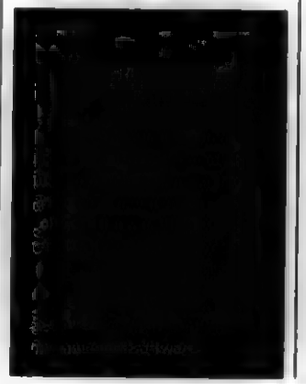
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Clarian Health Partners Inc., a group of three hospitals in Indianapolis, has already installed about 15 of Cisco's Catalyst 6500 core switches with 10 Gigabit Ethernet capability. Now Clarian plans to order more than 200 Catalyst 4500 midrange switches for use in wiring closets on every floor in its 17 buildings, which are being connected by a new OC-192 network, said Tom Jones, a technology architect at the health care provider.

Jones said some of the switches will be used to support high-bandwidth imaging applications in Clarian's cardiology and radiology departments and will include the new Catalyst 4500 Supervisor Engine V-10GE, which supports 10 Gigabit Ethernet transmission rates.

Necessary Investment

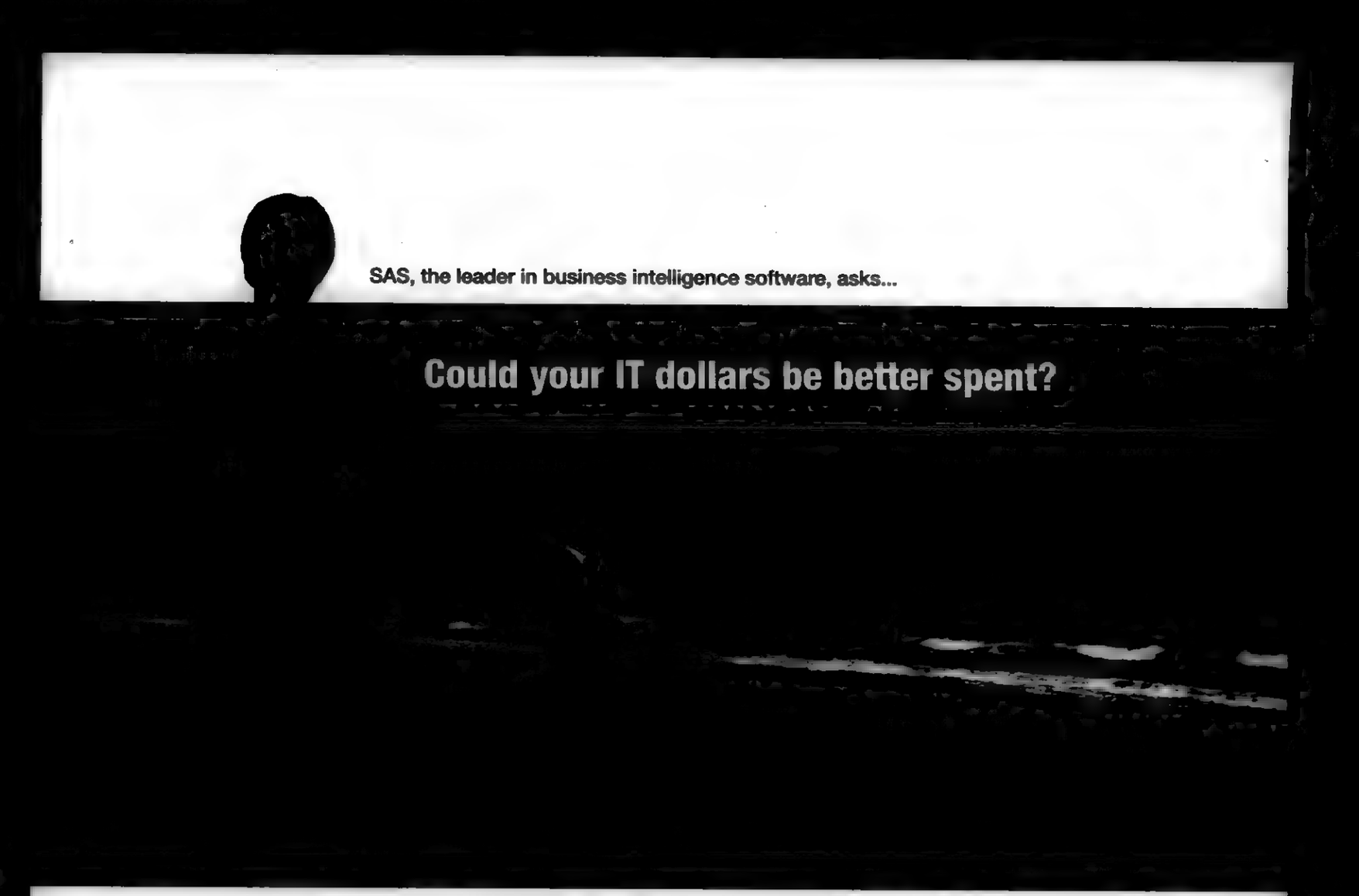
The Cisco products will cost Clarian "many millions" of dollars, Jones said. But the network and a new patient-care system are "the heart of the business," he added. "We had to make this network investment as well as [investments in] servers and applications to be successful."

The new supervisor engine for the Catalyst 4500 is available now and supports two 10 Gigabit Ethernet ports at a cost of $19,995, Cisco said. The Catalyst 6500 line is also being expanded with an engine that has the same number of ports and sells for $20,000. It's scheduled to ship in February.

All together, Cisco announced more than 20 higher-capacity switching products for the Catalyst family, as well as Power Over Ethernet capabilities for several existing switches. In addition, the company introduced its first Gigabit Ethernet-capable IP phone, priced at $845.

HP said it plans to announce the ProCurve Switch 6400cl, a series of six-port stackable switches that support 10 Gigabit Ethernet and are scheduled to ship in the spring at a starting price of $5,429.

Alcatel will introduce the OmniSwitch 6800 family of Gigabit Ethernet switches with 10 Gigabit Ethernet uplinks. Pricing starts at $4,495 for the switches, which are available now. A two-port 10 Gigabit Ethernet module is due in February, starting at $4,995. 51215



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GLOBAL DISPATCHES

An International IT News Digest

Blair Urges Jail Time For ID Card Abuses

LONDON

U.K. PRIME MINISTER Tony Blair last week tried to quell growing concern over the security of the country's forthcoming national identity card program by threatening jail time for anyone caught tampering with the project's massive database.

The penalty for database tampering would be up to 10 years in prison, and unauthorized disclosures would carry a penalty of two years in prison, Blair said at a news conference here.

The Identity Cards Bill seeks to create by 2010 a system that supports the use of ID cards with embedded chips for storing biometric identifiers as well as personal information about U.K. residents. The data on the chips will include residents' names, addresses, fingerprints, facial scans and iris scans, all of which will also be stored in the government's central database.

Blair said the ID cards would be a powerful weapon in the U.K. government's fight against terrorism, identity fraud, illegal workers, illegal immigration and illegal use of government entitlement programs such as the National Health Service.

■ LAURA ROHDE, IDG NEWS SERVICE



Aussie 'Green Machine' Recycles Printer Waste

SYDNEY

AUSTRALIANS use 18 million printer consumables per year, and most of the ink-jet and toner cartridges end up as hazardous landfill. But an Australian company has developed a recycling plant that transforms the waste into commercial products.

Close the Loop Ltd.'s (CTL) program, started as an environmental initiative in 1998, is becoming a serious, global business. Its Green Machine facility turns the plastic printer cartridges into "e-wood," a timber replacement product that can be used for fencing, garden materials, playground equipment and office furniture.

Melbourne-based CTL works with more than 3,000 end users, suppliers, government agencies and businesses, and it has set up more than 2,000 collection points for printer cartridges. Even with 38 full-time staffers, the company is working overtime, collecting 300 bags of waste per day, said Melinda Lizza, CTL's business development manager.

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Philippine Group Seeks U.S. Outsourcing Deals

MANILA

A GROUP OF BUSINESSMEN in the Philippines is creating a holding company that will give financial incentives to U.S.-based Filipinos who market the country as a destination for outsourced business and IT services. The group would pay a fee — for example, 2% of the resulting contract — to Filipino-Americans who successfully refer U.S. companies to service providers in the Philippines.

The marketing and referral initiative is supported by the nonprofit Philippine Small and Medium Enterprises Development Foundation Inc. in Pasay City. Initially, the group will hire a marketing company in the U.S. and hold business networking sessions in at least eight states. **51165**

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Compiled by Mitch Betts.

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Plugfest Signals Serial Devices Ready to Go

BY LUCAS MEARIAN

More than 100 engineers from storage vendors gathered in New Hampshire last month for a final round of interoperability testing between Serial Attached SCSI (SAS) and Serial ATA disk drives, organizers plan to announce today.

Vendors said the plugfest was the last hurdle before the shipping of bundled SAS and Serial ATA products begins in next year's first quarter.

The tests, which took place at the University of New Hampshire's InterOperability Laboratory in Durham, culminated three years of development of the SAS protocol and products that support it, according to Harry Mason, president of the SCSI Trade Association in San Francisco.

Mason said the tests found that SAS storage devices are fully compatible with Serial ATA drives and thus allow for the creation of dual-purpose disk arrays that support both ATA and SCSI technologies in the same enclosure.

Among the companies that tested products at the plugfest were Hewlett-Packard Co., Hitachi Ltd., Intel Corp., Seagate Technology LLC, Adaptec Inc., Dell Inc., EqualLogic Inc., LSI Logic Corp., Maxtor Corp. and NEC Corp.

For decades, disk drives used parallel bus interfaces in storage systems that weren't based on Fibre Channel technology. But increasing bandwidth and reliability issues put the two main parallel interface technologies — SCSI and ATA — at a performance disadvantage compared with Fibre Channel. And the lack of compatibility between the parallel bus technologies kept vendors from offering arrays that could share the higher performance characteristics of SCSI and the lower cost but higher capacity features of ATA.

"SCSI technology was certainly feeling the pinch prior to this, and I think SAS brings new life to SCSI," said Arun Taneja, an analyst at Taneja Group in Hopkinton, Mass.

Technology Drivers

The use of tiered storage systems that offer different performance and capacity levels is being driven by new regulations, such as the Sarbanes-Oxley Act and the Health Insurance Portability and Accountability Act, that require companies to store and be able to quickly access financial and customer data.

Such requirements weren't enough to convince Laurence Whittaker, supervisor of enterprise storage management at Toronto-based retailer Hudson's Bay Co., that combining two disk types in the same chassis is a good idea. "I can see [small and medium-size businesses] having some interest in it," Whittaker said. "But I just think if you have a large business, you're going to have so many cabinets on the floor anyway, there's not a lot to be gained by having multiple disk technologies within the same frame."

Serial Technology Offers:

- Dual ports for failover
- A 7-pin connector cable vs. a 40-pin ribbon cable
- The bility to work at lower voltages
- Support for up to 128 devices per channel vs. two for ATA and 16 for SCSI

David Woolf, senior R&D engineer at the UNH InterOperability Lab, said Serial ATA can nonetheless offer significant cost savings to users.

"Fibre Channel is quite expensive, and parallel SCSI is difficult to scale for speed [throughput]," Woolf said. "SAS is significantly less expensive and has a road map that shows it can be scaled speed-wise far past what parallel technology offers."

Serial ATA disk arrays, at 1 to 2 cents per megabyte, are about half as expensive as SAS devices, at 3 to 5 cents per megabyte, according to analysts. "While end users might not be interested in the nuts and bolts of it, certainly there are advantages for them," Woolf said. **51219**

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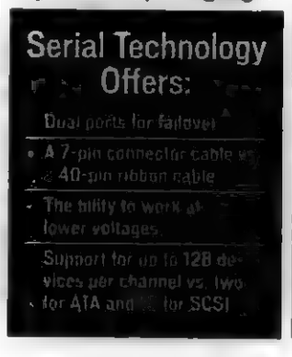
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AMD

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Continued from page 1

Data Center

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However, several IT managers among the 1,500 or so attendees at the conference said they don't think the situation is as dire for technology workers as Scott made it seem.

"Like most of the Gartner stuff, it's sort of a Utopian state. We're certainly not there yet," said Stevan Lewis, director of enterprise planning at BMO Financial Group, a financial services firm in Scarborough, Ontario, that comprises the Bank of Montreal and its subsidiaries.

Lewis said he thinks that some operational jobs will have to shift to other areas within IT but that it will affect about 25% of data center workers, most of whom perform low-end tasks.

Gartner's forecast prompted Ken Wagner, manager of Kawasaki Motors Corp. USA's data center in Irving, Calif., to reflect on the number of changes he has seen in IT during his 35-year career — especially those wrought by the Web. "There's been so much change in the last 10 years," he said. Gartner may turn out to be right about the future of IT operations jobs, Wagner added, "but I don't know if anyone knows the real direction."

Workforce Evolution

Laurence Whittaker, supervisor of enterprise storage management at retailer Hudson's Bay Co. in Toronto, had a more blunt response to Gartner's prediction. "By and large, I think it's hogwash," said Whittaker, who didn't attend last week's conference. "This is something Gartner has been big on for years. I think they really minimize the value of and need for well-trained technology workers to support all this stuff."

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Looking back over his 30-plus years in IT, Ed Funkhouser, director of global IT operations at Paccar Inc. in Bellevue, Wash., said the change in the workforce that Gartner forecast is part of an ongoing evolution. "It took 30 or 40 administrators to manage a mainframe, and today it takes less than a handful," he said.

But many displaced mainframe systems administrators were able to shift to Unix or Windows systems or to new jobs in areas such as IT security, Funkhouser added. "In IT, there are thousands of jobs and disciplines," he said.

Walter Wilson, deputy CIO for Ventura County in California, is training the county's IT staffers to handle more sophisticated data center jobs, particularly as they begin installing virtualization technology. "It's a training issue more than anything else, because all these people are very capable," he said.

The situation is similar at Santa Clara University, said H. Michael Bonfert, manager of computer operations at the California school. Bonfert is shifting mainframe systems administrators to Intel-based servers as the university moves off of the mainframe, and he said the job losses predicted by Gartner "didn't scare me."

But, Bonfert added, the forecast should serve as a warning to IT professionals to stay current with technology. Whether data center workers can make the transition as the demand for IT skills changes "depends on the individual," he said.

Scott said that in the future, demand will grow for employees who have skills in project management and the design of IT architectures, and for those with business knowledge and end-user liaison capabilities.

Craig Symons, an analyst at Forrester Research Inc., said Gartner typically makes bold predictions in order to get people's attention. Even so, he said that a combination of factors likely will lead to a significant number of data center jobs being eliminated over time. "In a 20-year horizon, 50% might even be conservative," Symons said.

Technology changes will eventually make many current data center jobs irrelevant, agreed Andrew Efstathiou, an analyst at The Yankee Group in Boston. But Efstathiou said he expects Linux and other emerging technologies to foster demand for new types of IT technicians. "I can easily expect that 50% of the existing jobs will be eliminated, but you can easily have as many or more jobs being created," he said. **51220**

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Continued from page 1

Testing

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"*Partner* is this great word, but how many spell it correctly?" Fernandes said. He added that he plans to give the application vendors he works with this message: "You say that I'm an important customer, so show it."

Fernandes and other users said they have two strategies for dealing with vendor resistance to testing. One approach involves training internal IT staffers to do the necessary work on virtualized servers. The other might be called the blunt-force method: threatening to take their business elsewhere. Fernandes said he thinks that in 95% of the cases at his company, he could find an alternative application vendor if necessary.

Demanding Support

Conference attendees said troubleshooting software is most likely to come from point-solution vendors that develop specialized applications, often for vertical industries.

Many of those vendors are relatively small and don't have the funding or expertise to test their software in virtualized environments, said William Miller, manager of computing services at Roche Diagnostics Corp., an Indianapolis-based maker of medical equipment.

Miller plans to conduct his own tests of third-party software on virtualized servers and then seek help from vendors if there are problems. He said he will deliver a message similar to the one that Fernandes has in mind: "Support me, or I'll go find another point solution."

Application support by third-party software vendors is "the main issue" in adopting virtualization technology, said Luis Franco, vice president of technology at Banesco Bank in Venezuela. Some vendors "don't want to assure the quality of their applications" on virtualized servers, Franco said, adding that the bank needs to increase the skills of its own personnel as a result.

In the long run, though, application vendors may have little choice other than to make the adoption of server virtualization software as easy as possible for users.

Gartner analyst Tom Bittman predicted that the average CPU utilization rate on two-way Wintel servers will increase to 40% by 2008, up from about 25% now. The rise will be partly driven by an increase in virtualization offerings, including Microsoft's Virtual Server, he said.

Some users believe that x86-based servers are so inexpensive, there's no point in buying virtualization software for them, Bittman said. But he argued that users may be spending more on x86-based servers as a whole than they do on mainframes or Unix systems.

The low-end servers also generate a lot of heat because of their increasing CPU power and density, contributing to cooling problems in many data centers, Bittman said [QuickLink 49953].

Dave Mahaffey, technical systems administrator at the Santa Clara Valley Water District in San Jose, said he was at the conference to talk to vendors and research virtualization issues. "We've got a server for every application, and it's getting out of hand," Mahaffey said. He added that he wants to consolidate servers and increase their CPU utilization rates from the current level of between 15% and 20% to as much as 50%. **51221**

Virtualization View



SOURCE: GARTNER INC., STAMFORD, CONN.

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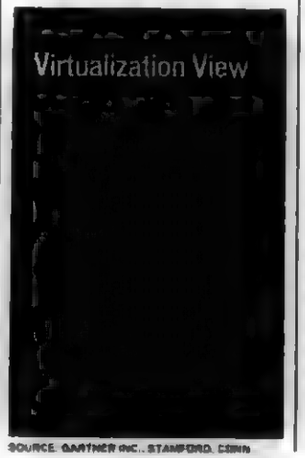
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Some users believe that x86-based servers are so inexpensive, there's no point in buying virtualization software for them, Bittman said. But he argued that users may be spending more on x86-based servers as a whole than they do on mainframes or Unix systems.



SOURCE: GARTNER INC., STAMFORD, CONN.

The low-end servers also generate a lot of heat because of their increasing CPU power and density, contributing to cooling problems in many data centers, Bittman said [QuickLink 49953].

Dave Mahaffey, technical systems administrator at the Santa Clara Valley Water District in San Jose, said he was at the conference to talk to vendors and research virtualization issues. "We've got a server for every application, and it's getting out of hand," Mahaffey said. He added that he wants to consolidate servers and increase their CPU utilization rates from the current level of between 15% and 20% to as much as 50%. **51221**

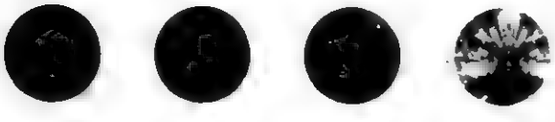


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Oracle Updates BI Tools, Content Manager

BY MARC L. SONGINI

Amid continued uncertainty surrounding the fate of its multibillion-dollar hostile bid for rival PeopleSoft Inc., Oracle Corp. this week intends to unveil updates to its content management and business intelligence tools, as well as other software at its annual user conference.

Oracle executives will also show the next generation of its business applications to a new audience, analysts said. Oracle OpenWorld began yesterday in San Francisco.

Company officials said the new content management capabilities are aimed at helping Oracle database users deal with large amounts of unstructured data, such as e-mails, that are becoming increasingly important as businesses work to comply with growing regulatory requirements.

Without offering details, Rich Buchheim, senior director of Oracle content management, said the company will show improvements to the scalability, security and usability of its content management software. "To deal with the deluge of information, information has to be handled in a more intelligent way," he said.

The company is also expected to unveil stand-alone business intelligence tools and improvements to Daily Business Intelligence, the operational reporting tool in its E-Business Suite 11i [QuickLink 51061], as well as grid computing capabilities for managing technology in the data center.

Evaluating Technologies

Several users said they're interested in assessing Oracle's new technologies at the show. David Rudzinsky, CIO at medical instruments maker Hologic Inc. in Bedford, Mass., said he's focused on evaluating Oracle's new business intelligence capabilities. Hologic runs Oracle CRM and ERP software. Rudzinsky said he likes the Daily Business Intelligence tool set, though it's currently too rigid to allow anything but the views and reports that Oracle has predesigned.

Arthur Meacham, computer-assisted dispatch systems administrator for the Caddo Parish 911 Communications District in Shreveport, La., said he's looking for advice on upgrading from Oracle's Portal 9i to the 10g release.

Oracle's main goal this week will be to preview its 11i.10 business applications to potential users, said John Moore, an analyst at ARC Advisory Group Inc. in Dedham, Mass. Moore said he expects executives to discuss Oracle's PeopleSoft plans in private sessions with users. **51166**

Is your IT department a to work?

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For more information, go to www.computerworld.com/services/research/bestplaces or send e-mail to bestplaces@computerworld.com

New CEO Lays Out His Priorities for CA

BY MATT HAMBLEN

Beleaguered Computer Associates International Inc. brought in veteran IBM executive **John Swainson** *as president and CEO-elect to stabilize the company after the forced departure of predecessors amid state and federal investigations of financial irregularities. Swainson spoke with* Computerworld *recently about his challenges and early plans for CA.*

What's it feel like to leave IBM after 26 years and suddenly be CEO-elect of a major company? It's a little daunting. You come in and know nothing and nobody, having arrived from an environment where you know everybody and everything. You are allowed to have that ignorance for 24 hours. It's a little intimidating, to say the least. [The CA team] has maintained a strong sense of morale and responsiveness to customers. My job is to shape an evolutionary path of growth after several years of arrested development.



Are customers concerned about the legal problems that CA mostly settled in late summer? I am not yet in the position to assess customer relationships. I'm not so naive that we don't have to deal with how customers see us. A lot of the legal and self-inflicted wounds are in fact behind us. A lot, but not all.

I'm sure you heard customer attitudes about CA while you were at IBM. What are their feelings about CA now? CA customers are relieved the issues are behind us. I'm not going to pretend I know how all of them feel yet. The fact that they have hung with us and are anxious for us to succeed says something. I want to give them a continued reason to justify that optimism. Our customers right now are watching and waiting to see what we do next. We have to still prove to them we are a relevant vendor to them. It's not a slam-dunk.

How will you be dealing with the customers? I plan to talk to or meet with one customer every day, something that I did at my old job. Sometimes it is a phone call or often in person. I don't feel good if I don't talk to a customer every day. I am a very customer-focused guy.

Where do you rank customers compared to, say, investors or employees? Customers pay the bills, so customers always come first. They even come ahead of investors. You cannot build a durable business if you do not have satisfied customers.

CA World was postponed just before you arrived and then reinstated in your first days on the job. How were you involved in those decisions? The decision to postpone was made pending my arrival. When I came aboard, I supported that [decision]. We are looking now for dates in the fall [of 2005]. I am anxious to do it. I like these things.

You have talked about re-examining the status of the 500 or so products in the CA portfolio. What might stay or go? I have no idea. That's the honest answer. But I'll tell you how I am approaching this problem philosophically. I'm not looking to dump products, and [I] have a commitment to support customers on a going-forward basis. It's logical that of 500 products, not every one represents the strategic future of how customers want to build or run or manage their enterprise. Life-cycle and systems management and security are very highly valued under the banner of enterprise infrastructure management. We're looking for ways to integrate those [priorities] and augment them through acquisition or development and to really concentrate on the things we're particularly good at.

Will you continue to place a reliance on mainframe products, even though some financial analysts see that market slipping? Mainframe products account for 50% of CA revenue. Quite obviously, we'll continue to focus on [the] mainframe, and we believe it's a very durable long-term platform for a lot of things. Mainframes are not going away. IBM is selling more than at any time in history. We'd be crazy not to focus on [the] mainframe. But you die if you don't continue to innovate and go forward. We want to be the systems and security management leader around [the] mainframe, and we'll continue to invest in it. We also have to focus where growth is — Windows, Linux and distributed systems. We have solutions for those. Our play is integrated solutions around the enterprise.

As for the effort to resolve CA's legal issues, the U.S. attorney in New York has ordered that you hire a compliance officer. What is the status of that effort? As part of the deferred prosecutorial agreement, we will add a chief compliance officer. We are in the process of finding someone that has the right profile and gravitas to be able to do this job. I do not have any idea when we will have the compliance officer. I learned a long time ago that it is impossible to predict when these things will close. **51145**



DON TENNANT

CA: Confusion Already

WELL, GOOD GRIEF. Talk about a missed opportunity to send out a message of control and stability. When Computer Associates announced on Nov. 23 that it had found a CEO after seven months of acting-CEO limbo, CA's users had reason to breathe a sigh of relief. Finally, they could look ahead with the conviction (oops — poor choice of words) that the era of senior management incompetence had ended. Then the next day, John Swainson, the 26-year IBM veteran who got the nod, opened his mouth, and a new round of confusion began.



DON TENNANT is editor in chief of *Computerworld*. You can contact him at don_tennant@computerworld.com.

To explain, we need to back up. On Nov. 22, CA posted a letter to users on its Web site stating that the next CA World user and partner conference, originally scheduled for April 2005, would be postponed to the spring of 2006. The reason, the letter stated, was to enable the company "to transform CA World into a true industry thought leader event that will focus on the key business issues and technology industry trends that are most important to our customers."

Then, on Nov. 24, Swainson told *Computerworld* and other media outlets that CA World would be held in 2005 after all, sometime in the fall. Well, thank you, John. But as of Dec. 1, would we have been better advised to believe you or CA's Web site, which was still proclaiming that the event would be postponed to the spring of 2006? (See interview, page 19.)

Ordinarily, we could probably presume that Swainson knew what he was talking about and that CA was just lax about updating its Web site to reflect the change of heart. But there's another nagging element to all this: It's difficult to know the extent to which Swainson is in a position to make those sorts of decisions, because the board opted to withhold the keys to the kingdom for a period of four to six months. Swainson will be "CEO-elect" during that time, and CA's acting-CEO limbo will persist. The company could have conveyed the message that Swainson is unquestionably qualified to lead CA into the future by simply handing over the keys on Day 1. Instead, the message is, "We're not really sure about this guy, and we're going to need four to six months to get him up to speed."

It's difficult to imagine that if CA had managed to lure somebody like Steve Mills, the guy in charge of IBM's software business, that this transition period would have been necessary — or that someone like Mills would have agreed to it.

And speaking of Mills, there's another red flag that users might need to be concerned about: Given Swainson's tight association with Mills, the relationship between Swainson and Mark Barrenechea must be awfully awkward. Barrenechea, CA's executive vice president of product development, has been outspoken in denigrating IBM's software business in general and Mills in particular. After Mills said some unflattering things about CA last April, Barrenechea told me that "IBM has a long history of failed attempts" with software, that "software is an afterthought at IBM," and that Mills is the "VP of afterthought" [QuickLink 46420]. That probably didn't endear him to Swainson, who most recently was vice president of IBM's worldwide software sales force.

The bottom line is that CA needs to make up for the lost opportunity, and fast. A good first step would be to ax this CEO-elect nonsense and give Swainson the vote of confidence users need to see. As it is, it's a recipe for confusion. And CA's users have been force-fed that dish long enough. ● 51111

Don Tennant



THORNTON A. MAY

Using PR To Win the Info War

AS COMMANDER in chief of the Continental Army, George Washington learned a lesson that many IT leaders lamentably come to appreciate too late in their careers: True victory is accomplished not on the battlefield, but in the hearts and minds of those engaged. In other words, public relations matters.

Washington lost more battles than he won. Despite this, he was eulogized by Revolutionary War hero Light-Horse Harry Lee as being "first in war, first in peace, first in the hearts of his countrymen." When you are gone, will IT be first in the hearts and minds of your CEO and board of directors?

IT leaders find themselves waging a high-stakes info war. True victory for IT leaders lies not in getting enterprise systems deployed or annual budgets approved. It lies in capturing the imaginations, respect and energies of a broad and diverse set of stakeholders, including suppliers, customers and line-of-business executives.



THORNTON A. MAY is a longtime industry observer, management consultant and commentator. Contact him at thornton.may@cox.net.

Soldiers fighting battles with projectile weapons speak of the "fog of war" — confusion about what is going on. Info warriors speak of the "fog of facts" — confusion about which information is to be believed, which sources are credible and which version of reality is to be acted upon. In a world of multiple sources of information and 24-hour decision-making, the very character of information is changing. A "fact" is no longer a fact.

Today, anyone — vendors, consultants, reporters, disgruntled former employees — can report on and distort what is going on in your IT shop. Not a week goes by in which a mind important to you — that is, an info target — isn't presented with a version of the facts that isn't consistent with or sympathetic to where you are going

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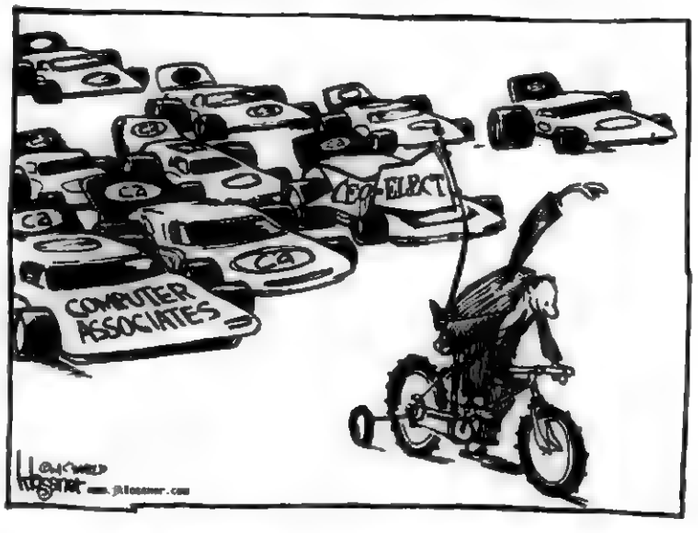
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Dawning of the Converged IP Network

INTELLIGENT "SYSTEMS-ON-A-CHIP" EARNING IT ACCOLADES

BY ELISABETH HORWITT

Broadband IP network convergence has been redefining itself of late, both as a market and as a corporate strategy. As a result, "We've emerged from the 'kick-the-tires' phase," says John Roese, CTO of Enterasys Networks. "CIOs are seeing something meaningful at the end of the tunnel that will make workers more efficient and effective," and their companies more competitive.

As the technology has matured, and products have become more standards-based, corporate technical decision makers have gained confidence that a converged IP network infrastructure will provide a firm, forward-migratable foundation for the next wave of strategic business applications. "Our customers told us they wouldn't go with IP telephony if they're just getting an IP phone that acts like their former telephone, or if they're just moving from one proprietary architecture to another," Roese notes.

A lot of big corporations have spent the last few years consolidating data streams from multiple applications and access points onto a single backbone based on TCP/IP and high-speed Ethernet. Recent statistics tell the story: Dell'Oro Group expects Gigabit Ethernet port shipments to at least double, from 13 million units in 2003 to more than 27 million in 2004, according to Seamus Crehan, a director at the networking and telecommunications research firm.

More recently, companies have begun moving beyond broadband converged data networking toward a fully integrated, enterprise network infrastructure that can handle the full range of services: from teleconferencing to storage networking to server clustering. Helping them to reach their goal with a minimum of pain is an emerging breed of intelligent network hardware based on highly integrated semiconductors known as "systems-on-a-chip."

"Whether you're talking about VoIP [voice over IP] or iSCSI storage, it's not just about high-speed connectivity anymore; you have to move bits around the network intelligently, in order to ensure security, reliability, and quality of service," says Roese.

Increasingly intelligent and versatile IP network infrastructures are forming the basis for a wave of new applications that are providing businesses with strategic advantages as well as significant cost savings.

Moving Beyond VoIP

Consider, for example, the veritable explosion in American companies' use of VoIP technology that merges voice and data onto a single IP/Ethernet infrastructure. A 2003 IDC report predicted that U.S. spending on hosted VoIP will reach approximately $281 million this year, growing to $1 billion next year (2005). By 2007, revenue is expected to reach $6.7 billion.

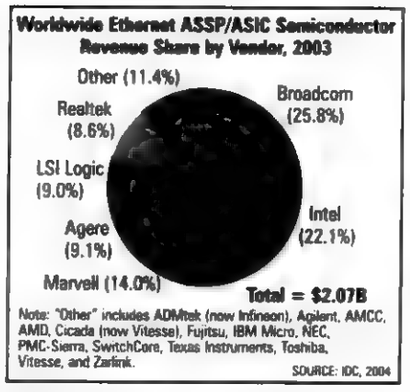
In a 2003 Nemertes Research survey of 42 large corporations, 62% of respondents said they were currently using IP telephony; 19% were running a trial; and the rest planned to implement it within the next year or two.

The reported return on investment (ROI) and measurable benefits the VoIP pioneers cite are impressive, and include lower maintenance and management costs, the result of dealing with one set of network boxes, interfaces, and cables instead of two or more. Companies report saving thousands of dollars per month by using IP telephony to bypass long-distance toll calls; global firms have saved much more on international calls.

And cost savings are just the beginning. Converged IP networking has paved the way for a new generation of applications and software tools that are boosting end-user productivity and helping companies gain a competitive advantage. >>>>

Instant voice messaging is a perfect example, says Jeff Snyder, a research vice president at Gartner. "You click on my name, and my phone rings, no matter where I am; as long as I'm logged onto the network, it knows how to reach me. Drag in a colleague's name and you have an ad hoc conference call."

Another promising development is convergence on end-user devices across a unified end-to-end infrastructure. Broadcom has introduced switch and VoIP chipsets, for example, that will enable OEMs to build Wi-Fi®-enabled cell phones, "so you can roam between the cellular and Wi-Fi IP telephony worlds with one device," says Roese.



User Demand Driving IP Convergence

Indeed, user demand is one of the biggest drivers behind converged IP networking strategies. "Users want voice, data, and video services delivered in an integrated fashion," to support the growing body of multimedia productivity tools and applications being offered on desktops, laptops, and the latest mobile computing devices, says Charles Salameh, vice president of emerging solutions at Bell Canada, a telecom service provider and systems integrator.

IT decision makers see converged IP networking as their best shot at meeting users' multimedia needs over the long haul. And they're counting on intelligent Gigabit Ethernet hardware to help them with quality of service (QoS) and security management, across an increasingly diverse set of network services and media traffic.

To address this demand, networking vendors are providing their latest Gigabit Ethernet products with the intelligence to handle these tasks and a great deal more. And much of this high-level intelligence resides in silicon solutions that have traditionally been the "nuts and bolts" of networking equipment, says Kevin Tolly, president of The Tolly Group research firm. In the last year or two, chipmakers like Broadcom "have gone up the stack tremendously, and have preintegrated a lot of the functionality and capabilities," he adds.

"The trend is toward supporting a higher capacity of networking interfaces and a broader range of services on the same piece of equipment, and using silicon intelligence to handle sophisticated management of converged applications running across a single Ethernet network," says Ford G. Tamer, group vice president of Broadcom's Network Infrastructure Business Group. "Such migration to converged IP networks can mean huge savings in maintenance costs," he adds. "You're managing your desktops, laptops, VoIP phones, wireless access points, security, and storage needs within the same equipment, instead of across two or more boxes."

Broadcom in Step with Key Trends

Broadcom® silicon solutions are at the forefront of these trends. For example, systems using Broadcom's StrataXGS® family of enterprise switch products offer enhanced scalability and multilayer intelligence to address the different service-level needs of voice, video, and data traffic within business environments, Tamer says. This enables IT managers to maximize network uptime and ensure security while promoting ease of management.

Furthermore, Broadcom's NetXtreme™ II C-NIC (Converged NIC) is the first Gigabit Ethernet NIC that can simultaneously perform storage networking, high-performance clustering, accelerated data networking, and remote system management on a standard Ethernet network, according to Allen Light, Broadcom's server controller product line manager.

One of the big advantages of the C-NIC is its ability to offload a variety of functions from the host CPU, "freeing up processing cycles and enabling the server to handle other functions," says Sean Lavey, a program manager at IDC. For example, Broadcom's C-NIC has a TCP/IP Offload Engine (TOE) that takes over the processing of TCP/IP stacks.

During a Microsoft® benchmark test, Broadcom's BCM5706 C-NIC, equipped with a TOE, had a throughput of 1.8 Gbit/sec at 20% CPU utilization, and used only 3 watts per Gigabit. In comparison, the same Windows® server equipped with an Intel® non-TOE Gigabit Ethernet NIC had about 1.5 Gbit/sec at 95% CPU utilization, and used 90 watts per Gigabit.

Other key C-NIC offloading capabilities include:

- Remote Direct Memory Access (RDMA) that enables servers in high-speed clusters to write directly to each other's memory, bypassing the bus. This eliminates potential bus bottlenecks and boosts performance, enabling clustered X-86-based servers to handle applications that ordinarily require high-end, and much more expensive, Unix machines.
- Support of the iSCSI protocol that allows IT professionals to move block-level storage from a dedicated Fibre Channel SAN onto a shared converged IP network.

C-NICs, and other recent Broadcom offerings, also represent the leading edge of an important industry trend, in which network equipment manufacturers build their products with more "systems-on-a-chip" and fewer custom ASICs. In this way, they can bring new products to market faster and more cheaply, which translates into more choices and lower costs for customers, says IDC's Lavey.

Enterasys used Broadcom's StrataXGS silicon as a critical component for its Matrix C2 line of layer 3 stackable IP switches, announced in September 2004. "The intelligence of Broadcom's componentry provides the foundation for many security functions, enabling support for multimodal systems, predictability, and integration," says Roese. By using Broadcom silicon, with built-in capabilities like classification and policing, Enterasys was able to deliver the new switches in about eight months, "more cheaply, and compromise-free," he adds. In contrast, building the product from scratch internally, using custom ASICs, would have taken about 18 months. The benefit for Enterasys' customers: "They get state-of-the art equipment, while still keeping up with the market's progression toward faster, cheaper equipment."

Delivering End-to-End Manageability

As companies get serious about converged IP networking, network managers' jobs are getting both more complex—and a whole lot easier.

Certainly, it can be tricky maintaining a seamless traffic flow when many different types of media and applications are sharing the same IP fabric. On the other hand, "every network administrator understands the Internet Protocol," says Allen Light, Broadcom's server controller product line manager. Network staffers are saving time and trouble by making use of familiar, SNMP-based tools to manage voice, data, video, even storage on a single, integrated infrastructure.

Furthermore, converged networking "allows our customers to move from what I call a manufacturing-line mentality, where storage, networking, and clustering are each administered separately and on separate fabrics, to a single, lower-cost IP-based infrastructure," says Paul Perez, vice president of storage, networks, and infrastructure at Hewlett-Packard's Industry Standard Server business. With fewer proprietary protocols and fewer boxes, network and element management becomes much simpler.

Beyond that, IP networking equipment keeps getting smarter, increasingly able to take over complex and time-consuming management tasks from human administrators.

Intelligent "Systems-on-a-Chip"

"We're moving toward automated network management," Perez notes. Switches, edge routers, and NICs equipped with intelligent "systems-on-a-chip" are taking more and more responsibility for end-to-end security, quality of service (QoS), and bandwidth allocation.

For example, Broadcom and its OEM partners are coming out with switches that can automatically prioritize and load balance different types of network traffic across different ports. As a result, human technicians spend less time tweaking and fine-tuning network equipment in order to ensure QoS on multimedia networks.

Intelligent, silicon-based hardware is also taking over demanding network tasks like processing TCP/IP stacks and encryption. C-NICs (Converged NICs) can offload chores from host CPUs; subsidiary processors can take over jobs from central processors on network switches. The result: better performance and longer intervals between upgrades.

In addition to improving server and network performance, C-NICs simplify the interfaces to each server and rack. They require fewer connection points, cables, and adapter cards. Upgrades and the addition of new features become simpler as well, says Broadcom's Light. Because all changes are localized on the network card, they are transparent to the host operating system and applications.

Easing the Administrator's Pain

What this boils down to is a lighter burden on human technicians. Indeed, if network hardware continues to get smarter, Gigabit Ethernet TCP/IP networks will soon be able to manage themselves. The underlying hardware will respond quickly and automatically to unexpected events and problems, and IT and network managers will be free to focus on more proactive and business-specific tasks.

Not All Silicon Is Created Equal

All this is good news for corporate decision makers. But Tolly adds a caveat: It's becoming crucial that IT executives "look under the hood" when shopping for Gigabit Ethernet equipment, and ask a few pointed questions about the brand, feature sets, and configuration of the underlying chipsets—before making a buying decision. One important question to ask: Will it interoperate with other types of equipment?

Broadcom has a three-pronged interoperability strategy. First, it has been an industry leader in both the development and implementation of key industry standards like RDMA, iSCSI, Wi-Fi, and the IEEE 802.1x Extensible Authentication Protocol. Second, it does extensive testing to ensure all of its products are backward and forward interoperable, and can support legacy applications. Finally, Broadcom provides support for vendor- and operating system-specific de facto standards that enable networking equipment to work seamlessly with the host computing platform.

For example, Broadcom currently provides the only TOE on a chip that interfaces with Microsoft's TCP Chimney. Support of Chimney enables TCP/IP Offload Engines to interface directly with Windows, offloading TCP/IP processing for all network traffic, Broadcom's Light explains. Without that operating system support, a TOE can only work on an iSCSI adapter that bypasses the operating system.

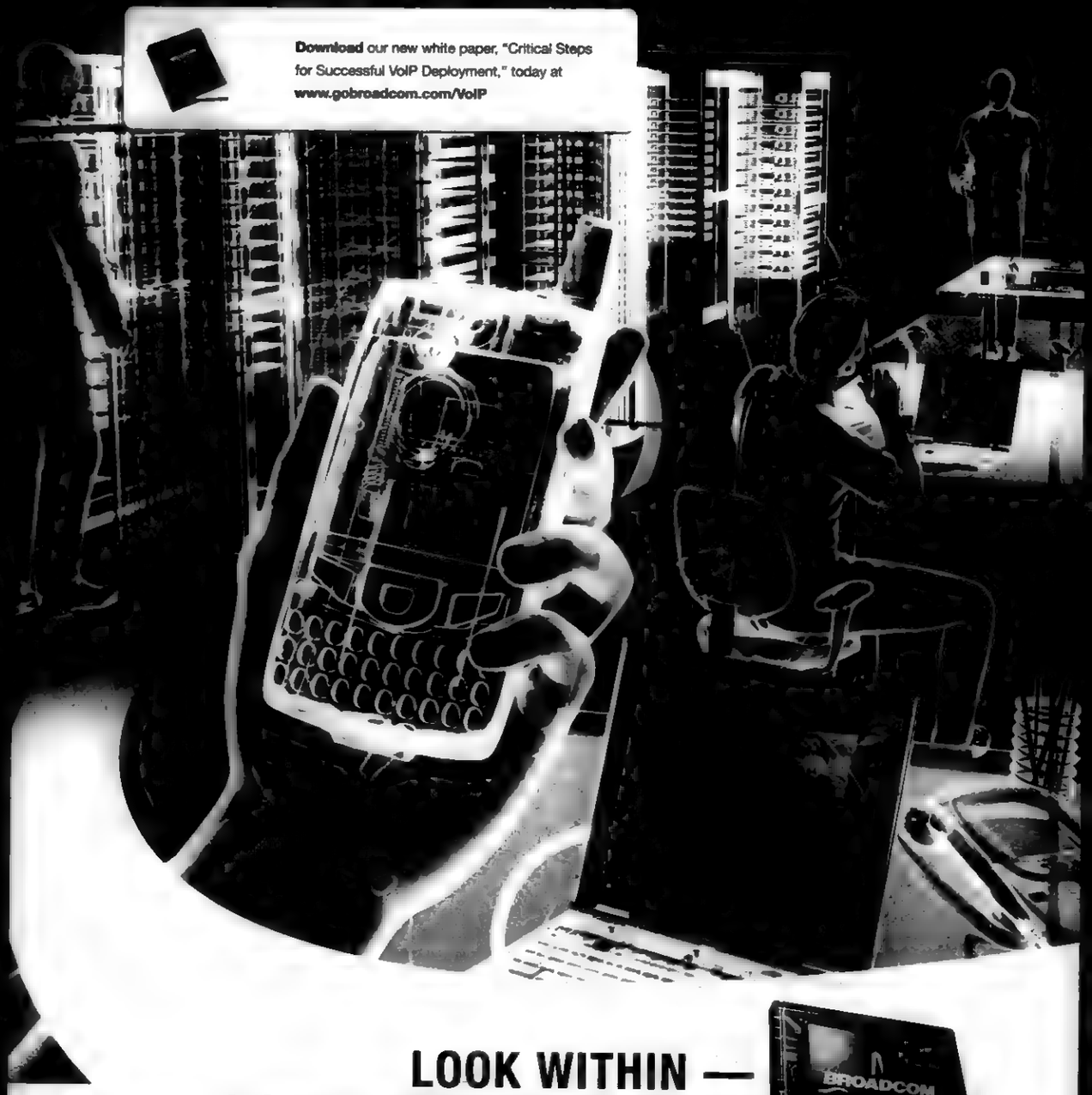
How Well Does It Perform?

IT managers also need to check published benchmark tests that compare the performance of the same type of chip from different vendors. eTesting Laboratories found that Broadcom's NetXtreme 64-bit PCI-X Gigabit Ethernet server adapter achieved significantly higher throughput rates compared with the Intel Pro1000 XT server adapter.

Network equipment performance depends not only on the power of the underlying silicon, but on "architectural choices that chipmakers are increasingly making," says Tolly. Customers should ask questions like: "Do they support the latest industry standards? How much memory or intelligence did they put on the chip? Are tasks like IPSec encryption handled by the main processor or offloaded to a subsidiary?"

The bottom line, according to Tolly: There is a big difference between custom ASICs and standards-based, system-level semiconductors designed and tested to work together across the network. "You can do enough research on a chipmaker's products, like Broadcom's, to get a pretty good idea of what those silicon solutions can do for you," says Tolly. "Then you can ensure good performance across your network by ensuring that all your equipment is built on that chipmaker's hardware." ■

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LOOK WITHIN — YOUR NETWORK IS MORE POWERFUL THAN YOU REALIZE



To engage the immense power of IP convergence — data, voice, applications, networks — the underlying technology must function securely, reliably and efficiently. Only Broadcom® offers end-to-end networking chips with the built-in power to manage convergence — from core storage and servers, through switch fabrics to desktops, multi-functional devices and beyond. Broadcom's wired and wireless technology throughout the network reduces complexity and enhances the end-user experience. With Broadcom, there is no gap between legacy and future technologies — only seamless communication at maximum speed. Technology advances. Networks expand. Control is maintained.

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and what you are trying to do. You are in an info war. Research from the IT Leadership Academy has revealed several best practices:

1. Recognize that you're in an info war.

2. Identify key info targets — minds you want to make sure have a nontoxic version of the facts.

3. Create an info map of information sources that charts who is talking and how people learn about your practice of IT.

4. Create listening posts to monitor the buzz about your IT shop, such as discussion boards on IT in your company and weblogs by direct reports.

5. Create official sources of truth in the form of authorized "voices" or spokesmen.

6. Create semiauthorized human firewalls — experts who know you and your IT shop and who generally know what you are doing and where you are going — who can be contacted when trouble arrives.

7. Embed and empower storytellers in your organization — people who have good judgment and good powers of observation and who can truthfully tell you and others what is going on.

8. Create authorized information "moments," such as briefings, blogs, webinars and lunches.

9. Expand your organization's "smartwidth," or its capability to understand information. Broadband gives us more information. Smartwidth gives your organization more understanding regarding what all this information means.

10. Hire an ad agency — or first-year business students who will someday work in an ad agency — to review your IT group's "brand."

Perform these simple tasks and you are well on your way to being a successful info warrior. **51094**

PIMM FOX

Supply Chain Software Is No Match for Profit Quest

IF YOUR family is like mine, the week after Thanksgiving usually consists of eating turkey. Lots of turkey.

There must be something wrong with our enterprise software inventory and supply chain management application, because this year, we once again miscalculated the amount of food needed for our Thanksgiving meal. And it isn't as though we don't appreciate the value of an inventory management system for the purchasing, production and distribution of the cranberries, mashed potatoes and pumpkin pie. Like most families, we're always trying to lower the inventory in our refrigerator to decrease our working capital.

But sometimes it's those silly guests. They tell us they are going to show up, and — well, something happens.

Of course, we probably would make too much food even if we were planning to feed only ourselves, but our gluttony is nothing compared with the overcapacity now facing the folks who make flat-panel LCD televisions. And while my family's need for supply chain management is facetious, theirs is the real thing. But the question is whether the technology would have been able to stop the manufacturers from bringing on so much capacity.



LCDs have been coveted by just about every sports-watching, decorating-conscious or cartoon-entranced human being old enough to work a remote control. But envy doesn't equal sustained profits. At around $4,000, prices have been too high to lure many shoppers into buying a large-screen flat-panel TV. Low production volume is the main culprit. But now the profits of the flat-panel industry are about to experience the same sort of lethargy you get from eating too much turkey.

About 3 million of the 20 million television sets sold in the U.S. this year will be flat panels, but sales could be greater if consumers weren't betting on a steep price fall in 2005.

And prices won't simply fall next year — they will plummet.

Manufacturers and industry analysts estimate that prices could drop by 30% in 2005 and even further in 2006. That means a flat panel that has a price tag of $4,000 today will be under $1,000 by 2007, according to iSuppli, a El Segundo, Calif.-based market analysis firm.

What happened?

Manufacturers went crazy spending money to build factories at around $1 billion to $3 billion a pop. Ten new plants that gobbled up about $20 billion are slated to begin churning out flat panels by the end of next year. That should boost industry capacity by 70%, and more plants are on the way. Hitachi, Matsushita and Toshiba are in a joint venture to spend $1 billion to make flat-panel TVs in 2006.

As those production lines start to spit out flat panels, prices will crater.

Software was supposed to prevent this type of boom-and-bust cycle, but it doesn't. It never will. Corporations will always pile into a market if they smell profit.

For some companies in Asia, LCD sales have helped boost profits. But for the leader in flat-panel LCD TVs, LG.Philips, the squeeze on margins has begun. The company reported a 15% drop in its third-quarter profit.

Falling LCD prices could also hurt Sony, Samsung and TCL-Thomson Electronics, which makes the RCA brand.

So, where is all the fancy supply chain management technology? Where are those dashboards, those reports, those metrics that were promised? All the whiteboards in the world with arrows and colored markers don't seem to have amounted to much when confronted with a booming market and potential profits.

Management hubris won't be stilled by IT. It never was, and it never will be. **51108**

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site: **www.computerworld.com/columns**

READERS' LETTERS

Driving Security

BRUCE SCHNEIER'S latest opinion piece in *Computerworld*, "Make Vendors Pay for Security Flaws" (QuickLink 50161), is correct on premise but flawed on proposed solutions. We should make vendors pay for security flaws, but increased liability law is not the answer. We are in dire need of tort reform as it is, and liability law would push up legal and insurance fees and do the end user no good. Instead, IT managers need to learn to vote with their feet. They should pick software solutions from vendors with proven security records, or demand that security be in place before they purchase. Let the market do the work, not the lawyers.

Schneier's argument supports the "build it first, put security on later" mentality, which sadly seems to be prevalent in the industry. But there's another force that is going to drive the security issue a lot harder than before – Sarbanes-Oxley. As IT managers audit their applications, they're making mental checklists of new questions and requirements to ask of software vendors: Why are these passwords stored in plain text in the database? And why doesn't this application lock out users after three failed password attempts?

Gregory J. Haase
IT manager, Ewing, N.J.

Fostering Creativity

WHO COULD disagree with Paul Glen's ideas about encouraging creativity in technical staff ["To Each His Own," QuickLink 49487]? However, if someone wants to try his hand at writing, there are no "wrong questions," because any advice you offer brings the questioner one step closer to making an attempt. If someone is curious about whether you try out your jokes on your wife, it's great that he noticed your humor and, instead of being a passive recipient, is thinking about how to be entertaining when giving a talk. If someone asks what time of day you do your best work, he's one step closer to carving out some time to write. I agree with Glen's basic premise that managers need to understand the variety of ways in which staffers do creative work, but he needs to understand and better encourage people who want to try new forms of expression and help them be successful at it.

Lisa Neal
Editor in chief, eLearn Magazine, Lexington, Mass.

Sponsor Support

REGARDING Mitch Betts' "Building Bridges: Marketing IT" item in the Oct. 4 Think Tank (QuickLink 49502), I would add a sixth point: Assign skilled and committed marketing division sponsors to all marketing projects, and make the sponsors personally responsible for the promised project benefits. This will improve the success rate of marketing projects by much greater than the suggested 15%.

Gopal K. Kapur
President, Center for Project Management, San Ramon, Calif.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

For more letters on these and other topics, go to **www.computerworld.com/letters**

6 OF THE TOP 10 ISPs
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Today's email borne viruses propagate globally in hours or minutes, much faster than traditional defenses can react, leaving you exposed to the "reaction time gap". IronPort's Virus Outbreak Filters™ stop viruses up to 8 hours before traditional virus definition files are available, literally predicting virus attacks before they cause harm. This astounding solution is powered by a series of proprietary algorithms that process data from SenderBase®, the world's first and largest email traffic monitoring network. **Available now at www.ironport.com/leader**

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www.ironport.com/leader



FUTURE WATCH

Riding the Grid Wave

Grid technology expert Wolfgang Gentzsch says grids are coming in three waves. Eventually there will be no difference between the Internet and "the grid," he tells *Computerworld*. **Page 30**

SECURITY MANAGER'S JOURNAL

The Password Is: Useless (Probably)

Our security manager finds that her company needs a new password policy. Could passphrases and single sign-on be the answers? **Page 32**



OPINION

802.11n's Pregame Show

Robert L. Mitchell says vendors that imply that their WLAN products comply with the nonexistent 802.11n standard do the customer a disservice. **Page 34**



What's this? See PAGE 24 for the Jawbone.



This will help you find your way. See PAGE 24 for the Go.

more cool tools

To read about other intriguing hardware, visit our Web site:

Quick Link 51033

computerworld.com

fabulous phones for all

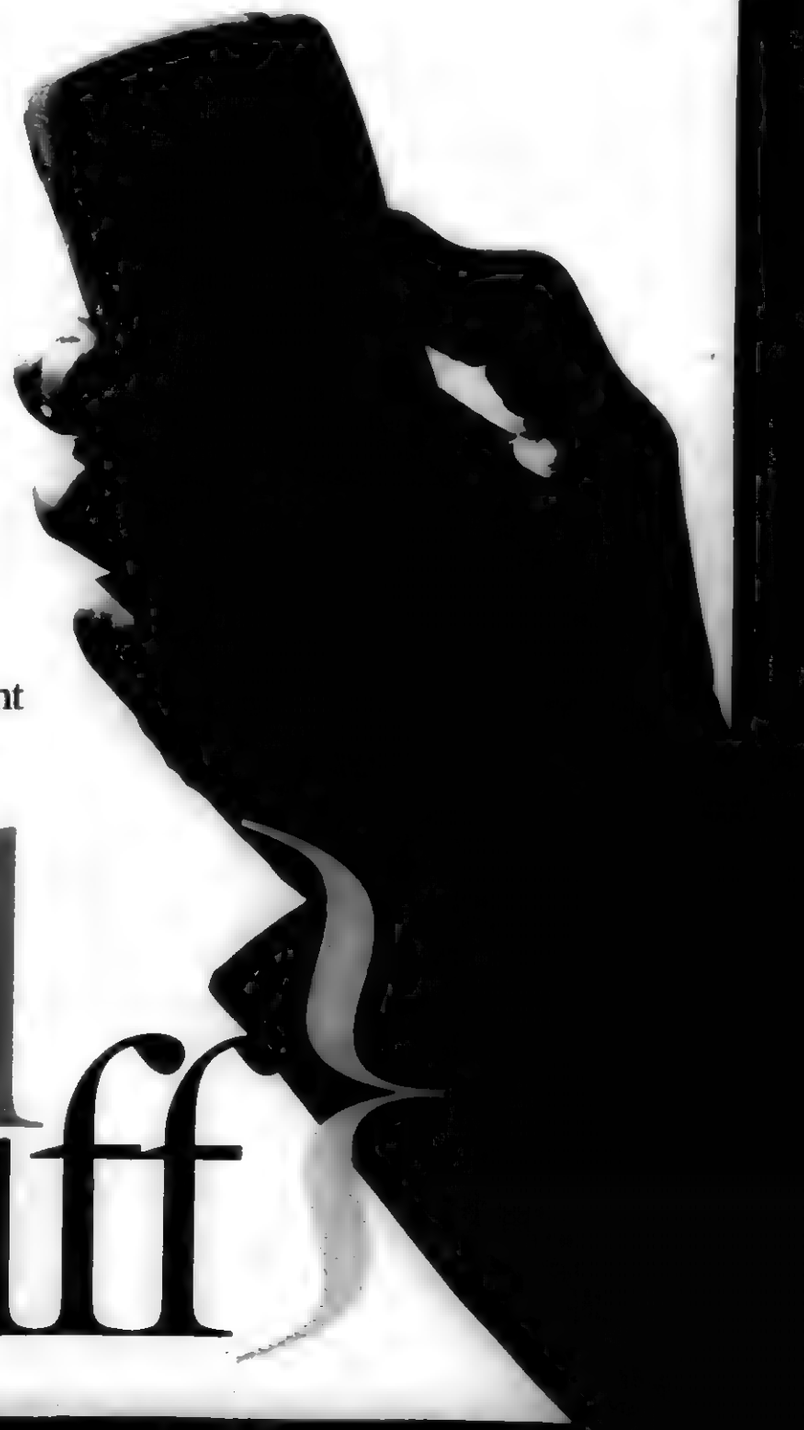
BlackBerry 7100t

PRICE: $200

Research In Motion Ltd.

www.rim.com

At long last, a BlackBerry that looks and feels like a phone – and the 7100t handles e-mail as well as its predecessors did. RIM created the thumb keyboard, and it takes a somewhat different approach with this device, assigning two letters per button and building in an extensive dictionary with artificial intelligence that excels at guessing and completing words as you start typing them in. Initially available from T-Mobile, it's likely to be adopted by other carriers.



For the gadget mavens on your holiday shopping list, we present our annual look at some of the great new gizmos available for the office and home and on the road. **By Russell Kay**

cool stuff

stuff

phones



Jawbone
PRICE: $150
Aliph
www.jawbone.com
Cell phones are great. But if you've ever tried to make yourself heard from a crowded trade-show floor or another noisy environment, you know that using them can be a trial at times. Add Jawbone, a noise-canceling headset based on technology developed for the military, and you can be heard clearly and distinctly. The difference in clarity is remarkable. The Jawbone is small and sits comfortably on the ear.

Cellboost
PRICE: $7
Compact Power Systems Inc.
www.cellboost.com
Cell phones go dead at the most awkward times. Instead of buying an expensive second battery to carry around (and having to remember to keep it charged), try Cellboost, a small, disposable battery charger. The matchbox-size unit instantly restores power to your cell phone and lets you keep talking while charging the phone, and you don't need an electrical outlet. Cellboost units are made for most popular brands of cell phones.



Treo 650
PRICE: $400
PalmOne Inc.
www.palmone.com
If you can carry just one device, this is my pick. It's a phone, a full-fledged PDA, a music player, a voice recorder and a digital camera, all in a nice package. It's neither as small nor as large as some of its competitors, but it does almost everything you might want and does it well. The Treo 650 is a hefty investment (check your cell carrier for better deals), but it gives you a lot of capability. Screen resolution has quadrupled to 320 by 320 pixels, and processor speed is now 312 MHz. Bluetooth is built in for hot-syncing and headsets, and the keyboard is backlit and slightly (but quite noticeably to your hand) larger. The rechargeable battery is now removable, so you can have a spare. Finally, if you opt for a GSM version, you also get enhanced data rates for GSM Evolution capability.

getting around



CodeScout
PRICE: $130
AutoXray Inc.
www.autoxray.com
When your car's "check engine" light comes on, you know you might have a problem, but what is it? Until now, you had to visit your mechanic or dealer to find out. Now you can buy a consumer version of the dealer's scanner that will check your car's trouble codes and help you discover what's wrong before you have to reach for your wallet. CodeScout covers all current diagnostic protocols, including the newest one that will be mandated for all vehicles by 2008.



Go
PRICE: $1,000
TomTom BV
www.tomtom.com
Global Positioning System navigation units are old hat by now, but a new model, the Go, is the best I've seen. It's small and easy to use and has a terrific interface, as well as a slightly elevated 3-D driver's eye view. It comes preloaded with maps of the entire U.S. (Canada is available on CD), and it will run for hours on battery power, so it doesn't need to be connected directly to the car.

converging your home



PureAV55000 Remote TV
PRICE: $500
Belkin Corp.
www.pureav.com
The PureAV55000 contains a transmitter and receiver that let you take input from one source (a television, cable box, DVD player, stereo system, video game or something else) and wirelessly send it to a TV, monitor, VCR or powered speakers in a different room. The unit offers a bandwidth of up to 40Mbit/sec. at a range of up to 350 feet. It handles standard-definition (but not high-definition) TV.

WMLS11B Wireless-B Music System
PRICE: $180
Linksys (a division of Cisco Systems Inc.)
www.linksys.com
This unit looks like a trim stereo radio, but it's much more. The WMLS11B provides a network connection (wired or wireless) between your PC and stereo system. It can also play PC-stored music directly through its two detachable speakers. A remote control is included.

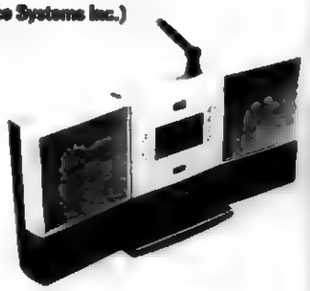
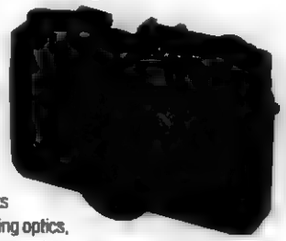
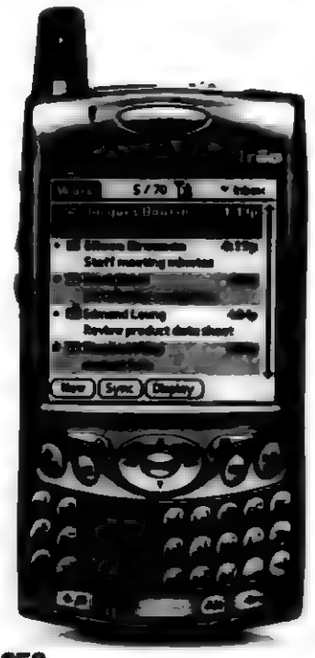


image is everything



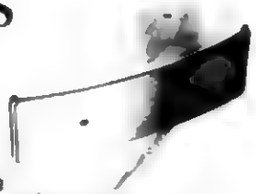
R-D1
PRICE: $3,000
Epson America Inc.
www.epson.com
For decades, the legendary Leica 35mm Rangefinder camera was the choice of photojournalists because of its precision, reliability, outstanding optics, small size and fast, quiet operation. Now Epson has announced the world's first digital Rangefinder camera, which uses the same lenses made for those older, classic Leicas. At $3,000 (that's without a lens), the R-D1 clearly isn't a mass-market product, but it offers a unique marriage of old and new photography, combining the classic Rangefinder feel and operation with up-to-date digital capabilities. The camera features a magnesium-alloy skin covering an aluminum die-cast body, 6.1-megapixel resolution and a 2-in. LCD display on the back. The R-D1 uses Secure Digital memory cards with up to 1GB of capacity.

cool stuff



phones

Jawbone
PRICE: $150
Aliph
www.jawbone.com



Cell phones are great. But if you've ever tried to make yourself heard from a crowded trade-show floor or another noisy environment, you know that using them can be a trial at times. Add Jawbone, a noise-canceling headset based on technology developed for the military, and you can be heard clearly and distinctly. The difference in clarity is remarkable. The Jawbone is small and sits comfortably on the ear.

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www.palmone.com

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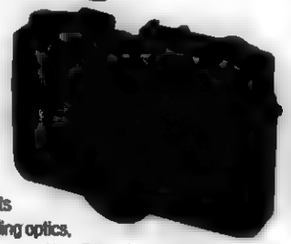
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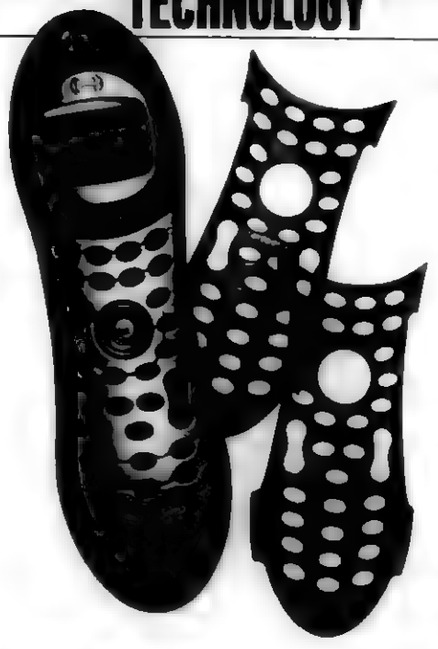
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Harmony Universal Remote Control

PRICE: $230

Logitech International SA

www.logitech.com

This remote control comes in several flavors, including one (the 680) designed specially for the newest round of multimedia Windows PCs. Logitech eases the process of programming your remote by automating the dialogs on the remote itself and including one-touch activity buttons that combine multiple functions for common tasks, such as watching a movie, listening to music or recording a TV show. The Harmony handles up to 15 devices – anything that uses infrared commands – and needs no macroprogramming. This might be the easiest way to simplify the tangle of home entertainment equipment, cables, switches and remotes.

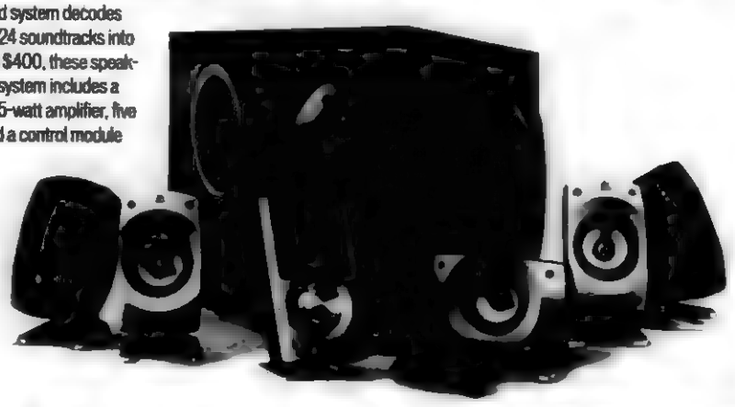
Logitech Z-5500 Digital Speaker System

PRICE: $400

Logitech

www.logitech.com

I've been a finicky audiophile for years, and this system does a seriously better job with music than my older (and far more expensive) British stereo speakers. For movies, radio and television, the control module in this THX-certified system decodes Dolby Digital, DTS and 96/24 soundtracks into true 5.1 surround sound. At $400, these speakers are a true bargain. The system includes a 10-in. subwoofer with a 505-watt amplifier, five small satellite speakers and a control module with remote control. The black and chrome system will work with PCs and home entertainment components, and you can plug PlayStation and Xbox games directly into the control module.



kid stuff



Novelty Mouse (football or ladybug)

PRICE: $10

Logitech

www.logitech.com

Need a couple of stocking stuffers for the kids? Try this pair of theme mice: one football, one ladybug.

Hello Kitty Robot

PRICE: $3,700

Business Design Laboratories

www.hellokitty.com



This 21-in. high "robot" looks like a cartoon and doesn't move, but it can learn your name and recognize and greet up to 10 people. Available only in Japan, its price is prohibitive, but it's an interesting product to celebrate Hello Kitty's 30th anniversary as a brand. The robot has a limited ability to sort patterns of conversations that have been preregistered, and the machine can talk back with phrases it thinks are appropriate to the occasion and to the person it's "talking" to.

Juice Box

PRICE: $70

Mattel Inc.

www.mattel.com



This media player delivers programming from the Cartoon Network, World Wrestling Entertainment, BMG Music and other sources for kids aged 9 and up. The Juice Box has a 3-in. color screen and can play for up to five hours on three AAA batteries. The player takes a proprietary Juice Card cartridge that has a new 3-D, write-once chip from Matrix Semiconductor Inc.



FinePix E550

PRICE: Under $400

Fuji Photo Film U.S.A. Inc.

www.fujifilm.com

The FinePix E550 runs on two AA batteries and powers up in about one second, and its 6.3-megapixel photo sensor (which can interpolate images up to 12 megapixels) and 4X optical zoom lens make big, sharp prints at almost any size. The 2-in. LCD display on the back is one of the biggest and brightest I've seen on a small digital camera. Pictures are stored on tiny XD memory cards The camera comes with a 16MB card, so be sure to budget for an extra high-capacity XD card.

Hip-E Notebook

PRICE: $1,700

Digital Lifestyles Group Inc.

www.hip-e.com

The Hip-E Notebook is the first computer specifically designed for teenagers. It's a Windows-based flat-screen PC that looks a lot like the most recent iMac. The wireless keyboard docks to a base that also holds and recharges the coordinated cell phone (which uses Sprint's network) and music player. If you want to take the tunes on a trip, the player slips into a slot in the stereo speaker system, which detaches from the display and accommodates a shoulder strap to become an automatic, portable boombox. A series of replaceable "skins" are available so the user can customize his Hip-E with pink fur, a leopard-skin design or whatever. On the software side, a customized desktop organizes applications by activity using a radio-dial-like interface. It's a dandy system, but pricey.



cool stuff

accessorizing your computer

DiskOnKey

PRICE: $470 (2GB)
M-Systems Flash Disk Pioneers Ltd.
www.m-sys.com



Removable Universal Serial Bus (USB) flash drives are faster and smaller than floppies. One of the nicest is this DiskOnKey unit, but the price really jumps from 1GB ($330) to 2GB! The redesigned device incorporates LEDs to signal I/O activity plus an onboard application-specific integrated circuit to speed transfer. The 2GB capacity is impressive.

Kanguru Zipper HD

PRICE: Starts at $120
Kanguru Solutions
www.kanguru.com



A slightly different take on small removable storage, the Kanguru Zipper HD uses a 1-in. hard drive instead of flash memory to store gigabytes of data. It's just a bit larger than a typical USB flash drive, but at $170 for 2.2GB and $200 for 4GB, it's only half the price of the DiskOnKey and similar competitors.



DoubleSight Dual LCD Monitors

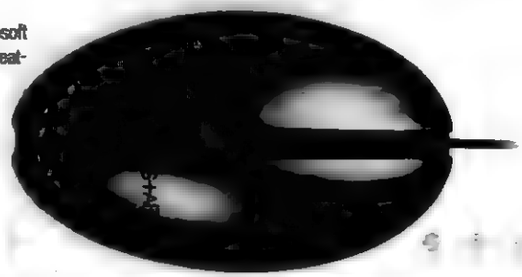
PRICE: $900
DoubleSight Displays LLC
www.doublesight.com

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Optical Mouse by Starck

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Microsoft Corp.
www.microsoft.com

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PRICE: $80
Logitech
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multi mobile media

Gmini 400

PRICE: $400
Archos Corp.
www.archos.com



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Zire 72

PRICE: $300
PalmOne Inc.
www.palmone.com

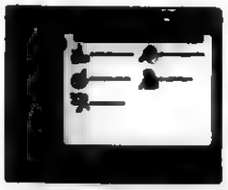
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Tungsten T5

PRICE: $400
PalmOne
www.palmone.com

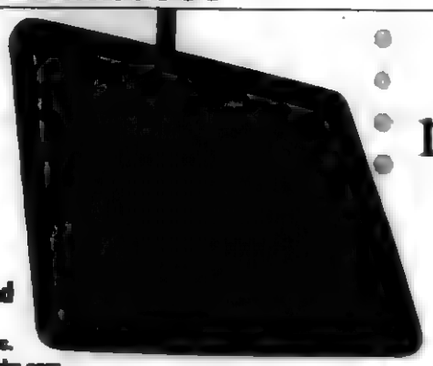
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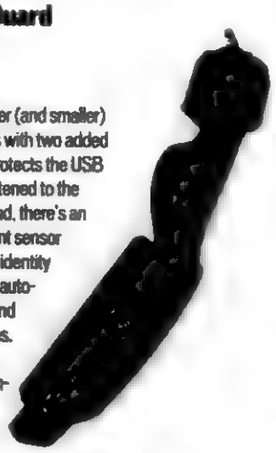
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iGesture Pad
PRICE: $150
FingerWorks Inc.
www.fingerworks.com
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road gear



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Cables Unlimited
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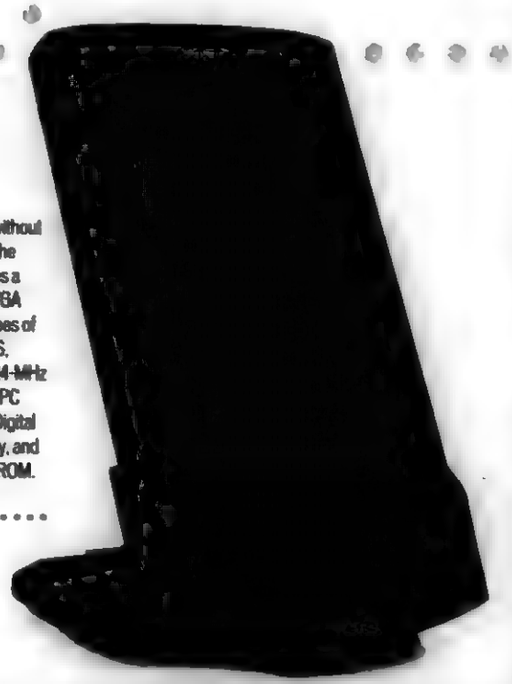
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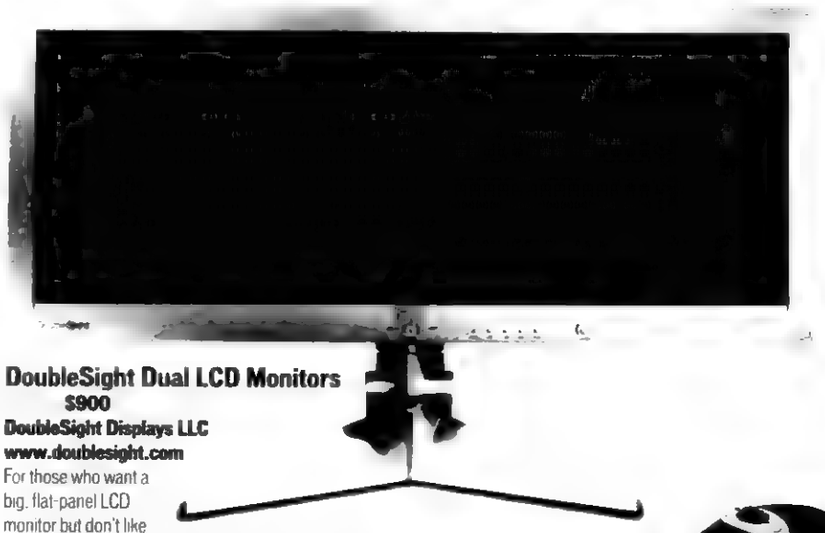


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50964

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DiskOnKey

$470 (2GB)

M-Systems Flash Disk Pioneers Ltd.

www.m-sys.com



Removable Universal Serial Bus (USB) flash drives are faster and smaller than floppies. One of the nicest is this DiskOnKey unit, but the price really jumps from 1GB ($330) to 2GB! The redesigned device incorporates LEDs to signal I/O activity plus an onboard application-specific integrated circuit to speed transfer. The 2GB capacity is impressive.

Kanguru Zipper HD

Starts at $130

Kanguru Solutions

www.kanguru.com



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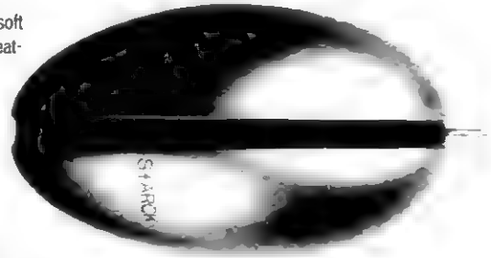
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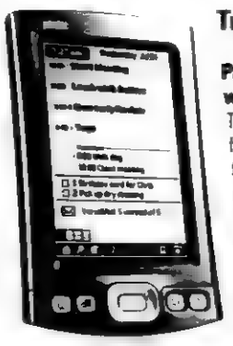
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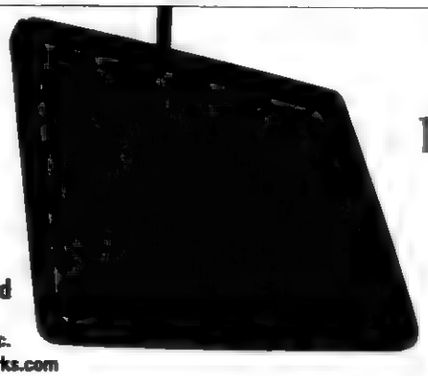
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road gear



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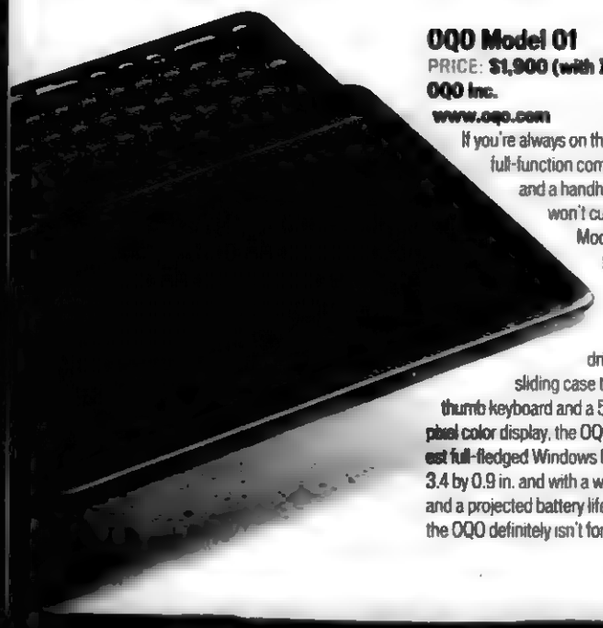


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OQO Model 01

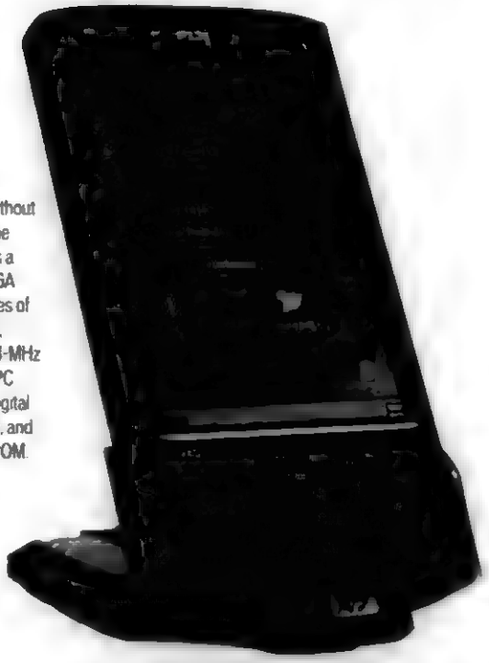
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Middleware is Everywhere.
Can you see it?
2
3
IBM
5


1
4
Key
1. List of new leads e-mailed pre-takeoff.
2. Prototype specs updated securely.
3. New specs modified in showroom.
4. Modified specs accessed via PDA.
5. Proposals sent to new leads pre-deadline.
MIDDLEWARE IS IBM SOFTWARE. Collaborative software from Lotus that creates one unified platform between employees, partners, customers and vendors. Building off of existing tools, it's flexible and dynamic. It's software that can increase productivity by enabling on demand business. On virtually any kind of device. Everywhere around the globe. Everywhere in between.
Middleware for the on demand world. Learn more at ibm.com/middleware/collaborate
ON DEMAND BUSINESS

GRID WAVE

Wolfgang Gentzsch says that, eventually, there will be no difference between the Internet and 'the grid.'

WOLFGANG GENTZSCH *says grid computing will come in three waves. The first, well under way, primarily involves the academic research community. The second, just beginning, brings in corporations as users. The third, still some years off, will add individual consumers to the grid. At that point, the Internet will be "the grid," says Gentzsch, managing director of grid computing and networking services at MCNC Inc. A preview of the grid can be glimpsed in the National LambdaRail testbed network, for which MCNC will serve as a technical support center. Gentzsch recently told* Computerworld*'s Gary H. Anthes what it will take to ride the waves.*

What's moving us into the second, corporate, wave of grid computing? The IT vendors have their grid story in place — IBM, Sun, Oracle and the others — for the next generation of products that they want to ship and make money with. But there's no money in research grids, and consumer grids are far out. So the current interest is in the enterprise grid.

But are users interested? Grid technology can improve equipment utilization from 30% on average to something like 70% to 80%. So the interest of end-user companies has grown dramatically. Driven by the benefits — easy access, sharing of resources, easy failover and dramatically improving productivity — within the near future, companies will reduce cost and complexity [with grids].

FUTURE WATCH

Our products and systems are getting more and more complex, and the infrastructure is getting more complex. Scaling the infrastructure means scaling the people. But if you have a grid in place, you can handle a factor-of-10 increase in resources with the same people.

How pervasive will grids be in corporations in, say, five years? Companies in the life sciences and the financial sector are already advanced today in using local grid technology. In about five years, many of the Fortune 500 companies will be still growing globally, having subsidiaries all over the world, and within these subsidiaries they have IT equipment that may be empty because it's night. So now in a global enterprise grid, a company in Europe, for example, might want to send jobs to America, where people are still sleeping.

Life sciences and financial companies tend to use grids for scientific applications and modeling. What about mainstream transaction-processing apps? You can't really easily send independent transactions over the Internet. Sending a transaction to a remote server takes far too much overhead, so you send a whole application to a transaction server. You have several transaction systems distributed. It's a grid because the resources are distributed.

Given all these benefits, why aren't we seeing much more rapid adoption of grids? Let's take the hype out of it. Grids promise much more than they can deliver today because grid technology is not mature and complete. There are point products which solve a little bit but don't transform your whole environment into a grid. Grid standards are still missing.

And there are challenges beyond the technology. Server-hugging is still a key barrier to grids; people love their own little systems. Security is another issue. Also intellectual property — should I really run my IP-heavy stuff on another company's server, or send it over the Internet? There are legal issues, social issues, political issues.

What's missing in standards? The Global Grid Forum is working on these issues with something like 50 working and research groups in seven areas [such as applications, architecture, data, security and performance], and basically all the areas are immature.

For example, how to grid-enable software applications. Today you have to write interfaces manually. These interfaces need to be standardized so you can plug two software modules together seamlessly and at all levels — application, architecture, data, security and scheduling and resource management.

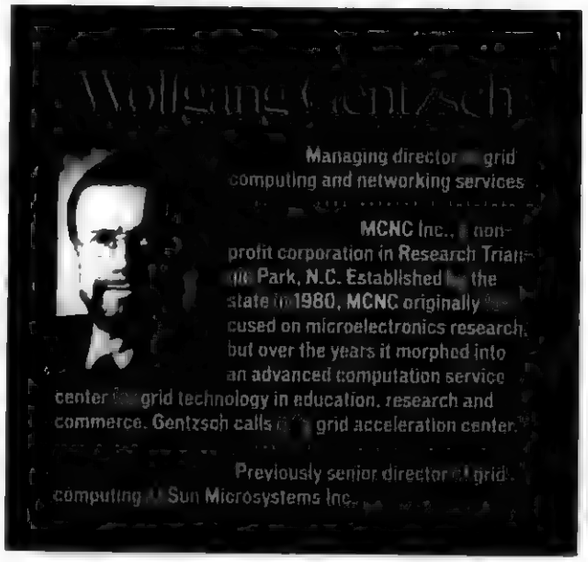
You speak of the grid and the future Internet as if they were one thing. The current Internet is just information. The grid adds things like collaboration, computing and other things that make it three-dimensional. It's doing real business and development and production on top of that. With [today's] Internet, you have information. But with the grid, you have access to the resources that use this information. Grids are getting more and more general-purpose. Eventually they will merge, and you have the next-generation Internet.

Will it be based on the same standards as today? Current protocols, like in Sonet, Ethernet and TCP/IP, were built more than 20 years ago, and they never anticipated the amount of data which they have to deal with today . . . for the "grand challenge" applications. That's why the National LambdaRail has been started, and its key focus is to overcome the limitations of TCP/IP and other protocols.

What about the third grid wave, the one for consumers? We are talking about gaming grids, where hundreds of gamers come together and use the grid for really heavy interactive and compute-intensive stuff.

Also health care. If you have a heart attack or stroke and you are within 15 minutes of a hospital, you get easy help. But in the countryside, the percentage of people dying from heart attacks is at least 50% higher than in the cities. Now, a grid reduces distances to zero, so the country doctor has immediate access to all these expensive machines, which have digital heartbeats, in the hospital. If that hospital is too busy, the health care grid broker selects another resource that is least loaded.

How far off are these third-wave capabilities? Five to 10 years. Five is aggressive; 10 is definitely yes. **50785**



NATIONAL LAMBDARAIL

NLR (www.nlr.net) is a consortium of research universities and companies working on advanced technologies in network architecture, end-to-end performance and scaling. It's also a testbed network based on optical Dense Wavelength Division Multiplexing (DWDM) that's capable of transmitting 40 simultaneous light wavelengths ("lambdas," or waves), with each wavelength able to transmit at 10Gbit/sec.

NLR is the first network to deploy transcontinental circuits based on Ethernet end to end. It's also deploying a routed IP network over the optical DWDM network. By next spring, NLR will connect research facilities in 27 U.S. cities.

Riding the GRID WAVE

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And there are challenges beyond the technology. Server-hugging is still a key barrier to grids; people love their own little systems. Security is another issue. Also intellectual property — should I really run my IP-heavy stuff on another company's server, or send it over the Internet? There are legal issues, social issues, political issues.

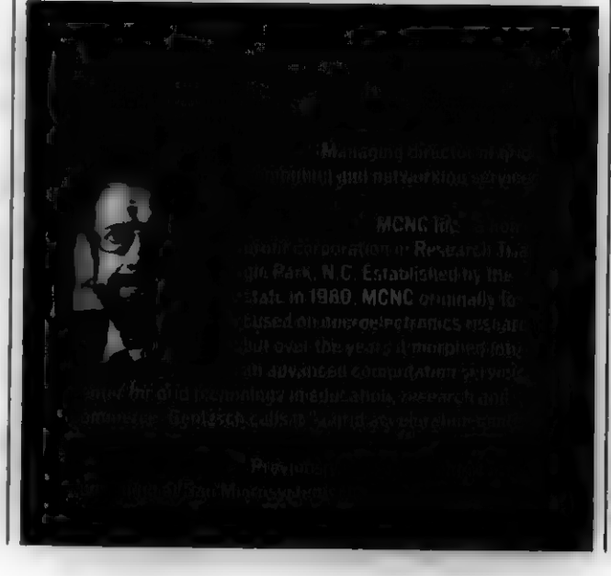
What's missing in standards? The Global Grid Forum is working on these issues with something like 50 working and research groups in seven areas [such as applications, architecture, data, security and performance], and basically all the areas are immature.

For example, how to grid-enable software applications. Today you have to write interfaces manually. These interfaces need to be standardized so you can plug two software modules together seamlessly and at all levels — application, architecture, data, security and scheduling and resource management.

NATIONAL LAMBDARAIL

NLR (www.nlr.net) is a consortium of research universities and companies working on advanced technologies in network architecture, end-to-end performance and scaling. It's also a testbed network based on optical Dense Wavelength Division Multiplexing (DWDM) that's capable of transmitting 40 simultaneous light wavelengths ("lambdas," or waves), with each wavelength able to transmit at 10Gbit/sec.

NLR is the first network to deploy transcontinental circuits based on Ethernet end to end. It's also deploying a routed IP network over the optical DWDM network. By next spring, NLR will connect research facilities in 27 U.S. cities.



You speak of the grid and the future Internet as if they were one thing. The current Internet is just information. The grid adds things like collaboration, computing and other things that make it three-dimensional. It's doing real business and development and production on top of that. With [today's] Internet, you have information. But with the grid, you have access to the resources that use this information. Grids are getting more and more general-purpose. Eventually they will merge, and you have the next-generation Internet.

Will it be based on the same standards as today? Current protocols, like in Sonet, Ethernet and TCP/IP, were built more than 20 years ago, and they never anticipated the amount of data which they have to deal with today . . . for the "grand challenge" applications. That's why the National LambdaRail has been started, and its key focus is to overcome the limitations of TCP/IP and other protocols.

What about the third grid wave, the one for consumers? We are talking about gaming grids, where hundreds of gamers come together and use the grid for really heavy interactive and compute-intensive stuff.

Also health care. If you have a heart attack or stroke and you are within 15 minutes of a hospital, you get easy help. But in the countryside, the percentage of people dying from heart attacks is at least 50% higher than in the cities. Now, a grid reduces distances to zero, so the country doctor has immediate access to all these expensive machines, which have digital heartbeats, in the hospital. If that hospital is too busy, the health care grid broker selects another resource that is least loaded.

How far off are these third-wave capabilities? Five to 10 years. Five is aggressive; 10 is definitely yes. **50785**

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SECURITY MANAGER'S JOURNAL

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Why was this password audit a fluke rather than a regular security measure? The fact is that we have so many things on our task lists that sometimes the most obvious part of security is overlooked. We suffer from a lack of staff, lack of tools, lack of time, lack of security awareness and lack of security policy enforcement. And being new to the company, I made a fundamental error in assuming that the stated password policy, which had been signed off on by executives and posted on the company intranet, was actually being enforced by IT across our domain and those of our subsidiaries. In a way, my awareness of the importance of secure passwords made me blind to the problem: Since I care about my password being cracked, I chose a secure one, and so I didn't stop to test the password policy.

We're back to square one. Without a properly enforced password policy, who cares if the firewall is logging properly, the SQL Server password is blank or our patches are up to date? Passwords are the first line of defense.

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Password Hell

The next steps are to put together a stricter password policy, obtain buy-in from management, publish the new policy, change the technical password management policy to the stricter settings — and wait for the outcry from end users. Adopting a stricter policy sounds like a logical idea, but as we security professionals know, what makes perfect sense to us often comes up against all kinds of resistance.

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SECURITY LOG

Keeping Tabs on External Media

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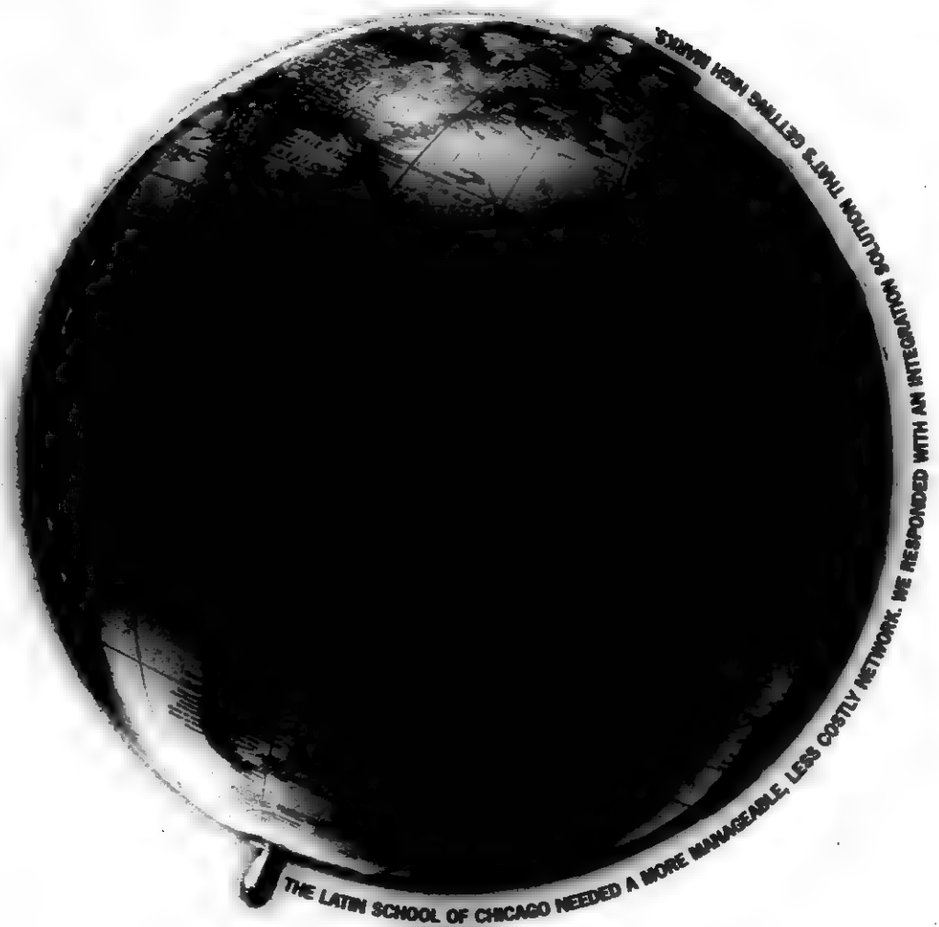
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Consider the dots connected. Voice over IP is at the heart of The Latin School of Chicago's new network. Thanks to an integrated platform, Web site and phone system information is easy to manage. Features and new users are easy to add. And with IP phones in classrooms, it's easy to access important Web-based information. Like whether the day's lunch is grilled cheese or ravioli. Find out more about how we're helping Latin School connect the dots at sbc.com/dots. **GOING BEYOND THE CALL.®**

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BRIEFS

Sterling Rolls Out Services Platform

■ Sterling Commerce Inc. in Dublin, Ohio, announced its Multi-Enterprise Services Architecture, which is designed to allow companies to extend Web-services-based applications beyond the enterprise. Sterling will offer services for business integration, business intelligence and business process management and delivery. The company will provide management dashboards, portals and user interfaces to summarize information from multiple data sources. Pricing information was not available.

Cisco Announces Switching Platform

■ Cisco Systems Inc. announced the ONS 15310 CS Sonet Multiservice Provisioning Platform, a new optical switching system for use on the edge of networks. It's designed to help users deploy services such as private-line and switched Ethernet services without having to redesign or disrupt an entire network. The 1U (1.75 in. high) rack platform is interoperable with Cisco's ONS 5454 Sonet MSPP gear. Available in December, one version of the 15310 that connects to an OC-3 connection starts at $5,000.

Compuware Bundle Covers Governance

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ROBERT L. MITCHELL

802.11n's Pregame Show

IN THE *Star Wars* movie parody *Spaceballs*, the character Dark Helmet (played by Rick Moranis) commands his crew to shift to "ridiculous speed" to pursue another spaceship. Ignoring warnings from his crew that the technology is unproven and untested, the pompous chief executive blunders onward toward disaster.



Similarly, attempts by vendors to jump ahead of the wireless LAN standards game with new high-speed adapters and access points under the 802.11n banner could deal heedless customers an equally unpleasant — and much less humorous — blow.

The IEEE has only just begun considering technical proposals for a new high-bandwidth WLAN standard known as 802.11n. Four complete proposals and 28 partial proposals were submitted for the specification, which will be backward-compatible with current 802.11b and g standards while pushing real-world data rates to at least 100Mbit/sec. and possibly as high as 500Mbit/sec.

There is no 802.11n standard today. As yet, there is no agreement even on which technical proposals should be included. Final ratification of a standard isn't expected before late 2006, and mature, business-class products probably won't appear before 2007. Yet the first "pre-n" products are already heading for store shelves.

Belkin Corp.'s $99.99 Pre-N Notebook Adapter and $149.99 Wireless Pre-N Broadband Router use one of the technologies proposed to IEEE Task Group N, but calling the products "pre-n" is stretching the truth. When run in pre-n mode, these are nonstandard products, with all of the risks that implies. And because prestandard 802.11n products use the public airwaves and operate in the same 2.4- and 5-GHz frequency bands as existing 802.11b and g products, they could potentially be disruptive not only to the buyer but also to users of any other WLAN equipment within the same range. Such products are also unlikely to be forward-compatible with real 802.11n products when they arrive and could interfere with the operation of future 802.11n devices.

Gartner analyst Ken Dulaney is disgusted. "It was bad for these guys to start doing pre-802.11n," he says, citing the potential for interoperability problems for both consumers and business users.

For its part, Belkin says its equipment is backward-compatible. Indeed, its Pre-N products are certified by the Wi-Fi Alliance — although only for 802.11b and g mode operation. However, that distinction will be lost on most buyers, who are likely to associate the Wi-Fi Alliance certification logo on the box with the Pre-N product name.

The alliance won't actually begin certifying 802.11n products until November 2006, and it has stated that it will revoke certification for any product claiming 802.11n features if it fails to interoperate with other Wi-Fi-certified products. The alliance doesn't like the idea of vendors using 802.11n terminology to market nonstandard products. Managing director Frank Hanzlik says the alliance is trying to discourage "terms that imply compliance with 802.11n."

But the alliance's policy falls short of banning the practice. That leaves other vendors free to co-opt the 802.11n name as they develop and market their own WLAN products that include proprietary high-speed operating modes, all the while slapping the reassuring Wi-Fi certification logo on the box.

This type of marketing sleight of hand isn't anything new in the wireless realm. Vendors have always overstated the actual throughput of WLAN devices. For example, the nominal data rate for 802.11g devices is marketed at "an incredible" 54Mbit/sec., but engineers will tell you that actual throughput efficiency is typically only half the published speed. Many vendors also offer proprietary "turbo" modes that are about twice as fast as 802.11g.

With a real-world throughput of at least 100Mbit/sec., the new 802.11n standard would be about four times as fast as 802.11g. That's a powerful incentive for manufacturers, which are trying to differentiate their products in an intensely competitive market. So, as they did with 802.11g, vendors are likely to push forward with early 802.11n designs.

Vendors are offering higher speeds not because business users are demanding the increased bandwidth but because of the need to differentiate — and because the industry hopes to fill those fatter wireless communication channels with multimedia content for consumers. Most businesses don't need it today, but they're going to get it anyway.

Network administrators have a hard enough time keeping industry-standard rogue access points off the corporate network. But some engineers and executives are going to see pseudo-802.11n WLAN products, glance at the Wi-Fi label, buy it and power up the unit's proprietary and untested 802.11n mode in the office.

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Nokia for Business



Working-At-Home Walter

Who can blame Working-At-Home Walter for feeling a bit smug as he tunes his radio to the morning traffic report? He's not stuck in that freeway mess caused by the overturned lobster truck. He hasn't even shaved, and may well not until dinner. Working-At-Home Walter has swapped his wingtips for fuzzy slippers, but still manages to stay highly productive—not to mention better fed than his in-office compatriots. As Working-At-Home Walter says, it's all a matter of having the right technology to make a home a castle of productivity.

Do you feel you are really as productive at home as you used to be in the office?

Actually no. I'm more productive! It took me a while to realize that all those water cooler conversations, nosh breaks, meetings that always seem to run longer than they need to, and other office antics didn't help my productivity one iota. At home, I'm totally focused. I have more flexibility, too. If I have to stop work at 4:30 to start dinner—I'm a great cook you know—I'll go back to work at 7 to finish up.

How has your boss reacted to your working at home so much?

My boss and the rest of the brass believe that happy workers are productive workers. Mobile technology from Nokia has helped me balance my home and work life. I'm very highly motivated to be as productive here as I'd be in the office, maybe even more so, because working at home gives me that balance I need.

About the Interviewer



Bill Laberis was editor in chief of *Computerworld* for ten years (1986-1996). He is president of Bill Laberis Associates, a custom publishing and content company (www.laberis.com). His columns, Webcasts, supplements and magazines are well-known and respected throughout the high-tech industry.

And the IT people, what do they think of your working remotely?

My buddy Joe in IT says it doesn't matter to him and his crew where I work. Nokia helped the IT department apply best IT practices to all the mobile gear they support, so extending key applications to sofa jockeys like me has been no problem. Excuse me a second. Gotta take a call from one of my kids at soccer practice.

So what's the secret?

In a word, Nokia. Only it's no secret because the company is world renowned for helping guys like me commute less, connect with coworkers from the comfort of my patio lounge chair, and work in my pj's. My mom got me these, so no laughing, OK?

What are the most important technologies for your work-at-home success?

My laptop is *numero uno* with me, but only if I can have confidence that the connection I have back to corporate is secure, given the info I need. Mobile email is my killer application so it has got to be working 24/7.

Why is security so important to you?

Don't let the slippers and pajamas fool you. I've got an important major accounts job. I need access to business-critical information intended for very few eyes. That access has to be as secure as the gold at Fort Knox. So we use Nokia Secure Access System. I'm no computer whiz, but I'm told this system leverages something called SSL technology running on Nokia's IP Security Platforms. Look, the bottom line is this: Instead of worrying if my data is safe, I get anytime, anywhere access to email, the corporate intranet, management portals, and just about any data I need—instantly and in real time. It's way cool!

What other mobile technologies work for you?

I love my Nokia 6820. It gives me quick and reliable access to the data I need and the people I want to contact. It's got a great color screen for my tired eyes. The quality of the speakerphone for conference calling is outstanding. Depending on my mood and needs, I also use my smartphone based on the Nokia Series 60 software platform. It's unbeatable for voice and data connections, whether for email on-the-fly or just messing around on the Internet.

You are in great shape. How do you stay away from the refrigerator during the day?

Working at home takes some discipline. I ration myself two trips to the kitchen for snacks a day, just like a regular office break. And once in a while I ask my wife, "Honey, do I look fat?" Let's just say I married an honest woman.

Learn how to mobilize your team and increase business productivity.
Download "The Anytime, Anyplace World" white paper.

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COMPUTERWORLD

THE VOICE OF IT MANAGEMENT



Think Tank
A good help desk can boost office productivity by 2%, a benchmarking firm says; and a book titled *The New CIO Leader* might help you crack the inner circle of the executive suite. **Page 42**

Career Watch
Too many top executives add too little value; the boom in security hires continues; economic indicators don't have to be boring; and security is where the jobs are. **Page 44**



OPINION
Just Think About It
While it's true that managers thrive on action, Paul Glen says the best ones will learn and grow by reflecting on this year before diving into the next one. **Page 46**



Out of Sync

Global data synchronization can boost worldwide supply chain efficiency, but achieving it may be complicated, painful and costly.

By Carol Sliwa

JAMES O'BRIEN

RADIO FREQUENCY identification may be grabbing headlines as the hot technology in the retail supply chain. But another mammoth initiative was gathering steam long before Wal-Mart Stores Inc. asked its suppliers to affix RFID tags to pallets and cases.

Wal-Mart and more than two dozen retailers, including The Home Depot Inc., Lowe's Companies Inc., Ace Hardware Corp. and grocers Albertsons Inc. and Wegmans Food Markets Inc., have been preaching the merits of data synchronization to help rid their supply chains of error-infested documents and lengthy product introductions. They've asked suppliers to submit standards-based data to a centralized global directory, which in January will be known as the GS1 Global Registry.

Having accurate, updated data fed into their master product files means

GLOSSARY

DATA SYNCHRONIZATION: The process of aligning data between trading partners. Updates to data attributes, such as a change in price or the addition of a color, are automatically delivered to recipients who previously synchronized on published data.

GLOBAL DATA SYNCHRONIZATION NETWORK (GDSN): A global registry and network of interoperable data pools that enable the synchronizing of data between trading partners. The global network removes the need for retailers and suppliers to synchronize with each other on a one-to-one basis. Under the GDSN system, they need only to synchronize with a data pool that sends information to a global registry and is certified to interoperate with other data pools.

GS1 REGISTRY: The centralized directory of the Global Data Synchronization Network. Basic information about products and the companies that make and sell them is registered and stored in the GS1 Registry. "Pointers" are provided to the appropriate data pools, where more information about specific items or companies can be found. All data must be validated against standards established by EAN International and Uniform Code Council Inc. A unique Global Trade Item Number is used for each product and service; a Global Location Number uniquely identifies each company and physical location.

DATA POOL: An entity that provides data synchronization services, registry services and a single point of entry to the GDSN. Data pools must be certified according to EAN/UCC system standards. Data pools interoperate with the GS1 Global Registry and with one another. Approved data pools are CABASnet, Click Commerce Inc., Global Exchange Services, SINFOS GmbH, Sterling Commerce Inc., Transora Inc., UCCnet Inc. and WorldWide Retail Exchange LLC.

retailers won't have to waste time reconciling errors in purchase orders and invoices. And data accuracy is also a critical step in creating the foundation for RFID, when large volumes of information will be flowing fast and furiously through the supply chain.

"You have to have good data," says Kathryn Cullen, a technology specialist at Kurt Salmon Associates Inc., a retail and consumer products consultancy in Atlanta. "Otherwise, you're defeating the point of speeding up data."

But like RFID, data synchronization projects are rife with challenges for retailers and their suppliers. In a recent *Computerworld* survey of 25 project managers, about a third said they're having difficulty mustering the necessary internal resources for data synchronization products, in some cases because the near-term ROI is elusive.

Andrew White, an analyst at Gartner Inc., estimates that only 5% of retailers have launched item synchronization efforts, the first step in data synchronization. Some of the manufacturers that have worked to comply with the big retailers' directives are having difficulty finding other retailers ready to undertake a synchronization project with them, he adds. That makes it tough to recoup compliance costs and move on to the next phase, when the companies will share more extensive product and price attribute data that should bring a bigger payoff, White says.

At that point, slashing the time and hassle associated with introducing products and launching price promotions are just two of the benefits retailers and suppliers can expect, White says. In the longer term, data synchronization efforts should enable more collaborative planning, he adds.

Dirty Data

But today, "mess" is a word that's often used to characterize the state of the data in the internal systems of retailers and suppliers. It's not uncommon to find the same product referred to in different ways in multiple files, obsolete item numbers lingering for years and product attributes, such as dimensions or the number of items in a pack, defined inconsistently from one company to the next.

For instance, Smart & Final Inc. found 47 different addresses for IBM and numerous ways to identify the vendor, and they were all in the same system, says CIO Zeke Duge. Is it CocaCola, Cocacola or Coca Cola — uppercase, lowercase, one word, two words? Smart & Final had them all.

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> **GREG LENARD**, DIRECTOR OF INVENTORY CONTROL, ACE HARDWARE

"We've been in business for 132 years, and there's a lot of dirt under this rug," Duge says.

So it's no surprise that a key first step on the road to data synchronization is getting one's own house in order and cleansing data for the master product file. "You just have to stop at some point in time and fix it," Duge says, "and that's what we did."

The Commerce, Calif.-based retailer spent two years and $2 million cleaning up its data, an effort driven in part by the purchase of a new logistics system. But Duge says Smart & Final doesn't like to issue mandates to its suppliers and has no plans to join the Global Data Synchronization Network (see sidebar below and glossary) at this time.

"I'll leave that to the guys with the Ph.D.s," he says. "It's a great idea, but it's going to be really hard to do. Most of us can't agree what the data is nor what it means."

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SHIFTING STANDARDS

RETAILERS AND SUPPLIERS could use a road map to trace the shifting landscape around data synchronization standards and standards bodies.

UCCnet Inc., a subsidiary of Lawrenceville, N.J.-based Uniform Code Council Inc. launched in 1999, established the first extensive central registry for data, and subscriptions to it were *de rigueur* for U.S.-based retailers and suppliers undertaking data-synchronization projects.

But cognizant that data synchronization needed to be a global effort, the UCC and Brussels-based EAN International forged the concept of a Global Data Synchronization Network based on a central global registry that connects to data pools around the world. That registry will be known as the GS1 Global Registry.

UCCnet, which has 32 retailer and about 3,900 supplier members, is one of eight data-pool service providers – including Transora Inc., Sterling Commerce Inc., the WorldWide Retail Exchange LLC and Global Exchange Services Inc. – that have been approved to connect to the GS1 Global Registry. Certification is in the works to ensure that the data pools can interoperate.

Retailers and suppliers need to select a data pool, which validates the data against standards and sends a set of basic information attributes to the GS1 Global Registry.

"There was a great deal of misinformation about the split of the GS1 and UCCnet, pricing policies, legitimate data pools, interoperability capabilities, etc.," says an e-business project leader at a consumer goods manufacturer, who asked not to be named. "This state of confusion and misinformation made it very difficult to develop a data synchronization strategy."

Michelle Lachance, an electronic commerce business analyst at Seneca Foods Corp. in Marion, N.Y., says it was hard to figure out "who needs to belong to what" and whether any particular service provider has "all it takes to get you compliant."

Howard Singer, a Millville, N.J.-based IT manager at Santa's Best, says some retailers are mandating that the company subscribe to their pools, but the Christmas decorations supplier has no intention of paying to subscribe to more than one.

Some retailers have elected to hold off until the picture clears. An IT strategic planner at a national retail chain who requested anonymity says his company won't be able to build a significant business case for data synchronization until the data standards include both pricing attributes and retailer-dependant attributes, which will enable the company to resolve invoice discrepancies that now cost it money. So the chain probably won't start its data synchronization project until late 2005 or early 2006, he says.

"Those two components make it worthwhile," he says. "But now the standards aren't there to support that."

– Carol Sliwa

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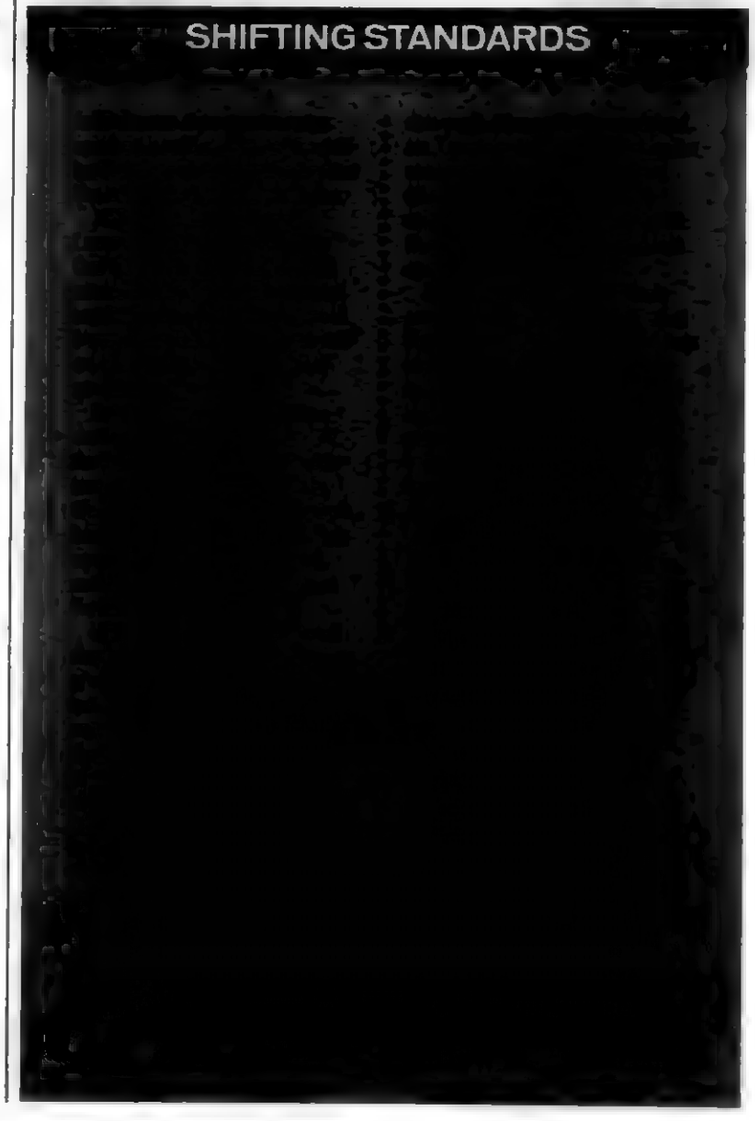
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Continued on page 40





Even if everyone knew about the problem, would anyone know the solution?

Data base logjams. Traffic overloads. Deployment nightmares. Indications that all is not well in Networkland. Web-based applications may be the lifeblood of business, but they've also become its Achille's Heel, as those applications struggle to coexist with a network that's too focused on connectivity and not nearly adaptable enough.

What's needed isn't just another point solution or code fix, but a true solution. One that's not only the answer now, but for whatever the future brings. A solution that makes the network aware of the application, and gives it the intelligence to literally work as one.

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Continued from page 38

control at Ace Hardware, says many retailers have been hesitant to take a pioneering role. But he says it's time for more retailers "to put skin in the game" and help define the standards for data synchronization.

Ace took its first stab at data synchronization about six years ago and later joined a group of hardlines retailers in the tedious task of establishing 151 standard attributes to describe its products. The Oak Brook, Ill.-based retailer currently synchronizes data with four suppliers and is queuing up another hundred.

"This is all new for us, both retailers and suppliers," Lenard says, "so it comes down to application of the standards in a uniform way."

It's also important to make sure the master file of product data is updated when additions or changes are made. Lenard expects that Ace will eventually need to update its database architecture to do that. "That's the next step," he says. "How much are you willing to spend on that? That's the ROI piece.

"Everyone is fully aware of what the future return is going to be," he adds. "But we're not seeing that return now."

Supplier Snags

On the supply side, Binney & Smith Inc. received requests from seven retailers to synchronize data. The Easton, Pa.-based consumer goods maker is currently synchronizing with Wal-Mart and Wegmans and working with Supervalu Inc. and Walgreen Co., according to Richard Siegfried, manager of the company's global data synchronization effort.

Prior to the project, Binney & Smith hadn't been using all the attributes its retail customers now want, and even with those it did use, it wanted to make sure every weight and measurement was correct. So the company marshaled a "dirty data team" to meticulously examine each of its 2,200 stock-keeping units, literally putting a ruler and scale to boxes of crayons and markers to make sure every item specification was accurate. The team then re-entered the information into its systems. The process took about 13 months, according to Siegfried.

He says most of the dirty data had resulted from numbers being transposed when the customer order and planning system was set up. In the past, the company manually entered product description information into each system, increasing the chance of error. Now Binney & Smith uses an internally developed Lotus Notes application to transfer information from its master file in batch mode to the systems that need it as well as to its Transora Inc. data pool (see glossary and diagram below).

Siegfried says the company is planning to buy a commercial ERP product that will communicate with the Transora data pool, which validates the data against standards before transferring it to the GS1 Global Registry.

Because more manufacturers than retailers have ERP systems and they're entering the information into only one system, their data quality tends to be in better shape, says Rob Garf, an analyst at AMR Research Inc. Yet they also encounter problems because the data hasn't necessarily been inputted accurately, he says. In addition, manufacturers face challenges maintaining the data and ensuring that it meets their retail customers' needs.



"It's a great idea, but it's going to be really hard to do. Most of us can't agree what the data is nor what it means.

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For example, the attribute standards that hardlines retailers such as Home Depot and Lowe's developed aren't always appropriate for building materials, says Mike Franklin, an IT manager at Albuquerque-based American Gypsum Co.

The weight of the drywall sheets that the company produces typically varies based on the location of the manufacturing plant, he says. But hardlines retailers had asked American Gypsum to supply weight information as one of the standard attributes. Fortunately, the American Hardware Manufacturers Association recently told Franklin that a gypsum guideline had been approved. "This guideline will hopefully make our implementation less painful," he says.

Franklin foresees the possibility that Home Depot may want some different attributes than Lowe's, and he says he wonders if his company should start storing every attribute it can think of "just in case somebody might want it."

"I'm sure we'll have to go through several phases where we add or modify attributes," he says.

American Gypsum also needs to determine if its Microsoft Corp. Solomon ERP system has enough user-definable fields to handle all the product attributes, Franklin adds.

So far, the return for the effort has been minimal. "Really, the only place we're going to get some noticeable ROI is our customers will have better visibility to the products we carry," Franklin says. "We're happy to try to accommodate that." **50795**

PHASES OF SYNCHRONIZATION

ANDREW WHITE, an analyst at Gartner, says synchronization efforts in the retail supply chain will move forward in the following phases:

1 Item synchronization. Suppliers register basic product information into a central registry that retailers can access.
TIME FRAME: 2002-2005

2 Data synchronization. Suppliers provide more extensive regional and even retailer-specific product attribute information, such as price terms and promotions, to be stored in data pools or repositories that will communicate with one another via industry standards-based messages.
TIME FRAME: 2005-2007

3 Process and global data synchronization. More extensive attribute information is used for collaborative planning and forecasting and business process interoperability.
TIME FRAME: 2007 and beyond

THE GLOBAL DATA SYNCHRONIZATION NETWORK

A manufacturer/supplier registers its product information with its data pool, which validates the data against standards and submits basic information to the GS1 Registry. A retailer subscriber makes a request for product information through its data pool to the GS1 Registry. A pointer directs the retailer to the data pool, where more extensive product attribute information is stored. The retailer's data pool and the supplier's data pool then synchronize their data.



Continued from page 38

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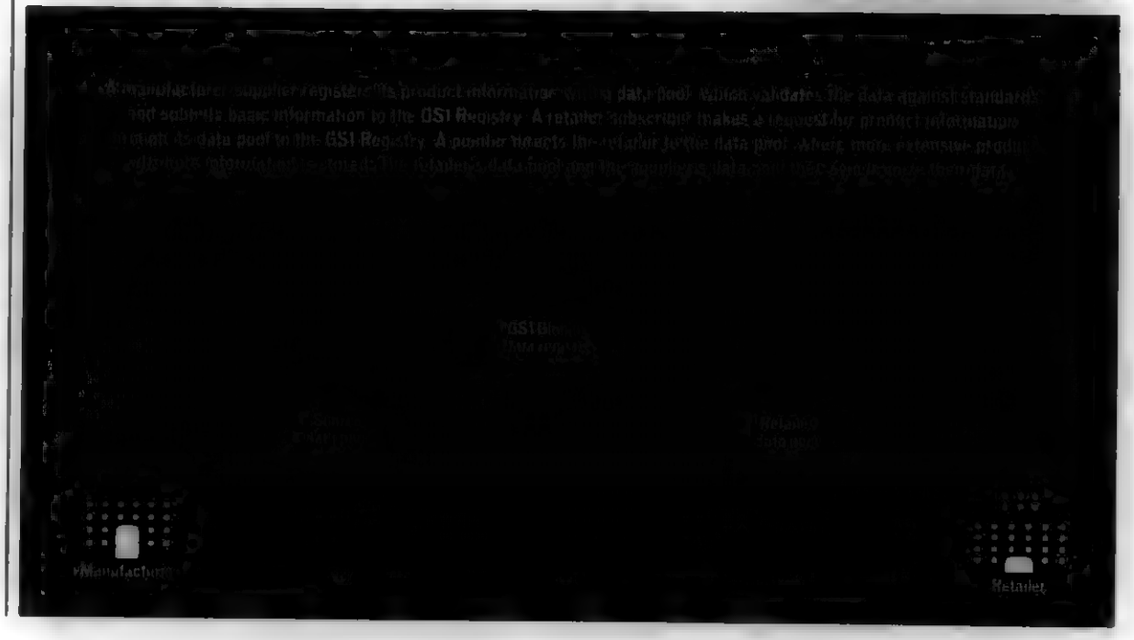
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DB2, like other IBM database engine products such as Informix* and Cloudscape,* is also middleware with an eye on your resources. All of them. An ITG study showed overall costs for Oracle Database are up to four times higher than DB2. A Solitaire study found that, on average, Oracle Database required 25% more time to manage than DB2. And the Transaction Processing Performance Council showed DB2 as the overall price/performance leader for TPC-C on Linux, UNIX and Windows, ahead of both Oracle Database and Microsoft* SQL Server.

Then there's this: Oracle will drop the current level of support for Oracle Database 8i at the end of 2004. Meaning limited support, higher cost or a complete migration to current versions. Fortunately, IBM offers ongoing, around-the-clock service and support for DB2.

Why not move up to middleware that makes sense? Through the end of the year, you can get IBM DB2 Universal Database or Informix by taking advantage of our extremely compelling trade-up promotion.
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ThinkTank



THE Hidden Costs OF HELP DESK AVOIDANCE

Employees spend an average of 30 minutes per week either trying to fix their own PC problems or working on a co-worker's PC problems, according to research by Compass America Inc., a Chicago-based IT benchmarking firm.

This self-sufficiency and helpfulness may seem like a good thing, but from the company's point of view, it's not very cost-effective, says Scott Feuless, a senior consultant in Compass' Houston office. For starters, it may be a sign that end users have little confidence that the IT help desk can really help or that users don't know that the help desk could solve their problem. Plus, that 30 minutes of lost work productivity is hurting the company and could be reduced to an average of 10 minutes with a top-notch help desk, Feuless says.

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Make the help desk a one-stop shop for PC fixes, so calling it isn't viewed as a waste of time.

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Standardize PC hardware and software so the help desk can effectively come up with standard fixes. – *Mitch Betts*

Best Bits

The most useful parts of recent business and IT management books

The New CIO Leader: Setting the Agenda and Delivering Results, by Marianne Broadbent and Ellen S. Kitzis (Harvard Business School Press, 2004).



On one level, this book is a disappointment. The authors posit 10 critical ways for the CIO to become a strategic business player instead of being relegated to the sidelines as a "chief technology mechanic." But the 10 points include virtual no-brainers such as, "Lead, don't just manage," "Weave business and IT strategy together," and "Develop and nurture a high-performing team." Ack! We've read this a zillion times.

Fortunately, sprinkled in various nooks and crannies of the book are some useful insights and techniques for becoming a trusted member of the executive elite. For example, the authors mention the role of credibility – not just delivering IT projects on time and on budget, but "delivering results that your enterprise leadership really cares about." Frankly, they say, it's the only success metric that matters. Plus, the authors provide advice on when and how to get involved in company politics.

If you're new to the CIO game or struggling to crack the inner circle, this book might be for you. – *Mitch Betts*

The IT Economy

Does IT matter in Europe? Yes, according to an IDC survey of 197 European business executives. When the survey directly probed the issue of whether executives think IT matters to their business success, 46% of respondents said it's "critically important." And 42% said their companies need to be more aggressive in their use of technology for competitive advantage, according to IDC analyst Frank Gens...

Things to Ponder

In a survey of 300 global organizations, 57% of respondents said they use instant messaging at work for personal reasons, Meta Group Inc. reports. And 56% use IM at home for business purposes.

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Top IT Management Concerns

1	IT and business alignment
2	Retaining IT professionals
3	Security and privacy
4	IT strategic planning
5	Speed and agility
6	Government regulation
7	Complexity reduction
8 (tie)	IT governance
8 (tie)	Information architecture
10	Business process re-engineering

(Arrows indicate movement from last year's survey.)

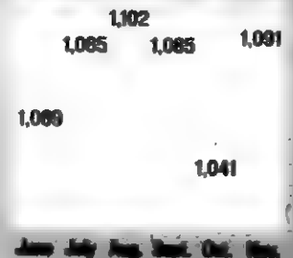
Base: 100 senior IT leaders attending SIMposium 2004, Chicago

SOURCE: SOCIETY FOR INFORMATION MANAGEMENT, SEPTEMBER 2004

Buying Intentions

IDC researchers say that their index of business IT demand shows that spending expectations have edged up a bit in the past month. IDC analyst Carol Glasheen notes that's because fewer companies expect to decrease their IT spending over the next 12 months, which gave the average a little boost. But she says this isn't a real trend "until buyer intent remains steady for at least three months in a row."

Index of Business IT Demand, 2004



The buyer intent index is based on monthly surveys of 400 to 500 U.S. CIOs and business executives who are asked about their IT spending expectations for the next 12 months. Results are weighted to be representative of the U.S. market. An index of 1,000 means zero growth. Caveat: Buying intentions don't always lead to real spending.

SOURCE: IDC'S FUTURESCAN, FRAMINGHAM, MASS., NOVEMBER 2004

ThinkTank

BRAIN FOOD FOR IT EXECUTIVES.



THE Hidden Costs OF HELP DESK AVOIDANCE

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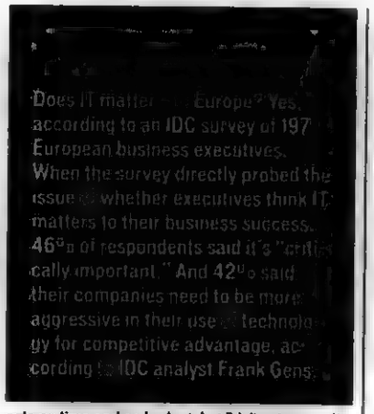


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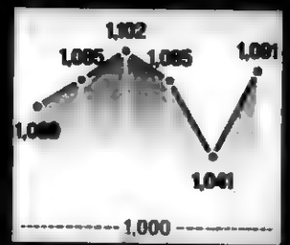
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Index of Business IT Demand, 2004





- 19" Analog/Digital TFT
- Full pivot,
- 178°,
- MagicT

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with its MagicTune™ softw
experience. This kind o
guidance. Not to men

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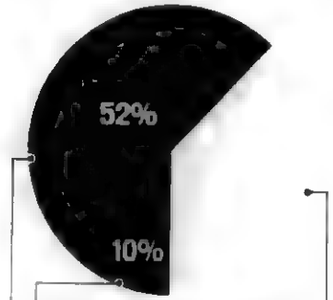
Career Watch

Toxic Toll

A NEW STUDY indicates that 90% of the world's highest-paid and best-educated executives aren't helping their companies increase sales or profits, and 38% aren't providing any quantifiable benefit at all to their organizations.

The study focused on 3,104 executives deemed most critical to the success of some of the biggest companies in the U.S., Australia, China, France, Germany, Italy, Japan, the Netherlands, Sweden and the U.K.

Looking at criteria such as profit, revenue, process improvement, product improvement, customer satisfaction, teamwork, safety and social responsibility, here's how the top execs shook out:



- **High performing** (quantifiable impact on increased sales/profits)
- **Average performing** (quantifiable impact on at least one of the criteria)
- **Nonperforming** (no quantifiable evidence of impact on their companies)

Susan Lucia Annunzio, CEO of the Hudson Highland Center for High Performance, conducted the study. She found that high performers' bosses shield them from company interference, politics and bureaucracy so they can do their work. In contrast, nonperformers' bosses provide no protection from external interference, let them tread neck deep in distractions that have nothing to do with their jobs and often foster "toxic" practices such as hoarding information, embarrassing people with public criticism, micromanaging, shirking responsibility, taking credit for others' successes and pursuing personal agendas at the expense of the team.

OTHER FINDINGS:

- **The more hours and fewer vacation/sick days executives logged at toxic workplaces, the worse their performance got.**
- **77% of respondents thought their work increased company revenue, compared with 10% whose work actually did.**
- **Only 17% are developing new products or services, while 40% are focused on increasing internal efficiencies.**

The single biggest impediment to high performance, Annunzio says, is short-term thinking, which leads to overworking executives and cutting muscle along with fat.

– Kathleen Melymuka

Security Jobs Boom

There are 1.3 million information security professionals worldwide, a 14.5% increase over 2003, according to estimates by IDC, and that number is expected to increase to 2.1 million by 2008. In a survey of 5,371 full-time information security professionals in more than 80 countries, IDC and its co-sponsor, the International Information Systems Security Certification Consortium, also found the following:

- **Companies are reluctant to outsource security jobs because of concerns about a lack of control over the workforce and international laws regarding data loss.**
- **Regulations like the Sarbanes-Oxley Act, HIPAA and the Graham-Leach-Bliley Act are driving growth, as are new technology implementations and ever-evolving threats.**
- **More than 97% of respondents had moderate to very high expectations for career growth.**
- **Security professionals have experienced growth in job prospects, career advancement, base salaries and salary premiums for certification at faster rates than other areas of IT.**
- **Information security managers believe that continuing education and certification are important to the profession, with strong business acumen becoming an essential ingredient for professional success.**
- **More than 10% of respondents held executive management titles such as chief information security officer and chief security officer – positions that didn't exist 10 years ago.** 50705

Tongue-in-Cheek Index

In *The Wall Street Journal*, Jared Sandberg offered this lighthearted list of new indexes to gauge the health of your workplace:

PERK DEFICIT: Reduction of workplace assets, from free food to office supplies.

FUDGE-IT SURPLUS: The depth of trouble a company is in, based on the number of times management insists it's healthy.

DISPOSABLE PERSONAL MINCOMPOOPS: Inventory of idiots on hand, based on everything from suggestion box entries to PowerPoint presentations.

BLEEDING ECONOMIC INDICATOR: Voluntary departures of key personnel.

REALLY GROSS DOMESTIC PRODUCT: Trash piling up in office garbage cans as a result of janitorial cutbacks.

NO CONFIDENCE INDEX: The rise and fall of company T-shirt and baseball cap production.

OFFICE PARK AGRICULTURAL INDEX: Ratio of costly annuals to cheaper perennials around the parking lot.

IT Hiring Heating Up

Monster Worldwide Inc.'s Monster Employment Index counts its online job postings as an indicator of job availability. It showed a continuing four-month upward trend in the computer and mathematical occupations category, which captures the greatest number of IT-related positions.

Based on the number of online job postings in relation to total working population, the Monster index found the following locales to be leading in job availability during the month of October:

1	[illegible]
2	District of Columbia
3	Maryland
4	Delaware
5	Virginia
6	California
7	Massachusetts
8	Connecticut
9	New Jersey
10	Florida

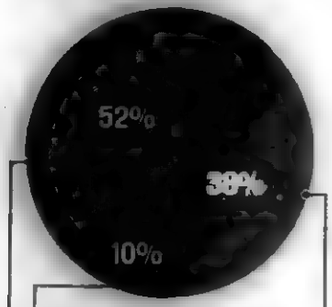
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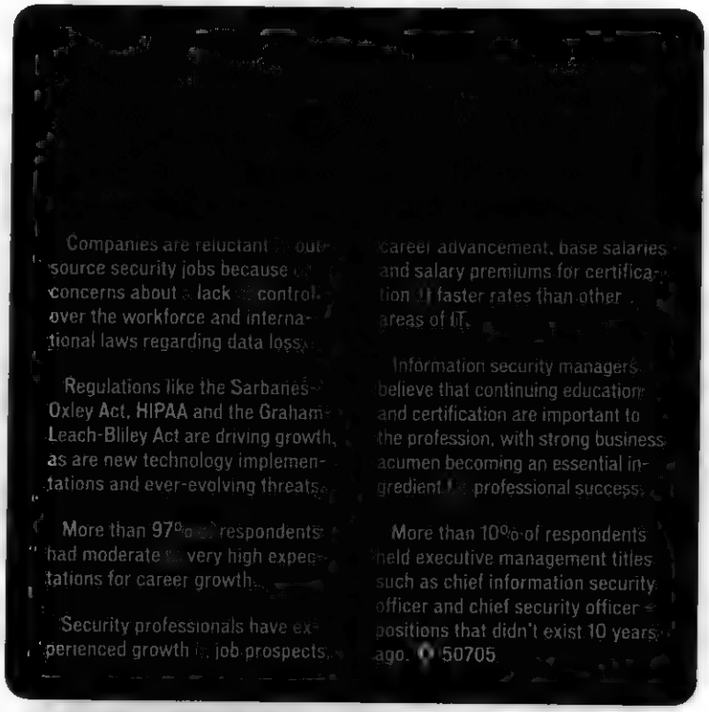
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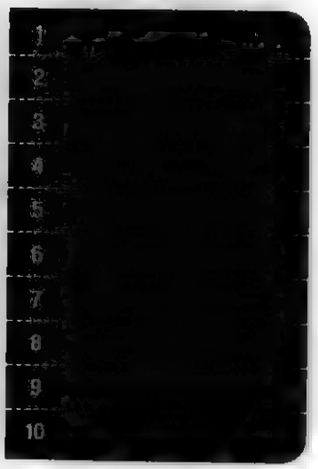
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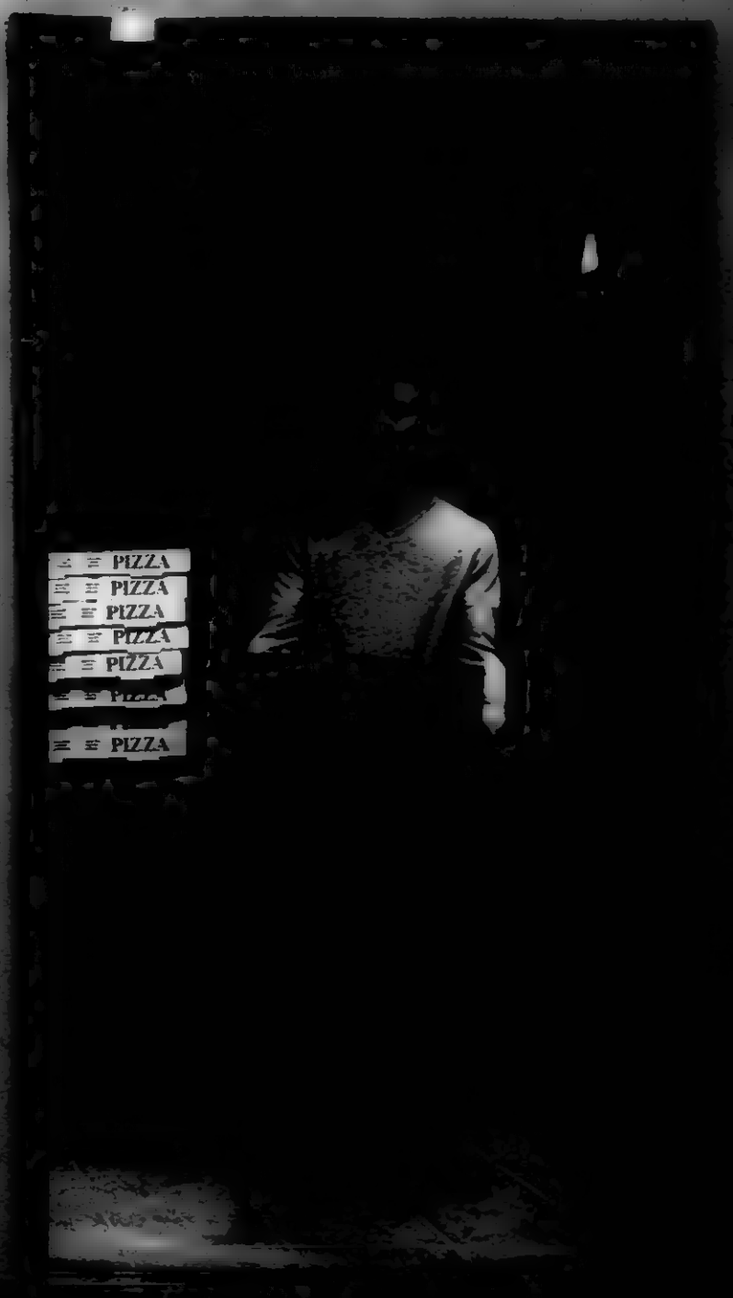


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EMC²
where information lives

Fr: can't afford to

To: can't afford not to



QUICK HITS

IT Risk Analysis

How does your organization incorporate risk analysis into your current technology justification process?



- Qualitative discussion of risk
- Risk tied directly to financial metrics
- No risk analysis
- Don't know

BASE: 269 TECHNOLOGY INVESTMENT DECISION-MAKERS

Does your current method adequately capture risk associated with technology investments?



BASE: 238 TECHNOLOGY INVESTMENT DECISION-MAKERS

If you tie risk to financial metrics, how do you quantitatively identify and analyze risk?

- Adjust cost and benefit estimates 76%
- Perform what-if scenario analysis 58%
- Adjust the discount rate 41%
- Adjust the hurdle rate 30%
- Don't know 4%
- Other 3%

BASE: 96 TECHNOLOGY INVESTMENT DECISION-MAKERS (MULTIPLE RESPONSES ALLOWED)

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS., SEPTEMBER 2004

PAUL GLEN

Just Think About IT

MANAGERS, AS A GROUP, tend to be action-oriented. We measure ourselves, our importance and our effectiveness in part by the level of activity around us. The louder the hum of machinery, the faster the shuffle of feet in the corridor and the larger the proportion of time we spend in meetings, the better things must be. Stuff is happening, and that's what we're supposed to do: make things happen.

So it's natural that at the end of the year, our attention often focuses on planning activities for the next year. We've arrived at the season of strategic planning sessions, budgets and project proposals. In the coming month or so, most of our organizations will set the stage for what we want to do in the next year.



Paul Glen is an IT management consultant in Los Angeles and the author of the award-winning book *Leading Geeks: How to Manage and Lead the People Who Deliver Technology* (Jossey-Bass Pfeiffer, 2003; www.leadinggeeks.com). He can be reached at [redacted]

Action is great, but before diving into planning more actions, it may be time to pay attention to the other end of the managerial spectrum: reflection. That's right; I'm suggesting that the end of the year is a great time for just a little bit of inaction. It's the perfect way to prepare for better action in the future.

Reflection seems to get a bad rap in managerial and leadership circles. There are a few reasons for this.

Many of the most competitive and aggressive businesspeople I know conflate reflection with self-doubt. For them, it's an activity for wimpy, tea-drinking, "girly men" (and women), not the work of serious leaders. They are out and about telling people what to do and occasionally listening to what others have to say. For them, leadership is primarily a public-facing function.

Even those who don't denigrate reflection seem to shy away from it. Thinking deeply can be uncomfortable. We might learn things that we'd rather not know about ourselves, our work or our organizations. It's also an activity without a guaranteed result. What's the deliverable? Insight seems too vague to justify the investment when there are immediate concerns waiting right outside the office door.

More broadly, as a culture, we seem more comfortable with cacophony than quiet. If you believe the personal ads on Match.com, everyone loves quiet, moonlit walks on the beach. But having lived on the beach in Los Angeles for seven years, I can assure you that at night, there's no one out there. All you see is flickering blue apartment windows bathed in the warm glow of televisions. We're much more engaged with the ever-expanding variety of media content and advertising designed to invade every second of our consciousness.

So, how should you focus your reflection to make the best use of the time? I'd suggest that at least a few key questions be on your agenda.

What did I learn this year? Too often, we look to what happened or didn't happen in the past year as a guide for what we should do next year. Experience offers the potential for growth, development and maturation, but to seize it requires that we pay attention not only to considering the events of the past year, but also to interpreting their meaning.

What did my staff learn this year? Believe it or not, the people who work for you are learning too. At times, it may not feel like it, but they are. But what they learned may not be the same things you did. What did they learn from you? What did they learn about you and about working for you? What did they learn from their successes and failures?

Is what you've learned compatible? This is the tough one, and it requires a fair amount of perspective and candor. Will this past year's learning bring you closer to your staffers, or will it alienate them from you?

The answers to these questions can help you guide not only the future actions of your group, but also how those actions are carried out.

So, where can busy people find the time to reflect? Drive home with the radio off. Rent a remote cabin. Take a really long bath. Sit in a coffee shop for an entire morning without a BlackBerry, a cell phone or a laptop; take only a notepad and a pencil.

If you want to really distinguish yourself as a leader, invest in a little reflection. It can set the stage for focused and meaningful action. **50676**

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Sr. Applications Engineer wanted by Software Development firm. Requires BS in Comp. Sci. plus 5 years exp. in Oracle11i and J2EE. Send resume to Globevale, Inc. 430 Franklin Village Dr., Suite 109, Franklin, MA 02038

IT professionals (programmers, analysts, DBA, system administrator, software engineers) wanted by Advanced Technology Group to design applications using Java, Oracle, SQL, HTML, WebLogic, JSP, VB, EJB. Min requirement is BS/MS with exp. Please send resume to info@atgusainc.com. EOE

Extrmware, a service Co. for global agriculture trade markets, is looking for Business/Sys. Analysts, DBA & S/W Eng. Min BS with exp. required. Key skills: s/w design, dev. and testing, project mgt., OO programming., Java, and Xml. Send resumes to: careers@extrmware.com. EOE. No calls.

Infogen is seeking IT professionals to design applications for clients using Oracle9i, Weblogic / WebSphere, C++, Visual C++, VB, COM, STL, MTS, MSMQ, ASP, Java, HTML, XML, MTS, MSMQ, ADO, UML. Min BS, travel is required. Send resume to infojobs@infogeninc.com. EOE.

Software engineers/system analyst/DBA wanted by Wiztech, a small but well-established IT consulting company. Applicants must have BS/MS degree with solid experience in the IT field. Competitive wage, standard benefits & stable projects. Please contact hr@wiztech.com. EOE. No calls.

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SYSTEMS ENGINEER TEAM LEAD

Manage system engineers and computer application developers and other personnel to coordinate the design, development, implementation and testing of high volume transactional telephonic and web based business applications and database systems for the commercial and government sectors containing highly confidential personal information, government verifiable audit controls and interactive voice response. Manage professional staff to resolve problems, design and document, usability testing and ensure system functionality and performance. Requires Bachelors or equivalent level degree in Computer Science, MIS, Statistics, Engineering or closely related field and four years experience in the leadership/management of computer applications development projects. Qualified applicants must presently be eligible for permanent employment in the United States. (8:00 a.m. to 5:00 p.m.), 40 hours per week, overtime as needed without additional compensation. Position is with TALX Corporation in St. Louis, Missouri. Send resumes to Ms. Ellen Stanko, Director of Human Resources, TALX Corporation, 1850 Borman Court, St. Louis, Missouri 63146 EOE.

Seeking qualified applicants for the following positions in Collierville, TN: Senior Programmer Analyst: Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with designing/coding GIS applications using MapQuest Geolocate and/or ESRI server GIS products also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Tim Ames, FedEx Corporate Services, 80 FedEx Parkway, 2nd Floor Horizontal, Collierville, TN 38017. EOE M/F/D/V.

Systems Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design, develop, test, and implement web-based applications that link to databases for business clients located throughout the U.S. Extensively work with data warehousing applications. Engage in performance tuning and optimization of databases. Use Oracle, MicroStrategy, Business Objects, Teradata, and COGNOS. Applicant must have B.S. degree in Computer Science, Business, Math or Engineering. Applicant must also have 2 yrs. exp. in the job duties described above or in any computer related occupation which must include skills listed above. 40hrs/wk, 8am-5pm. M-F, $65,000/yr. Send resumes to: Job No. 29899, P.O. Box 488, Montpelier, VT 05601-0488

Lead Software Security Test Engineer needed to analyze software at the binary level to include x86 assembly, computer architecture, reverse engineering, disassembly and decompilation, manage a team of highly skilled software security test engineers and interact with customers, as well as converse with engineers at the lowest level of technical detail. Candidates must have a master's degree in Software Engineering or Computer Science and 1 year experience. Send resumes to: Security Innovation, Inc. 4450 West Eau Gallie Blvd. Suite 240, Melbourne, FL 32934. Attn: Human Resources.

Software Engineers (Irving Mexia Dsg w/2yr exp or Bach Dsg w/5 yrs exp), & Progmr Analysts w/exp for IT Co. Exp must incl comb's of Java, Custom Portal implementation using Java/J2EE Technologies, Business process re-engineering ATG architect/manager for custom J2EE based personalization webs/esp portals, EJB Servlets, JSP, C++, C, Net, C#, COM, DCOM, MQSeries, MQSI, Web methods, TIBCO, Seebeyond, EDI, Gentran, Harbinger, TLE, Oracle Clinical, SAS Programming, QA Validation, QATesting, Win runner, Loadrunner, Cardiff, Smalltalk, Reporting services, .Net, ASP.NET, VB.NET, C#, ADO.NET, Web Services, Remoting, Datawarehousing, Business Objects, Informetica, Datastage, Microstrategy, Actuate, Siebel, Informix, Sybase, Oracle, SQLServer, DB2, MS-Access, Unix, Windows 2000/XP/2003, Netscape Application Server, SAP Bases for SAP R/3 & MySAP Components, BEA Web Logic, Cognos ReportNet on IBM Websphere. We are also looking for Networking Consultants with exp in global office connectivity,branch connectivity using BGP routing protocol, design, develop, test & implement network solutions. Must have relevant exp. Reply w/ 2 copies of ref: HRD Hallmark, Global Technologies, Inc., 991 Forest Ave., Suite #4, Portland, ME - 04103. Email: resumes@hgtechinc.net

Programmer/Analyst (multiple posions) needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design, develop and implement client server, web-based, and ERP computer applications for clients located throughout the U.S. Use PL/SQL, XML and Oracle in Windows and Unix environment. Use J2EE technologies. Use Informatica and Cognos for data warehousing. Applicant must have B.S. degree in Computer Science, Business, Math or Engineering. Applicant must also have 1 yr. exp. in the job duties described above or in any computer related occupation which must include skills listed above. 40hrs/wk, 8:00am-5:00pm, Mon-Fri, $60,000/yr. Send resumes to: Job No. 29862, P.O. Box 488, Montpelier, VT 05601-0488

Solutions Developer Order Mgmt Systems (OMS)-Jersey City, NJ: sought by Global Logistics & Transp Co to: anlyze, dsgn, dvlp & implmnt standard operating procs for OMS, compatible with IT applications. Configure, test & t/shoot proprietary systems. Spvse 2. Must have Master's Deg in Int'l Bus or IT or related Comp field & 2 yrs exp in job off'd or 2 yrs rel exp in mgmt or spzd pos in Order Mgmt Sys or Global Ctly Mgmt Sys. Must be cert'd in Procurement & Logistics Mgmt & must have ability to work w/major global clients to create logistical solutions in CIEL. Send resumes to: H.Shegani, Exec Admin, Kushne & Nagel, Inc., 10 Exchange Pl., 19Fl, Jersey City, NJ 07302.

IT CAREER OPPORTUNITIES

DELAWARE - Network Engineering Services Analyst. Deliver telecommunications services related to internet/firewall and perimeter security for South American clients. Position requires a BS and relevant experience, a combination of experience and college level education may be accepted. The flexibility to travel and be on call may be necessary. Must be fluent in Spanish and/or Portuguese. Proof of legal authorization to work in the U.S. is required. Please forward your resume to Computer Sciences Corp., Attn: J. Le, 2100 E. Grand Ave., Mail Code A209, El Segundo, CA 90245

Medical Information Tech Analysts needed in Tampa, FL. Req. Bachelor's degree or equiv (as determined by properly evaluated credentials) in Biology, Pharm, or related & 5 yrs. exp in job offered or in related occupation as a Computer Professional. Rel exp must include 3 yrs working in the Pharmaceutical industry with Medical Information Systems analysis & design of business requirements. Duties: Design, develop, analyze & document business processes in a pharmaceutical environment; document pharmaceutical process & translate into end user system for coding; design business requirements & medical information systems work closely with other pharmaceutical process teams to facilitate project progress & to ensure an integrated system solution; test pharmaceutical information system for compliance with medical/pharmaceutical client needs; maintain current insight to SAP, policies, technology, products & medical/pharmaceutical industry issues; enabling knowledge transfer to clients; complete internal projects & reports; perform IT support; programming & website development; travel to interact with clients at various locations for different short and long term projects; work with SAP site pos. avail. 40 hrs per wk., 8 AM - 5 PM, $76,000/yr. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869. Ref Job Order #FL-2582478

BCCUSA Inc - South Portland, ME needs experienced System Administrators having a Bachelors Degree with minimum two years of experience in installation and maintenance of Red-Hat Enterprise Linux AS3, Windows 2000/2003 servers in high availability DEV/QA/Production environment. Patch management using Shavlik HFNetChkPro and System monitoring using DeepMetrix IPMonitor. Experience in IIS/Apache Web servers. J2EE application servers like JRun/Orion/JBoss and software build/deployment tool ANT is desired. Competitive salary and benefits. M-F, 40 hours/week. Please mail your resume to BCCUSA Inc., HR Dept., 650Main Street Ste 201, South Portland, ME-04106

Seeking qualified applicants for the following positions in Memphis, TN: Senior Programmer Analyst: Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree* or equivalent in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with J2EE, Oracle databases and airline scheduling systems also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Matt Coplas, FedEx Corporate Services, 2955 Republican Drive, 2nd Floor, Memphis, TN 38118. EOE M/F/D/V

BCCUSA Inc-South Portland, ME needs experienced Programmer Analysts having a Bachelors Degree with minimum two years of experience in Documentum 4i/5, DFC 4.0/5.0, GxPharma 4.3, WDK4.0/5.0, WCM, eContent Server 4i/5i, Unix, JSP, JRun, JDBC, Servlets, XML, RMI, JMS, EJB, ASP, JavaScript, VBScript, WebLogic and Oracle. Competitive salary and benefits. M-F, 40 hours/week. Please mail your resume to BCCUSA Inc., HR Dept. 650Main Street Ste 201, South Portland, ME-04106

Omnisoft, Inc.

Software Engineers: Research, design, develop, test, & recommend software requirements for E-commerce database applications. Use Oracle, Java, Perl, XML, Solaris, Web logic, C++ & current Web Technologies in Windows, Unix, and Linux environments. Need Bachelor's in Comp Science or related and 2 yrs of exp.

Programmer Analysts: Design & develop Enterprise Resource Planning, Customer Relationship Management, ASP, Data-warehouse applications. Use current web technologies, web services, Stored procedures and SQL. Work in Unix Environment and Unix Schell Scripting. Need 2 yrs of exp.

Send resume to: HR Manager, Omnisoft, Inc., 2215 W Russell Ave. Sioux Falls, SD 57104 or via e-mail at hr@omnisoftinc.net

Project Director in Mesa, AZ to direct & vd. manageable onsite/offshore elearning & applications development projects. Must have MS deg., or foreign equiv., in Eng., Comp. Sc. or rel. field & 3 yrs proj. eng. exper., incl. proj. design, implementation, planning, reqts. analysis & execution, 2 yrs. exper. in software proj. eng. for comp. or web-based training & proj. mgmt. exper. Bach. deg., or foreign equiv., in Eng., Comp. Sc. or rel. field & 5 yrs. progressive proj. eng. exper., incl. proj. design, implementation, planning, reqts. analysis & execution, plus 2 yrs. exper. software proj. eng. for comp. or web-based training & 1 yr. proj. mgmt. exper. can subst. for MS deg. & required exper. Send resume to Hilary Gosselin, HR Manager, Lionbridge Technologies, Inc., 492 Old Connecticut Path, Framingham, MA 01701

Maintain Dental mgmt. practice s/w to encompass appointment, billing, accounting & record keeping. Maintain Web & d/base appl./sys. by using XML, ASP.NET, VB.NET, Visual Studio, Crystal Reports & IIS. Req: Bachelor in Electrical Eng., or Comp. Sci. 40hrs/wk. Job/Interview Site: Anaheim, CA. Send resume to Dr. Tarlochan Singh DDS, APC @ P.O. Box 19914, Anaheim, CA 92817.

ObjectWin seeks System Analyst, DBA or other IT professionals. Applicants must have BS/MS or equivalent. Skills in ASP.Net, B2B, VB, Java, HTML, VB.Net, XSL, CSS, MS CMS, SSL & MS preferred. Good wage. Travel required for some jobs. Apply at zkarande@objectwin.com. EOE. No calls.

Synova has multiple openings for Project/Software Engineers, System Analysts, DBA. Our clients include Fortune 500. Candidates must have MS or BS with experience. We offer attractive wage with full benefits. Travel may/be required. Email resume to jobs@synovainc.com. EOE. No calls.

Software Design and Development Administrator for Medical Day Spa to analyze, design and implement solutions for Internet related activities, such as web design and development, e-commerce, software application design, etc. using MS dotNet technologies (specially WinForms, ASP.NET, ADO.NET and MS SQL). Supervise and coordinate workers remotely. BA in Bus. Adm or MIS +2 yrs exp in job offered/working experience in Object Oriented programming req. Forward resumes to: Jayne Eshelman, Cara Mia Care Center, 19841 E. Parker Sq. Dr., Parker, CO 80134.

Programmer/Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design, develop, code, test, and implement computer applications/systems for clients located throughout the U.S. Use Visual Basic, Oracle, Clarify, TIBCO, PL/SQL, and SQL Server. Applicant must have B.S. degree in Computer Science, Business, Math or Engineering. Applicant must also have 2 yrs. exp. in the job duties described above or in any computer related occupation which must include skills listed above. 40hrs/wk, 8am-5pm, M-F, $65,000/yr. Send resumes to: Job No. 29933, P.O. Box 488, Montpelier, VT 05601-0488

Sr. Software Developers/Engineers with BS in CS, IS, Math or Engg and 3 yrs progressive development exp in current MS operating system environments using Windows. One position requires 1 year web-based exp with .Net, C#, Java, XML, SQL, VB and Windows 95/98/NT 2000. One position requires 1 year exp with Java, J2EE, Corba, and SQL. Resumes only to B. Ashmore, Advanced Solutions, Inc., 1510 Klondike Road, Suite 400, Conyers, GA 30094

Programmer Analyst

Plan, develop, test, document computer programs; consult with user to identify operating procedures for workflow, financial & medical applications; determine feasibility, cost/time required; convert project specs, prepare flow charts using Visio, Rational Rose; enter program codes/commands; debug syntax/logic errors written in Delphi, Java & RDBMS (MS Access, SQL Server 2000); use Visual SourceSafe, CVS. Req. BS Comp. Sci., Applied Math, related or equiv. & 2 yrs. exp. Resume to HR, SDA Software, 11301 Coolwood Rd, Louisville, KY 40223.

IT specialists wanted by Deligent LLC to develop applications using Oracle, SQL, VB, Java, C/C++, SAP, AS/400, Developer 2000, Windows NT, etc. Minimum is BS/MS with IT experience. Travel maybe required. Competitive wage with benefits. Apply at jobs@deligent.net. EOE.

Immediate openings for both entry & experienced Systems Analysts, Software Engineers, DBA & IT Consultants. Job duties & tools vary depending on position. BS/MS, 0-3 yrs exp reqd, accept foreign edu. equiv. Travel may/be required. Send résumé & salary requirements to: Saras America, Inc. hr@SarasAmerica.com. EOE

S/W Engineers - Dvlp & support S/W to process & analyze magnetocardiographic (MCG) signals: digital signal processing, ODBC prgmg, data acquisition, communication w/ SQUID electronics, real time data display, GUI & debugging. Use Visual C++, SQL, multithreading prgmg, Visual Studio C++, RDBMS, MFC, DAO, Win SDK. Comp Sci/Engg & exp req'd. Send resume to CardioMag Imaging, Inc., 4th Fl, 450 Duane Ave, Schenectady, NY 12304. EOE

Radio Frequency Engineers needed. MS or equiv. and rel. work exp. Duties include: Analyze, design, implement, optimize, & enhance wireless telecomm. networks. Link budgets analysis & system dimensioning for coverage & capacity. Oversee & guide the work of Assoc & Design Enggs. Position may require travel. 3 yrs of Radio Frequency exp with at least 2 yrs Nortel equip. exp. Send res., ref., & sal. req. to IT Wizards Inc., 181 State St., Augusta, ME, USA 04330.

SYSTEMS SOFTWARE ENGINEER to provide on-site consultancy to analyze, design, develop and implement systems software in web architecture using Java, JSP, WebLogic, Oracle, DB2 and WebSphere for J2EE applications in objected oriented and Windows environment. Require Master in Computer Science/Applications and three years experience in the job offered or any experience providing skills in the described job duties. 40% travel to client sites within the U.S. required. Competitive salary and benefits, 40-hr week, M-F. Mail resume to: Human Resource Manager, 4C Solutions, Inc., 1201 7th Street, East Moline, IL 61244.

Computer Professionals (Multiple Openings) Must have bachelors or equivalent degree and/or experience in computer science, engineering or related field and experience in some of the following skills: C/C++, Java, J2EE, WSAD, WBI (Crossworlds), VB, Oracle, SQL Server, Sybase, PeopleSoft, Siebel, SAP, EDI, EAI, Oracle Financials, Main Frame environment, Cobol, DB2, Facets, AS/400 on Windows and /or Unix Platforms. Must be able to travel or relocate nationwide. Attractive compensation package. Please Email to: resumes@sharpedge.com OR mail to: HR Department, Sharpedge Solutions Inc, 2200 S. Main Street, Ste # 205, Lombard, IL 60148

Software Engineer to analyze, design, develop and test client server enterprise applications using J2EE, Java, C++, Servlets, JSP, XML, HTML, CORBA, Oracle, Websphere on Windows and UNIX operating systems; generate code from client requirements using Visio 2000 and UML; evaluate and enhance performance of enterprise application using JProbe Suite and automate testing process using WinRunner. Require BS or foreign equivalent in CS/Computer Engg with 3 yrs of exp in IT. Competitive salary, F/T. Resumes to CyberObject, 3060 Business Park Drive, Suite A-1, Norcross, GA30071

C & G Pharmacy LLC (Houston, TX) is seeking a Computer Support Specialist using Radio Frequency Sensing and Ultrasonic Detecting Technologies. 6 mon. exp. Mail resume to 11618 Aldine Westfield, Houston, TX 77093 or 281-442-1432(F). Attn: Sunny Chin.

Seismic Micro-Technology, Inc. seeks a Geosciences Software Quality Assurance Tester to analyze and test seismic software. M.S. 1 yrs. exp. in using geosciences software. Send resume to 9584 Katy Fwy, #400, Houston, TX 77024 Attn: Manager of HR or 713-464-8440(F).





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Armor Technology is currently looking for a Senior Analyst for our Chandler, AZ office. The primary function of this position is to perform project management and web architecture design utilizing tools such as Java, JSP, ASP, Websphere, HTML, JavaScript, Dreamweaver, Oracle etc. analyze document reqs and recommend software solutions; analyze appl architecture design appls by creating prototype solutions and study feasibility; create software development plans, implement strategies to improve business processes. Provide comprehensive support for product lifecycle business processes, platform, and integration reqs utilizing various PLM tools including Agile & SCMnet. Require a Bachelor's degree or foreign equivalent in CS/Business/Engineering and 2 yrs exp in web technology. In lieu of a Bachelors, 3 yrs of academic studies in one of stated fields plus 1 extra yr of work exp in web technology will be accepted. Competitive salary. Int. Send resumes to HR, Armor Technology, 1900 South Price Road, Chandler, AZ85248. Refer Job Id AKT1104

Internet Development Analyst. Responsible for planning, developing and deploying eBusiness applications and technologies in support of Roche's business activities. Specifically: Developing new web applications, as well as extensions, modifications and interfaces to existing eBusiness applications; Providing technical expertise and analysis support to customers wishing to make use of eBusiness technologies. Performing process analysis, design of application architectures, code writing and unit testing. Leading large development projects requiring in-depth knowledge of complex development languages, function and interface design. Communicating and coordinating with end users, contractors, system administrators and other development or maintenance personnel. Prior experience must include database migration and development of multiple ecommerce web applications. The position requires an BS in Electronics or Computer Engineering and 5 years in the job offered or 5 years of program/system analysis. Submit resume and social security number to: Kathy Sanders, Roche Diagnostics, 9115 Hague Road, Indianapolis, IN 46250. No phone calls please.

Health Systems Analyst/Programmer I to develop and support advanced healthcare software applications in a highly distributed environment, provide real-time connectivity to proprietary clinical repositories, serve as technical lead on intranet development, and provide development for the electronic messaging system. Requires Master degree in Computer Science, at least 24 months experience in programming. Must have advanced background experience in using the Perl programming language to provide connectivity to MySQL databases and Common Gateway Interface applications. Must have strong experience with generating PNG (Portable Network Graphics) for real-time visualization of clinical data. Must have advanced experience with Javascript, HTML, DOM, CSS, and XML. Needs to be willing to provide 24x7 support for mission-critical applications. Should be familiar with the clinical environment. Medical research experience is also required. Please send resume to Dario Gruse, Vanderbilt University, Eskind Biomedical Library 4th floor, 2209 Garland Ave, Nashville, TN 37232-8340

Software Professionals in programming/analysis, systems analysis, QA engineering & testing, software engineering, systems administration, and related fields at all levels, including project lead and manager, with relevant bachelor's degree/equivalent. Also seeking Business Development Managers, Business Developers, Business Analysts, Market Research Analysts, Sales Engineers, Technical Resource Management professionals (several levels, Associates/Sr Executives/Manager)/Senior level positions require graduate degree/equivalent. May be relocated for short and long term assignments throughout the U.S.A. Zensar Technologies, Inc., One North LaSalle, Suite 3650, Chicago, IL 60602. Send resume & cover letter detailing position sought & relevant experience to balu@use.zensar.com. Please quote reference CW/ Zensar in all your mails.

Sr. B/z Analyst for d/base bt/up & recovery. Solve appln issues of Sybase, SQL Server 2000, MS SQL Cluster Server, Win 2K, NT and DB Artisan 7.3. D/zn XML docs w/ XML schemas, dev XML transln modules w/ XSLT. D/zn & dev XML schema, web services to receive info from external sys & validate, parse/load info into d/base. Admin B/z Obj & Crystal Enterprise servers over multiple locns. Documentum Sx admin and dev exp. Support applns on cold fusion servers to create/display reports for web site. Perl B/z Obj Enterprise 6 Installer/Regmx Appl Foundation, Dashboard and VBA. Asst in train/g of records reingnrl procs. Supp dev/mt & implemtn of spl research initiatives. Prov consult & tech supp. Budgets & schedule for 24/7 records & doc control org. BS in Eng. + 2 yr exp in job duties. Apply: Resources - Code KK., 1000 Abernathy Road, # 1010, Atlanta, GA 30328 w/ proof of perm. W/k authzn

PROG ANALYST - JAVA J2EE

Using dsgn patterns, component-oriented agile methodologies, service-oriented architecture & domain knowledge, architect validations in web client component using server-side Java J2EE Dvlp module for reflecting electronic document exchange for web & desktop users. BS degree in Comp Sci or Electrical or Electronics Engnrg + 2 yrs exp in job offered or as a Software Engnr Java J2EE. Exp must incl Java J2EE architecture dsgn patterns, EJB & JMS, XML parsing technologies, C/C++ & concurrency/threading expertise. High mobility preferred. 40 hrs/wk, OT as reqd, 8am - 5pm, $86,730/yr. Submit resume to Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5699. Refer to Job Order No. 476674.

Medical Device Software Engineer sought by Medical device dvlpr to work at Ann Arbor, MI facility. Wld research, dsgn & dvlp complex comp s/ware systems in conjunction w/hardware product dvlpmt for medical applics by applying principles & techniques of comp sci, engg & mathematical analysis. Will be responsible for maintenance of existing systm s/ware incl debugging, testing & implmtg necessary improvements. Req Master's in Comp Sci/Engg or Electrical Engg & 6 yrs of s/ware dvlpmt exp incl 3 yrs exp in medical device arena. Interested candidates send resume to Leslie Wild, HR Generalist, Terumo Heart, Inc., 6200 Jackson Rd., Ann Arbor, MI 48108

Business Program Applications Analyst. Analyze, define & design complex business processes for application to electronic data processing systems, both at the local unit & the enterprise levels. Lead complex projects & provide direction to others in performing: Systems analysis, applications programming, database administration, business process analysis, & systems specialization. Requires B.S. in Business Administration, Commerce or Information Systems. Also need 2 yrs performing enterprise resource planning with software such as J.D. Edwards programs: 8:00 -5:00, M-F. Must have proof of legal authority to work indefinitely in the U.S. Submit resumes to: S. Ardelean, HR Manager, BorgWarner Inc., 3800 Automation Avenue, Auburn Hills, MI 48326

Unica Corp. a leading provider of Enterprise Marketing Management Solutions, is looking for a qualified Software Engineer to work with enterprise applications and n-tier architectures to develop Java-based, next-generation enterprise marketing applications. Must have a Bachelor's degree in CS, Engineering or similar field and relevant advanced study, research or experience in web applications development. Requires JavaScript, Java, JDBC, XSLT, Servlets and Java Security Frameworks. UI, database and middleware, DB2 and Oracle, Windows and UNIX (Solaris) operating systems. Forward resumes to Job code: 85 Human Resources, Unica Corp., Reservoir Place, North 170 Tracer Lane, Waltham, MA 02451, or e-mail careers@unica.com

Project Managers to lead/manage teams to study, analyze, customize and develop Portal/ intranet billing appls using C, Pro-C, Oracle procedures, trggrs, Unix shell scrpts etc; lead teams to develop custom GUI tools in VB using portal COM objects; mentor in development of Oracle triggers, packages, procedures, view and pro-C for data retrieval/data migration; evaluate, test, train team members. Require MS (or foreign equiv) in CS/Computer Engg & 1 yr exp in portal/ intranet billing. F/T. Competitive salary. Travel involved. Resumes to HR, Intercall, Inc., 1211 O.G. Skinner Drive, West Point, GA31833. Please refer Job ICI1104.

Programmer Analysts Needed. Seeking qual. candidates possessing BS/ equiv. & rel work exp. Duties include: Plan, develop, & analyze applications. Code, test & debug programs. Work with at least 2 of the following: Tuxedo, Corbas, Visual Basic, Java, and J2EE. Fwd. res., ref & sal. req. to UBICS Inc., Attn: HR, 333 Technology Dr., Ste 210, Canonsburg, PA 15317.

Programmer Analysts to analyze, develop appls using C, C++, Java, XML, VBScript, VB, HTML, SQL etc; use Mercury Win Runner & Load Runner to provide automated functional/ regression testing, performance load and stress testing for web based appls; interact with clients, end users for reqs gathering, analysis, planning & implementation, modify and debug existing software appls. Require BS or foreign equiv in CS/Engg (any branch) with 2 yrs of exp in IT or an MS or foreign equiv in one of the above fields. F/T competitive salary. Travel involved. Resumes to: HR, Semaltor Technologies, Inc., 3300 Holcomb Bridge Road, Ste212, Norcross, GA30092.

System Engineer VI, Temple Terrace, FL - Design, develop, implement and integrate information systems including determination of hardware, software and network environment required to support operations; serve as team leader in the architecture and development of web services and portal applications; resource planning and estimates; design and develop distributed systems using C, C++, TCP/IP sockets, COM/DCOM and MFC and architect and manage middleware and web portal applications using, J2EE Java, and WebLogic on UNIX, Linux and Windows platforms, provide detailed design and unit test creations; utilize J2EE and WebLogic based infrastructure development to support shared development environment. Requires Bachelors degree in Engineering or Computer Science and either 5 yrs experience in the job offered or 5 yrs. experience in designing and developing distributed systems using C, C++, TCP/IP sockets, COM/DCOM and MFC, to include 1 year architecting web portal applications using J2EE and WebLogic. Salary $100,000/yr, 40 hrs/wk, 8 AM to 5 PM, Mon-Fri. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to Job Order #FL-2583701

Software Engineer, Temple Terrace, FL - Module lead responsible for the design, architecture, development and deployment of a system application that provides telephone number selections and address validations using CEM middleware with server side C++, C, Informix and UNIX; design, develop and implement OO (Object Oriented) and multi-tiered client-server applications using C++, C, SQL and Java in a telecom domain; perform requirements gathering; provide post production application support; allocate tasks to team members and coordinate status meetings; analyze issues and provide feedback to resolve client issues, responsible for identifying risk factors that affect project deliverable dates; analyze and respond to training related issues for application users. Requires Masters degree in Engineering or Computer Science and either four years experience in the job offered or four years experience in object oriented and multi-tiered, client-server application design development and implementation using C++, C, SQL and Java in a telecom domain. Salary $78,000/yr, 40 hrs/wk, 8 AM to 5 PM, Mon-Fri. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to Job Order #FL-2583086.

Computer Scientist. Responsible for performing basic research in intelligent agent systems & applying the results to challenging real-world problems. Responsibilities will include managing maintenance & extension of existing BDI (Belief Desire Intention) agent software & leading research efforts in the area of robustness for agent systems. Requires PhD in computer science with doctoral research & dissertation emphasis in BDI agent systems plus five years experience in the application of BDI agent systems to real-world problems. Requires publication record in BDI systems. Background must include theoretical foundations of BDI agent systems; programming in Prolog, Python, Java, and Lisp; software engineering project leadership experience. This position is located in Menlo Park, CA. Please apply, indicating job# 2263, via our website @ www.sri.com or mailing address at 333 Ravenswood Ave, Menlo Park, CA 94025. Attn: Employment Dept. EOE/AA

Computer Scientist. Responsible for R&D of hardware & software formal verification framework. Duties include design & implementation of formal specification language, new automated verification algorithms; overall system infrastructure; perform research in formal methods area; write research papers & technical reports. This position requires Ph.D. in CS with doctoral dissertation emphasis in software engineering & formal methods for analysis & verification of software & hardware systems. Research background to include: design, implementation, use of model checkers, static analyzers, compilers; software verification; implementation & design skills including object technology; programming skills including C++, Scheme, Emacs-Lisp, & Java; working knowledge of automatic theorem proving & formal semantics of programming languages. This position is located in Menlo Park, CA. Please apply, indicating job# 2251, via our website @ www.sri.com or mailing address at 333 Ravenswood Ave, Menlo Park, CA 94025. Attn: Employment Dept. EOE/AA

.NET or Java/J2EE Application Developers

ThoughtWorks is a global, rapidly-growing application development firm looking for .NET and Java/J2EE developers for its Chicago, Nashville, New York, and San Francisco offices. We build highly complex, high business value applications for Global-1000 clients. .NET/Java/J2EE developers must have a minimum of a Master of Science degree in Computer Sci, Computer Engineering, Computer Info Systems, Elec Engineering or a related field. Must have at least 6 mos of exp incl analysis, design, coding & implementation of large scale, complex OO applications. Must be open to possible extensive travel.

For .NET devs, delivery exp on an actual C#/.NET project w/ integration w/3rd party applications & non-Microsoft technologies is essential & development exp using Microsoft languages & tools, such as COM+, ASP.NET, ADO.NET, Enterprise Services, etc. J2EE devs must have delivery exp as a programmer, analyst or engineer on a large-scale J2EE application. Exp must incl OO design & design patterns. Pls E-mail res to: work@thoughtworks.com.

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Collaboration

data center manager at Lord, Abbett & Co., a Jersey City, N.J.-based mutual funds firm. Joseph added that he thinks the long history of conflict between Microsoft and Sun will make it difficult for them to build interoperable products.

Stan Johnson, a Portland-based LAN services manager for Multnomah County in Oregon, said he would like to have a single management console that he could use to populate or oversee end-user accounts in Microsoft's Active Directory and on Sun systems.

But Johnson remains skeptical about the long-term potential of the Sun-Microsoft alliance. "They're moving in the right direction, but I still think, right now, they have their own turf that they're interested in," he said. "So I'm not sure where it's going to pan out."

To be convinced that the alliance will produce results, Johnson said, he needs to see "a real product in hand that shows the collaboration," rather than just hear the vendors talk about their joint work.

Looking for Meaning

Several analysts said they heard nothing new in the first progress report that the two companies issued since their April announcement of a broad cooperation agreement, which also included a payment of nearly $2 billion from Microsoft to Sun to settle outstanding litigation between them [QuickLink 45957].

Tom Bittman, an analyst at Gartner Inc., said the update was issued with "a defensive rationale" to help the vendors prove that they're collaborating. Bittman said he has no doubts that they're working together against their primary competitor, IBM. But he added that he isn't sure it matters anymore "because Sun's influence isn't nearly as strong as it used to be."

"In terms of real progress, you'd have to search hard to find anything. I didn't really hear anything meaningful at all," said Rob Enderle, an analyst at Enderle Group in San Jose. He said he thinks the two companies may never have intended to cooperate much beyond their initial agreement, which gave Sun a cash infusion and allowed Microsoft to free itself from antitrust and patent lawsuits.

Hank Vigil, vice president of consumer strategy and partnerships at Microsoft, objected to the vendors' collaboration efforts being characterized as modest in scope. "If you think about the history between Sun and Microsoft, it was quite a contentious history, where our ability to even talk to each other was not at all clear," he said. "I think that the eight months have proven not only are we crawling well, but we're learning how to walk, and someday we expect to run together."

Similarly, Greg Papadopoulos, chief technology officer at Sun, described the change in the nature of his company's relationship with Microsoft as "a 180-degree U-turn."

The vendors have held 15 executive meetings in the past five months, including talks between Papadopoulos and Bill Gates, Microsoft's chairman and chief software architect, and between Microsoft CEO Steve Ballmer and Sun CEO Scott McNealy.

Two-dozen engineers are also meeting face to face on a monthly basis to discuss technical issues, according to Andrew Layman, director of distributed systems and interoperability at Microsoft.

Papadopoulos pointed out that he and Gates have also met jointly with an unspecified number of major customers. The users helped the companies get their priorities straight, said Papadopoulos, adding that they listed IT security, identity management, Java and better interoperability through Web services as issues that are important to them.

Several users agreed that it would be helpful for Sun and Microsoft to work on those technologies. Roger Wilding, a senior technical engineer at a global transportation company that he asked not be identified, said it has been hard to get Java to work well on Windows-based systems. As a result, his company needs the interoperability that Web services technology promises.

Chuck Howard, a business development manager at Texas Farm Bureau Insurance Cos. in Waco, said he would like to see additional integration of Microsoft's .Net technology and Java 2 Enterprise Edition. **51218**

Reporter Patrick Thibodeau contributed to this story.

PROGRESS REPORT FROM MICROSOFT AND SUN

Interoperability

- Sun has achieved VeriTest certification for its Java System Directory Server Enterprise Edition, Java System Access Manager and Java System Identity Manager on Windows Server.
- Sun is working to validate the Access Manager and Identity Manager tools in identity management scenarios using Microsoft's Active Directory to store end-user credentials.
- The companies have also worked to ensure that Windows XP Service Pack 2 is interoperable with the latest versions of Sun's Java Runtime Environment and StarOffice suite.

Windows on Sun

- Sun's Opteron-based servers and workstations are now certified as "Designed for Windows."
- The workstations use Opteron's enhanced virus protection feature for Windows XP SP2.

Customer support

- Sun is working to establish a competency center in Redmond, Wash., for users to test applications involving Microsoft and Sun technologies.

Web services

- Microsoft and Sun have co-authored, with other companies, four Web services specifications: WS-Addressing, WS-Eventing, WS-Metadata Exchange and WS-Management.

Java

- Microsoft is pointing customers to Sun's Java Virtual Machine software.

Storage

- The companies are working to ensure that Sun's StorEdge 6920 disk arrays support Microsoft's Virtual Disk Service and Volume Copy Shadow Service software.
- The StorEdge 6920 received the "Designed for Windows" logo.

CICS Transaction Server Adds Web Services Support

Also offers C++ support as Cobol, Java alternative

BY HEATHER HAVENSTEIN

IBM last week rolled out a new version of its CICS Transaction Server software that will let users extend mainframe data to service-oriented architectures.

CICS Transaction Server for z/OS v3.1 will allow CICS to function as both a provider and consumer of Web services, said Phil Hanson, IBM CICS product manager.

CICS, which celebrated its 35th anniversary this year, provides high-volume transaction processing for mainframes. The upgrade will let Cobol, C and C++ automatically convert between XML and their language structures, IBM said.

The new version, which adds support for C++ and enhanced support for the Secure Sockets Layer protocol, also lets developers use WebSphere Studio Enterprise Developer as a tool for application transformation and integration, Hanson said. IBM also released CICS Transaction Gateway v6, a tool for connecting CICS applications to its WebSphere application server.

Steve Ware, CICS system programmer at the University of Florida in Gainesville, said that although his organization has no immediate plans to upgrade to the latest version of the transaction server, he is interested in finding ways to expose CICS applications as Web services. Ware's department runs a data center that supports several educational entities in the state.

"A lot of the financial applications are being moved into PeopleSoft, [and] PeopleSoft is primarily an XML messaging set of applications," he said. "Web services for CICS and XML support make that type of integration fairly seamless and easy."

The Florida data center currently uses a CICS socket-interface feature available in IBM's z/OS Communications Server to Web-enable applications.

Deriving Benefits

Dale Vecchio, an analyst at Gartner Inc., said that while support for Web services is a plus for IBM's large installed base, the real benefit from the new server comes from its support of C++.

"The challenge for CICS is its dependence on the procedural paradigm of Cobol for development," he said. "You can use Java in CICS, but it's a bit of a forced fit. Now they are trying to offer an alternative to Cobol and Java."

The transaction gateway is scheduled to ship next month, and the transaction server will be available in March. **51217**

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Numbers Game

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They're right. I botched the numbers. That 51% comes from 2003. This year, 54% of U.S. IT projects fell into the challenged category.

Yeah, the numbers were wrong. But at least they weren't ridiculous — or worse. And that brings us around to a new Gartner forecast (see story, page 1).

According to analyst Donna Scott, speaking at Gartner's annual data center conference in Las Vegas, up to half of all IT operational jobs could disappear over the next 20 years because of improved data center automation.

Got that? Gartner's telling us what we can expect for data center staffing circa 2024. That'll come in very handy for the next quarterly IT budget adjustment, won't it?

It's easy to make fun of a prediction like this. We know the numbers aren't meaningful, because no one can gin up useful numbers two decades in advance. Just looking a few years out, predictions get shaky.

For example, only three years ago, Gartner Chairman Michael Fleisher predicted that half of the household-name IT vendors wouldn't exist in three years. That pronouncement made for some big headlines in 2001, just as Hewlett-Packard was swallowing Compaq. But it's not a prediction you'll see Gartner bragging about these days.

(Gartner still stands by Fleisher's statement — sort of. Vendor consolidation will just take longer and may not be as extreme as predicted, the company now says. Translation: "We botched the numbers, but we still think some consolidation *will* happen eventually.")

But a 20-years-out prediction is also troubling. It could be right — but only if nothing in IT really changes. That's not likely. Major disruptions and surprising shifts could hit us in both the technology and business worlds.

In 20 years, IT operations could conceivably be running on a lights-out basis, almost completely automated. Operations staff cut by 50%? It might be 80% or 95%.

Or automation might wipe out systems administrators and operators, but operations staff head count might stay level, thanks to a vastly expanded training and support function.

Or the IT operations staff might have to increase because IT has taken on functions we'd never imagine as IT work today. (Who thought in 1984 that IT would serve as a retail store, switchboard and mailroom?)

Or in 20 years, IT operations might be completely outsourced, making head count estimates meaningless. Or it might be invisible in the budget because departments will have taken over their own IT operations to run them more effectively than centralized IT — not necessarily more *efficiently*, but more *effectively*.

We simply don't know what IT operations will look like in 20 years. And the only way Gartner can forecast IT operations staffing 20 years out is by encouraging a simple-minded "the future will look just like the past" world view.

That's a dangerous way of thinking. We're always at risk when we slip into it — even without the help of analysts who should know better.

Gartner folks, we understand what you're trying to tell us: Improved data center automation *will* reduce IT operations staffing needs eventually.

But please, don't dress that up as a 20-year prediction, or botching the numbers will be the least of your mistakes. 51174



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Details, Details

This database server is suddenly getting slammed with queries – and a support pilot fish soon gets calls complaining that the ERP system won't respond. Restarting it doesn't help, but fish finally finds the culprit: a runaway calculation in the production scheduler. "The engineer needed some training on how to pay attention to detail," fish sighs. "Instead of scheduling one work order to make 100,000 parts, the system was generating 100,000 work orders and all the requirements to make one part each."

Um, No

Power goes out often in this company's area, so IT has a backup generator and even a small UPS on each PC. When a frantic programmer calls during an outage insisting that the mainframe is down, support pilot fish is pretty sure it's not. He checks. It's fine. "I walked down to the programmer's cube, and it was obvious the battery on her UPS gave out," says fish. "I tried to explain that, but she looked at me like I had three heads and said, 'Everyone knows the power comes from the cabling connected to the mainframe.'"

SHARK TANK

It All Adds Up

Owner of this local office-products company is discussing how to bill customers when techs go out on service jobs. "The boss is really tight with a penny," on-scene pilot fish says, "so when one tech suggested we bill 40 cents per mile, he replied, 'Studies show that to come out even, you have to bill at least 47 cents per mile. Otherwise, we'll be losing money.' The tech said, 'Well, maybe we need to talk about why you only pay me 35 cents per mile for using my own vehicle.'"

Thanks, Boss

Rushing between meetings at his company's U.K. office, IT manager tells new hire to set up a color printer that just arrived. "The newbie dutifully begins to connect all the cables, when there is an almighty bang and billowing white smoke," reports a pilot fish watching. "An hour later, the manager sticks his head around the door and says, 'Oh, and be careful when you plug it in – it's from our U.S. office.'"

Some Surprise

Boss returns from a trip complaining that the airline broke his laptop. Sure enough, the screen is shattered – and the boss admits he found it in that condition when he picked it up from baggage claim. "He said this probably happens all the time," grumbles a pilot fish there. "We had to send an e-mail to the whole company, explaining the danger of checking your laptop as luggage. We got quite a few snickers about that e-mail."

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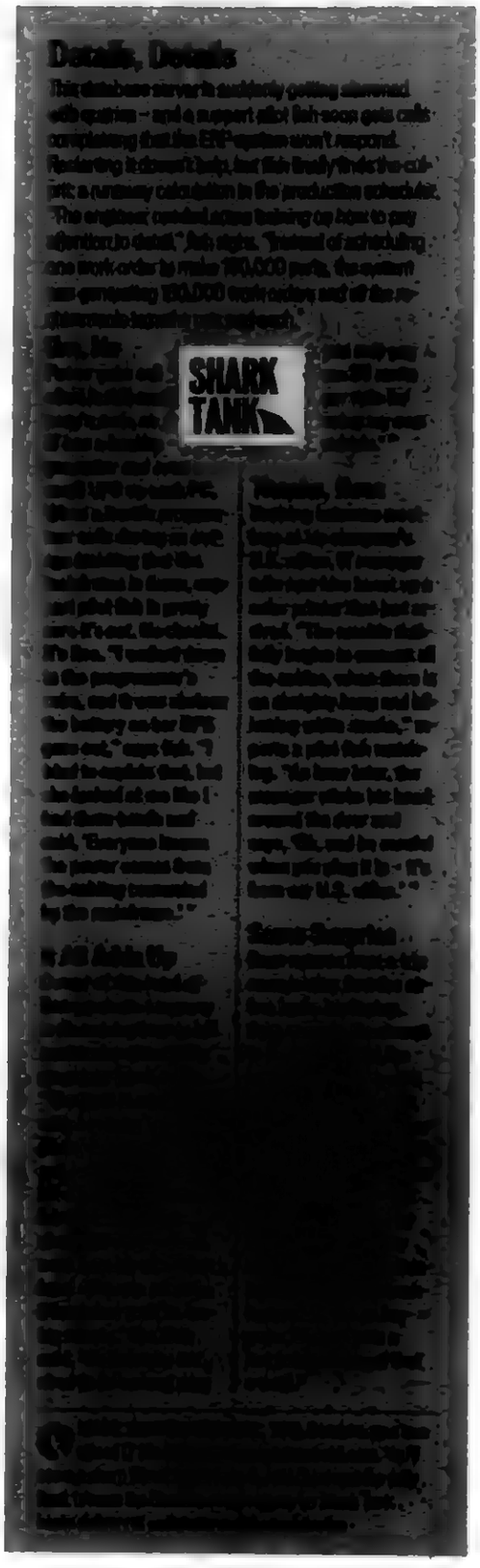
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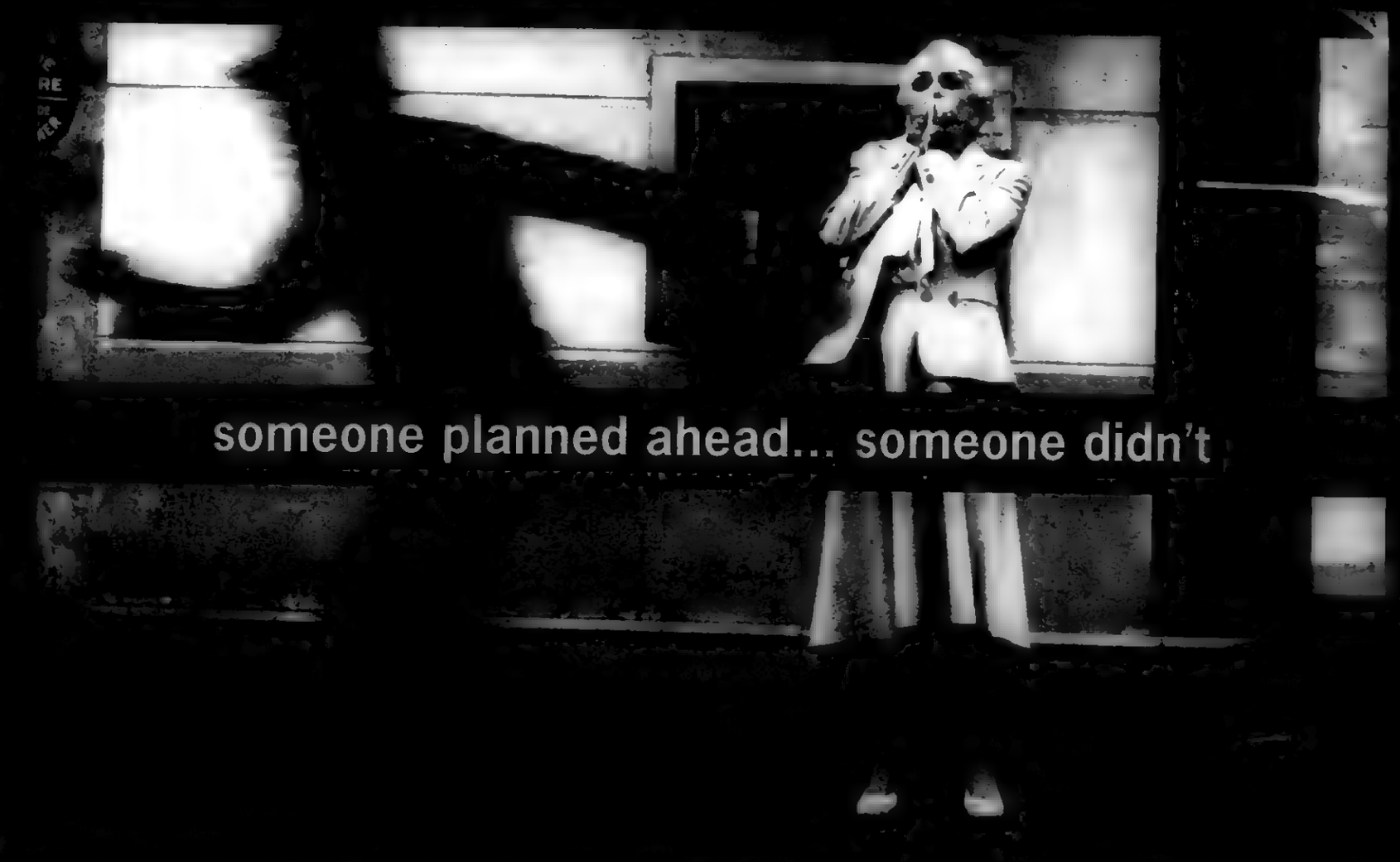
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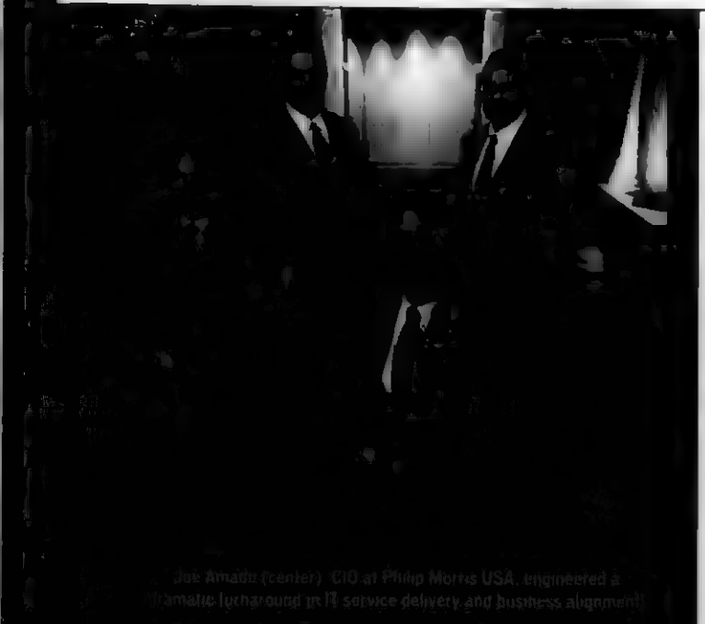
Oracle and Siebel users share some hard-earned wisdom gained from failed CRM rollouts. PAGE

Windows NT 4.0 users can still get security fixes for their servers, but they'll have to pay for the privilege. PAGE

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Joe Amado (center), CIO at Philip Morris USA, engineered a dramatic turnaround in IT service delivery and business alignment.

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The IT department at Philip Morris USA used to be known as technically adept but wasn't seen as a strategic partner with the company's business units. Today, it's a very different story, reports Thomas Hoffman.

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IBM PC Users Face Uncertain Future

Some worry about product quality, support after planned sale; others see no big changes

BY PATRICK THIBODEAU AND CAROL SLIWA

Now that IBM plans to sell its PC division to Beijing-based Lenovo Group Ltd., the big question is whether the companies can keep users from defecting to other vendors — which would put IBM's once standard-setting PCs even further behind systems from Dell Inc. and Hewlett-Packard Co. in market share.

After the deal with Lenovo was announced last week, some of the more than two-dozen IBM users *Computerworld* interviewed or contacted via e-mail said they don't expect the planned sell-off to have an immediate effect on their companies. But many others voiced concerns about whether the quality of IBM's hardware and the technical support they receive will suffer once Lenovo takes over during next year's second quarter.

For example, longtime IBM user Sidney Soberman, director of technology systems at The H.W. Wilson Co. in New York, said the publishing company's ThinkPad notebook PCs are durable and never break down. But with Lenovo buying the technology, "I would tend to think the quality of the notebooks will decline," said Soberman.

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"We will now more seriously look at other options, such as Dell, as we replace our PCs," said the CIO at a U.S.-based nonprofit organization. The CIO, who asked not to be identified, added that almost all of the organization's 600 PCs are IBM machines.

The director of application development at a national re-

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Cisco Users See Some Pricing Relief

Vendor has lowered its costs, they say, but not across the board

BY MATT HAMBLEN
SAN JOSE

Cisco Systems Inc.'s prices have typically been higher than those charged by its smaller networking rivals. But some IT managers and analysts said last week that the pricing situation has improved modestly for Cisco customers.

Two analysts who attended

Cisco, page 14



Compliance Pressures Prod IT To Limit Use of Spreadsheets

Business intelligence vendors offer tools to eliminate input errors

BY HEATHER HAVENSTEIN

In the face of tighter regulatory controls for reporting financial data, many IT departments are wrestling to eliminate or control the widespread use of spreadsheets. But many end users are likely to rebel if the ubiquitous tool is taken away from them.

Business intelligence vendors are maneuvering to offer solutions to the problem in the form of new software that can eliminate the errors often produced when data is entered into spreadsheets.

Actuate Corp. this week will

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CISCO'S VIEWPOINT
In a Q&A, CEO John Chambers says he hasn't heard users complain about pricing "in a very long time." Page 14

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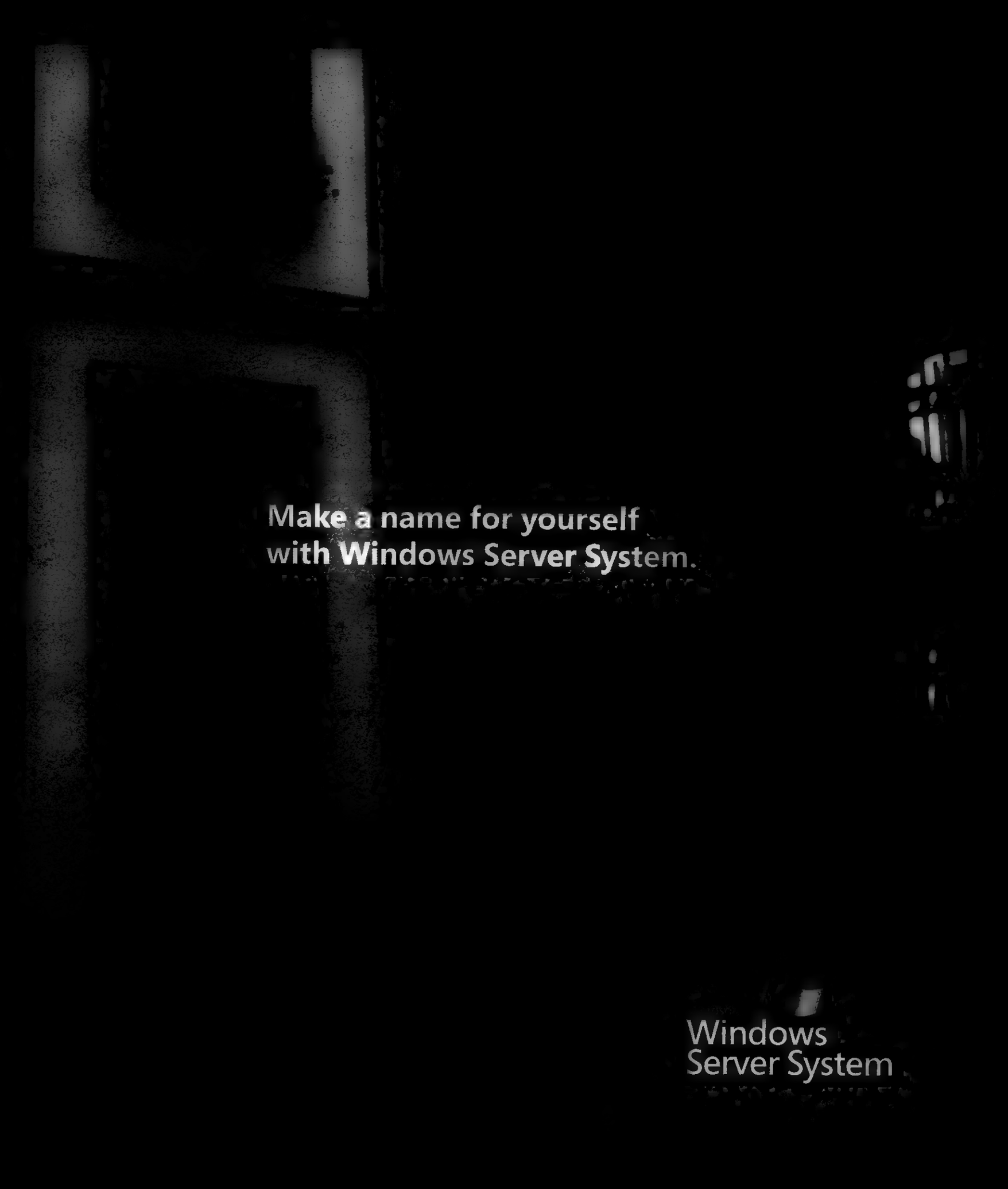
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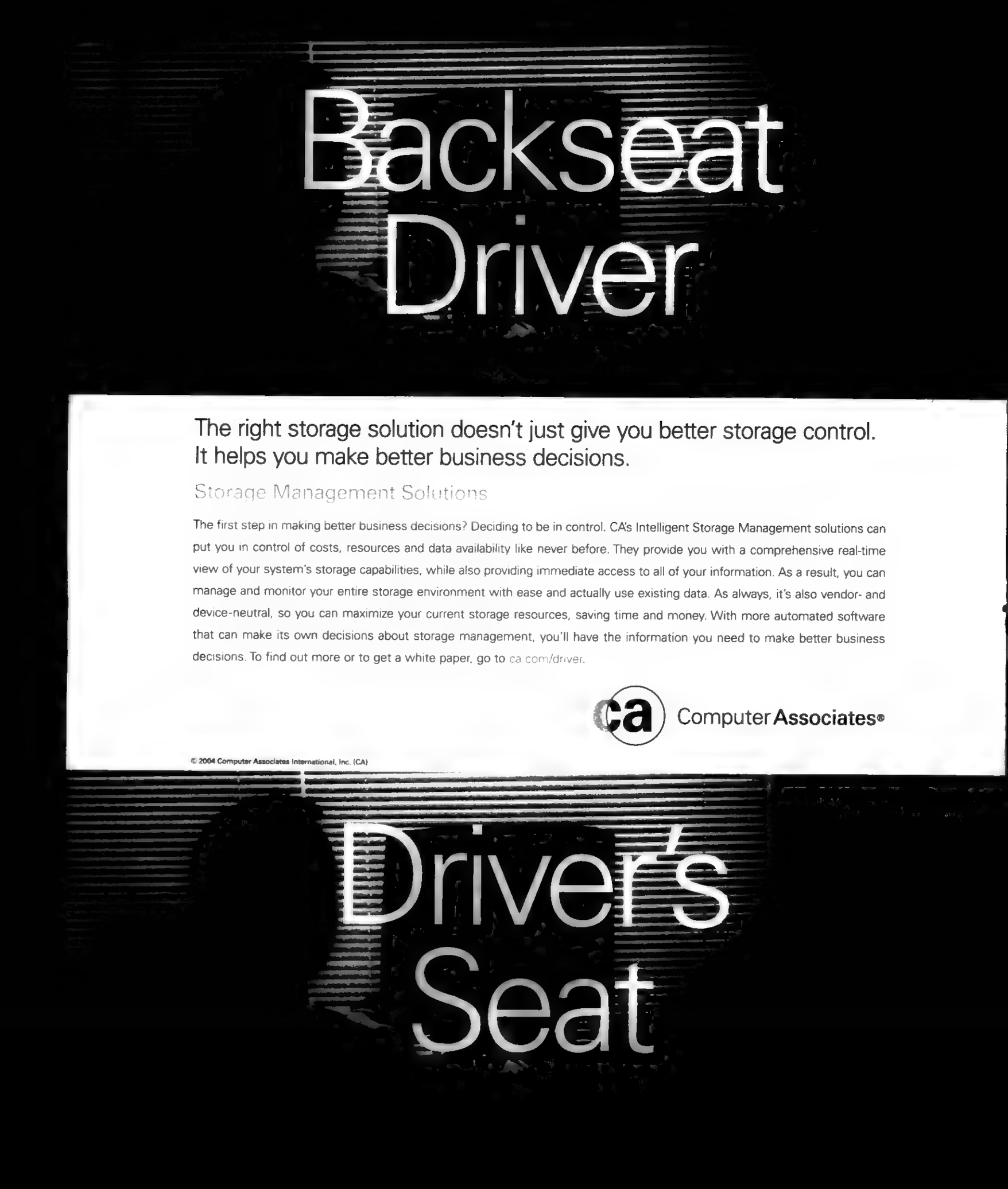
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In the Technology section: Users such as John Halamka, CIO at Boston-based CareGroup, are beginning to reap the benefits of information life-cycle management technology. But they say more needs to be done to make it work in heterogeneous storage environments. **Page 21**



Finish the Feud
In the Management section: When IT users and the help desk staff are throwing virtual spitballs at each other, everybody loses. Here are some tips for thawing the cold war. **Page 42**

NEWS

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5 **BEA and Oracle** add SOA tools to their app servers.

8 **Aligning IT and business** is a universal goal, but there's more than one way to do it.

8 **Reducing software expenses** is the new focus of IT shops that are trying to cut costs.

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10 **New guidelines** to help health care companies comply with HIPAA rules for keeping patient data confidential are due to be released this month.

12 **Global Dispatches:** "Zinc whiskers" knock out power in Australian data centers; IBM wins a $1 billion contract to build a network for Lloyds TSB; and Siemens claims the world record for wireless data transfer speed.

16 **Product life-cycle** management vendors are courting small and midsize customers.

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56 **Frankly Speaking: Frank Hayes** makes his yearly pilgrimage to the North Pole to find out what Santa will have in his bag for IT's luminaries.

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The Pros and Cons of MSSPs

SECURITY: Jian Zhen of LogLogic examines the advantages and pitfalls of managed security service providers in this two-part series. QuickLink 51124

Outsourcing in India: A View From the Recruiting Trenches

OUTSOURCING: When looking for candidates to fill management positions in India, it's important to consider local values and potential culture clashes, advises Korn/Ferry International's Gita Dang. QuickLink 50948

Enterprise SAN for Mac OS X Server

MACINTOSH: Columnist Yuval Kossovsky offers a primer on storage-area networks in Part 1 of this three-part series. (He will follow up with a piece on Mac OS X and SAN enterprise backup.) QuickLink 51270

Digital Media Firm Drives Down Costs With ILM

STORAGE: Loudeye, which serves more than 4 million song samples a month, needed a storage system that could hold all that data without breaking the bank. QuickLink 51264

Safer Web Browsing

SECURITY: Many companies put their networks at risk by failing to properly secure public Web sites. Network Security Technology's Daniel J. Frasnelli provides tips on improving security. QuickLink 50960

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The Online Store QuickLink x2420

AT DEADLINE

AT&T Wins $174M Networking Pact

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BY MARC L. SONGINI

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Sealing Devices expects its latest project to deliver an ROI of 153% over five years.

San Francisco-based Izmocars, a provider of Internet tools to the automotive industry, also suffered through multiple CRM failures before undertaking a successful effort, which was based on Siebel's OnDemand hosted sales force automation software. Izmocars blamed a variety of technical and cultural problems for its failed CRM efforts, which were based on Siebel's Enterprise software, Salesforce.com Inc.'s hosted systems and Microsoft Corp.'s CRM software.

At the Siebel event, Izmocars President Tej Soni said one of the keys to succeeding with CRM in a small or mid-size business "is nailing down the process and ensuring process compliance." Many smaller companies don't document their sales processes — something Izmocars did for the OnDemand rollout.

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SAN FRANCISCO

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In the process, Oracle appeared to be escalating an effort to sell users on the benefits of E-Business Suite, which some observers said had been allowed to languish while Oracle promoted its 10g offerings.

Oracle executives emphasized the tight integration between the 10g technology stack and the new application suite. The integration will enable companies to draw from more sources of customer information and have relevant data sent to users via personalized dashboards, they said.

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New Products

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Microsoft Offers More Support for NT Server – at a Price

Will charge flat fee for security fixes

BY CAROL SLIWA

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But in an e-mail poll of 23 former and current users of NT Server last week, only one — New York-based Guardian — said it plans to purchase the custom support option. Five of the respondents said they had completed migrations off of NT. Another 11 said that 10% or less of their servers are running NT, so they see no pressing need to pay for support.

Dwindling Numbers

"Any server that is important enough to warrant maintenance should already have been upgraded," said Scott Campbell, director of IT operations at First American Title Insurance Co. in Santa Ana, Calif. Campbell said First American will probably run its dwindling number of NT servers, which handle small and lower-value applications, in an unsupported mode.

Bob Mathers, second vice president of IT operations at Guardian, declined to disclose the cost of the custom support program. But he said it is "pricey," particularly since he hadn't budgeted for the expense. He also noted that Guardian must submit a Windows Server 2003 migration plan to Microsoft to gain approval for participating in the custom support program.

But 370 of Guardian's 1,100 Windows servers are NT-based and support domain controllers, homegrown business applications and the distribution of software updates to insurance agents in the field. So custom support is a "necessary evil" to enable an orderly transition to Windows Server 2003 next year, Mathers said.

Microsoft's support lifecycle policy, which was last updated in May [QuickLink 47207], calls for a minimum of five years of "mainstream" support followed by five years of "extended" support. However, the updated support policy applies only to software products released during the previous five years, thereby excluding Windows NT 4.0 Server, a 1996 release, and Exchange 5.5, from 1997.

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The fee is an annual one, but users can pay quarterly, according to Houston. Customers that migrate off of NT before a year is up won't have to pay for the remaining quarters, he said.

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[illegible]

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Diablo supports J2EE 1.4 and WS-ReliableMessaging and can provide enterprise-class messaging features, like store and forward capabilities, that are critical for Web services transactions, said Eric Stahl, senior director of product marketing at San Jose-based BEA. "If messages are lost, the infrastructure will roll back the transaction or send the message again," he said.

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Competitive Advantages

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Portal-based administration console to provide different views based on roles	Integration features that support development of service-oriented architectures
Live application and server upgrades in tandem with production applications	

[ON THE MARK]

HOT TECHNOLOGY TRENDS, **NEW PRODUCT NEWS** AND INDUSTRY GOSSIP

Start-up Building Gridlike Tools

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Open-Source Rivals Go to the Mat . . .

. . . in a middleware smackdown. While it may not produce as bloody a match as the once-epic struggle between Microsoft and Sun did, JBoss Inc. and Gluecode Software Inc. are squaring off for a tussle over which of their open-source alternatives is more superior to proprietary J2EE-based middleware from IBM, BEA Systems Inc. and other vendors.


FLUERY pushes BPM, messaging.

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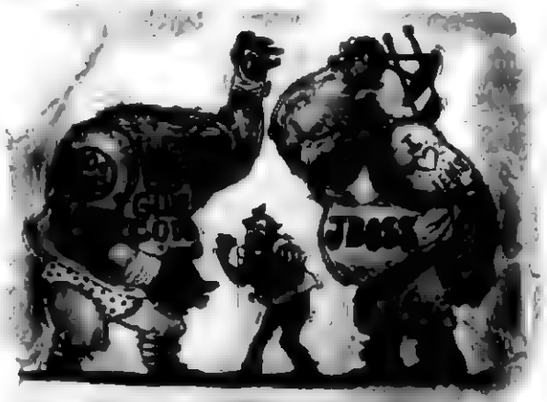
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ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



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IT Execs Take Different Paths To Align With Business Units

Some tout strong IT guidance; others let users take the lead on priorities

BY PATRICK THIBODEAU
HENDERSON, NEV.

SPEAKING before a group of senior IT executives last week, James Woolwine, CIO at Majestic Insurance Co., outlined a governance model that gives the insurer's business units the power to set his technology priorities. He then asked for questions. But there was silence.

Surprised, Woolwine challenged his audience: "I'm telling you that you should cede control of your business. You should be yelling at me."

But there was a reason why no one took issue with Woolwine's comments at the CIO 2004 Summit, which was held here by London-based Marcus Evans Ltd. IT managers interviewed at the conference said they all share the same goal: aligning IT with the business side. And, they explained, the approach used by San Francisco-based Majestic Insurance wasn't criticized because of the widespread recognition that there's no single way to accomplish that goal.

For instance, Andres Carvallo, CIO at Austin Energy, said he thinks that a key to IT/business alignment is a very strong leadership style on his part. In dealing with the different business units that fight for IT dollars, Carvallo said his in-your-face approach is to tell business executives that they will be more successful if they work with him.

The Austin-based utility company has steering committees that meet to help set IT strategy, but Carvallo said he also uses a heavily customized software tool to evaluate projects on a scale of 1 to 5. He analyzes a project's cost, its compliance with internal IT standards and its potential impact on customer satisfaction and business processes — all against the backdrop of how it aligns with Austin Energy's strategic direction.



PRINCE says building the business side's trust in IT is key to project success.

Bruce Petro, chief technology officer at AG Interactive, the Internet business unit of American Greetings Corp. in Cleveland, said he encourages experimentation and wants to hire IT professionals from other industries to stimulate new ways of thinking and avoid the "inbreeding" of ideas.

The push for innovation helped AG Interactive's IT staff develop ways to meet sharp increases in Web traffic, according to Petro. He said the company's IT budget was so tight that it forced workers to try different strategies, including a shift to the open-source MySQL database and the use of asynchronous processing.

Michael Prince, CIO at Burlington Coat Factory Warehouse Corp., has tried to establish the Burlington, N.J.-based retailer as a technology innovator. Burlington Coat was among the first large companies to install Linux widely, and it's now deploying a Linux-based grid computing system.

But Prince said he thinks those projects have been possible only because of the trust the IT department has built with Burlington Coat's business users. Prince has been at the company since 1983, and many of his IT staff members also have long tenures.

"People have confidence that we know what we're doing," Prince said. Long-term employment in IT "adds something to a company's ability to be innovative and efficient," he added.

Despite the differences in the approaches they use, all the IT managers said that collaboration with business users is a crucial part of the push for alignment. "For IT to try to force business process change, that means resistance all the time," said Matthew Maguire, vice president of information services at Domino's Pizza Inc. **51384**

IT Cost-Cutting Shifts to Software

Enterprises reduce licenses for servers

BY THOMAS HOFFMAN

After three years of cutting IT costs through server consolidation and selective outsourcing, enterprise IT shops are now focused on reducing software expenses, according to IT managers and analysts interviewed last week.

Several factors are contributing to this latest cost-cutting trend. For starters, as organizations shift from using groups of small servers to fewer, more powerful servers, fewer database and application software licenses are required for the machines.

In mid-2003, the city of Virginia Beach, Va., replaced five Intel-based servers that ran Microsoft Corp.'s SQL Server database system with two more-powerful clustered servers from Hewlett-Packard Co., said Michael French, an IT asset manager for the city.

Virginia Beach, which is still in the process of upgrading from older SQL Server 7 databases to SQL Server 2000 systems, paid more in upfront licensing fees for the five-server configuration after shifting from an end-user-based licensing scheme to per-processor licensing, said French.

But even as the municipality adds more databases to support financial operations and other activities, it expects to achieve $300,000 to $400,000 in net cost savings over the next 18 to 24 months with fewer servers, he said.

Ripple Effect

Preparations to meet the regulatory requirements of the Sarbanes-Oxley Act are also having a ripple effect on software license consolidations. As some software publishers request that customers validate compliance with licensing agreements, some audits are leading companies to discover active licenses for unused software. Companies are also finding out-of-date per-user licenses as workforces are cut or reworked.

"Enterprise customers are turning around and looking at this information to see where they can further reduce their licensing costs," said Jenny Schuchert, vice president of program development at International Association of IT Asset Managers Inc., a Hartville, Ohio-based user association with over 500 members.

"There's certainly been a bigger uptick in software license consolidation over the past six months," she said.

Rising software maintenance fees are also leading enterprise customers to more closely examine the number of licenses they have in place.

At Holiday Retirement Corp., a Salem, Ore.-based operator of senior citizen housing, all new software that's deployed must be budgeted with maintenance costs included, said CIO Steve McDowell. "As maintenance costs keep rising, we will have to look at other options, such as third-party maintenance [and] removing applications," he said.

Many IT managers have also discovered opportunities to slash software costs by reducing the amount of shelfware, or unused software, within their organizations.

Lance Travis, an analyst at Boston-based AMR Research Inc., points to one manufacturing client that was able to save an estimated $10 million to $20 million at each of its six business units by reducing maintenance costs after eliminating unused software.

Companies are also becoming more aggressive about eliminating software duplications that came from mergers and acquisitions. An IT asset analyst for a large financial services company in the Midwest who requested anonymity said her firm is in the early stages of reviewing which software licenses it may be able to consolidate following a recent corporate divestiture. **51387**

SOFTWARE LICENSING

As hardware consolidation efforts end, enterprise organizations have started focusing on reducing software costs.

Continued pressure on IT departments to cut costs.

Reduction in software licensing and maintenance fees through consolidation, a decrease in support staff required, and the elimination of "shelfware" and redundant software.

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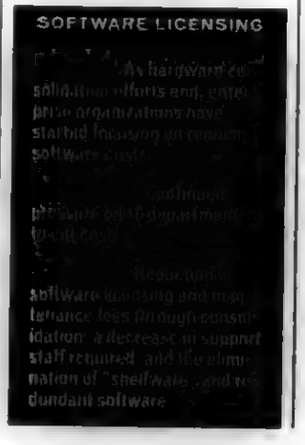
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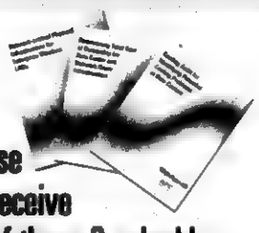
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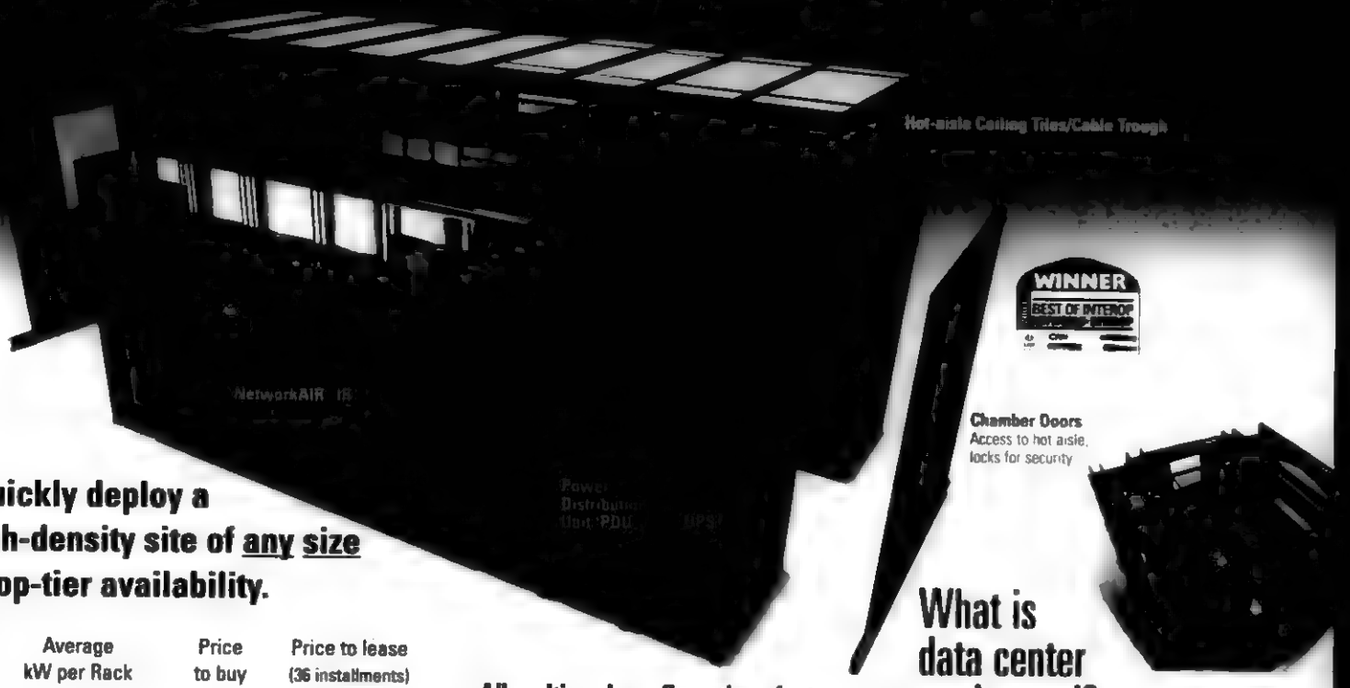
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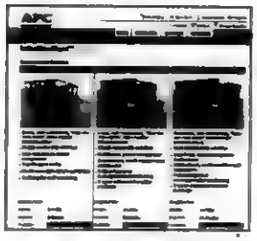
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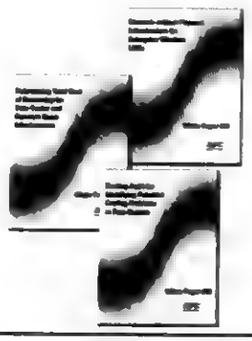


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BRIEFS

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Vendors Join to Promote Grid

Last week, Dell Inc., EMC, Intel Corp. and Oracle Corp. announced that they are undertaking a joint effort to prove that grid technology can work in the business world. The MegaGrid project is hosted at Oracle's Global IT Data Center. The partners' first system clusters up to 28 Dell PowerEdge servers. The group will also publish guides for deploying and managing clusters running Red Hat Linux.

IBM Tests New Chip Technology

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Fight Against Phishing Moves to a New Level

Consortium brings together companies, law enforcement to target e-mail scams

BY JAIKUMAR VIJAYAN

THE ANNOUNCEMENT last week of a new antiphishing consortium that includes financial services firms, Internet service providers, IT vendors and law enforcement agencies represents one of the most concerted efforts yet to curb the growing problem of e-mail data-theft scams.

The Digital PhishNet group includes companies such as Microsoft Corp., America Online Inc., VeriSign Inc. and EarthLink Inc., as well as government institutions such as the FBI, the Federal Trade Commission, the U.S. Secret Service and the U.S. Postal Inspection Service.

Phishing attacks use e-mail messages that appear to come from reputable companies to try to convince recipients to go to spoofed Web sites and disclose their credit card numbers and other personal information. The onslaught of attacks has prompted companies such as Barclays Bank PLC and eBay Inc. to adopt new technology designed to detect phishing scams and help consumers verify the authenticity of Web sites [QuickLink 49944].

Better Information Flow

Digital PhishNet's goal is to enable a better flow of information about phishing attacks between companies and law enforcement agencies, said Dan Larkin, unit chief at the FBI's Internet Crime Complaint Center. Because phishers can rapidly create and dismantle phony Web sites, "the key to stopping them is to identify and target them quickly," Larkin said. "Our industry partners have a unique perspective regarding these schemes and how they look early on that we in law enforcement don't always have."

Companies have to "spoon-feed" government agencies a lot of the information that's needed to go after phishers, said Avivah Litan, an analyst at Gartner Inc.

"Law enforcement is not really equipped to deal with these cybercriminals," she said. "They don't have the technical skills or the staff."

Between July and October, the number of known phishing Web sites grew by an average of 25% per month, with 1,142 active sites reported in October, according to the Anti-Phishing Working Group (APWG).

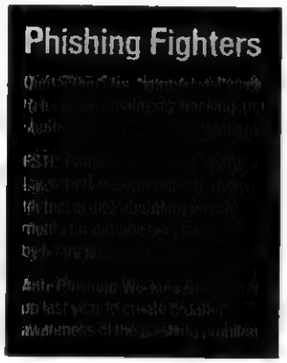
Litan said that in the 12-month period that ended last April, fraudulent activities resulting from phishing attacks cost victims a total of $1.2 billion, with U.S. companies bearing most of those costs.

Digital PhishNet isn't the first industry group created to fight phishing. The APWG says its membership includes more than 650 companies plus law enforcement agencies from the U.S. and three other countries. In addition, the New York-based Financial Services Technology Consortium (FSTC) in September announced an antiphishing initiative involving nearly 30 financial institutions and IT vendors.

But a key difference is Digital PhishNet's emphasis on enforcement activities, said Dave Alampi, vice president of marketing at Digital River Inc., an Eden Prairie, Minn.-based company that develops and runs e-commerce sites. "The reason this alliance was formed is not just to raise awareness of the problem but to take a proactive stance in tracking [phishers] and shutting them down," he said.

Judy Lin, an executive vice president at Mountain View, Calif.-based VeriSign, said Digital PhishNet will also investigate ways of legally using technology to bring down sites used to launch phishing attacks. **51390**

Phishing Fighters



Group Polishes Guidelines On HIPAA Security Rules

Seeks to ease the implementation of controls on data

BY JAIKUMAR VIJAYAN

A working group made up of members from three organizations plans this month to release guidelines for complying with the data security requirements of the Health Insurance Portability and Accountability Act (HIPAA).

The clock is ticking for health care companies to comply with HIPAA's security provisions, which will take effect in April. The Healthcare Security Workgroup began developing the compliance guidelines in November 2003 and was originally supposed to release them around the middle of this year. But the complexity of pulling the needed information together delayed the project, said Devin Jopp, chief operating officer at URAC, a nonprofit accreditation agency for the health care industry. "It's taken a lot of lifting," Jopp said. "It was ambitious, but the group has finally been able to put it together."

The Healthcare Security Workgroup includes representatives from Washington-based URAC, the Workgroup for Electronic Data Interchange (WEDI) in Reston, Va., and the National Institute of Standards and Technology, which is part of the U.S. Department of Commerce.

Data Protection

HIPAA's security rules, which were published in *The Federal Register* in April 2003, specify administrative, technical and physical measures that companies have to implement to protect confidential patient data.

Jopp said the working group's compliance guidelines are based on a variety of sources, including best-practices documents, case studies and standards efforts by organizations such as the Healthcare Information and Management Systems Society.

The guidelines are meant to give IT and business managers "a better feel for what it will take to comply" with the HIPAA rules, said Mark McClaughlin, a Dubuque, Iowa-based regulatory policy analyst at McKesson Corp. McClaughlin is an adviser to the WEDI and co-chairman of the security working group.

Such guidance could be potentially useful, especially for smaller health care organizations that might be struggling to understand HIPAA's requirements, said a former member of the working group who requested anonymity.

"The problem with the security rule is that it isn't easy to implement," he said, adding that many companies "are looking for someone to tell them, 'Here's how to do it.'" **51386**

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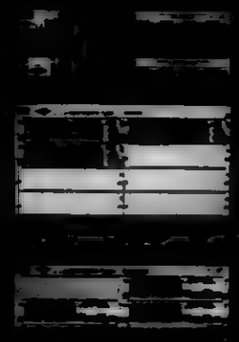
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GLOBAL DISPATCHES

An International IT News Digest

'Zinc Whiskers' Vex Aussie Data Centers

SYDNEY

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Zinc whiskers are filaments of zinc, only microns in diameter, that grow on the underside of aging, galvanized floor tiles. When sucked into data center cooling systems, the whiskers can cause short circuits in computer power supplies and sensitive circuitry.

War Memorial IT manager Daryl Winterbottom said his data center experienced repeated power outages that were eventually traced to zinc whiskers. "You can shine a torch on the underside of an old floor tile and see the whiskers vibrating," he said. The War Memorial's problem was resolved with the installation of zinc-free tiles.

IT consultant Garry Karklins also rids data centers of the scourge. "What you have are pure zinc stalactites that sit undisturbed under floor tiles, and once they . . . circulate, you have a game of Russian roulette," he said.

■ MICHAEL CRAWFORD, COMPUTERWORLD TODAY (AUSTRALIA)

GLOBAL FACT

Redwood City, Calif., plans to expand into Europe because the spam-filtering market in the U.S. is saturated.

IBM Wins $1B Deal For Lloyds Network

LONDON

IBM last week said it has won a seven-year, $972 million contract to move London-based bank Lloyds TSB Group PLC from its existing voice network to a fiber-optic voice/data setup. The deal will put 2,000 Lloyds branches and 4,200 automated teller machines on a dedicated fiber network using Digital Subscriber Line and Multiprotocol Label Switching technologies. IBM said Lloyds' branches will gain eight times their current network bandwidth at a quarter of the price.

It's one of the largest voice-over-IP projects in Europe, with almost 70,000 VoIP phones due to be installed. IBM said the initiative will take advantage of the wealth of unused fiber in the U.K. The switch will occur over 20 months and is partly designed to demonstrate how large banks and retailers can benefit from moving to converged fiber-optic networks, said an IBM spokesman.

■ SCARLET PRUITT, IDG NEWS SERVICE

Siemens Sets Wireless Data Speed Record

DÜSSELDORF, GERMANY

SIEMENS AG claimed last week that it has set the world speed record for wireless data transfer. Siemens said its Munich research lab achieved a wireless transmission rate of 1Gbit/sec. by combining an "intelligent antenna system" with Orthogonal Frequency Division Multiplexing (OFDM) technology.

The combination of multiple antennas and OFDM makes very efficient use of the radio spectrum while minimizing interference. Siemens used a system of three transmitting and four receiving antennas to simultaneously send different flows of data over the same radio channel and frequency band. The company predicted that the fourth-generation wireless technology will be needed for high-bandwidth applications beginning in 2015. **51334**

■ JOHN BLAU, IDG NEWS SERVICE

Compiled by Mitch Betts.

Briefly Noted

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■ LAWRENCE CASIRAYA, COMPUTERWORLD PHILIPPINES

Continued from page 1

Spreadsheets

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Actuate added a "cell locking" feature to allow report designers to password-protect specific cells in a spreadsheet. Data can be distributed to users for controlled analysis without compromising operational data and business logic, said Mike Thoma, vice president of marketing at South San Francisco-based Actuate.

"Politically, it's devastating to take away the spreadsheets from the end user," Thoma said. "But on the other hand, you don't want to go to jail."

CheckFree Corp., a Norcross, Ga.-based electronic bill payment and banking services company, began using the e.Spreadsheet tool this year.

"The finance department was trying to get data ready to publish [for Wall Street], manually querying sources and pulling data together in spreadsheets," said Kevin McDearis, CheckFree's vice president of data and delivery. "They were quite nervous about that."

But e.Spreadsheet applied consistent business rules to the data to avoid compliance problems, he said.

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Avoiding Discrepancies

Users at other companies have further distanced themselves from spreadsheets to avoid potential data discrepancies.

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"Excel is the cocaine of finance," he said. "Once you start using it to calculate your final numbers, you can't stop." To alleviate the problem, the company's new chief financial officer forced the finance department to generate data directly from its J.D. Edwards & Co. applications.

"It was painful, but he stuck to his guns and broke us free of the Excel drug," Baltrusch said. "We began to have one version of the truth."

The problem of reining in spreadsheets is so massive that many IT managers have given up hope, said Wayne Eckerson, director of research at The Data Warehousing Institute in Seattle. "Spreadsheets are a huge temptation for users who feel frustrated that IT can't give them the data they want," he said.

Ideally, only IT should collect, integrate, distribute and manage the data in spreadsheets, with users being allowed to view the data and update it with proper authorization from IT, Eckerson said.

"Solving the problem requires the business and IT to become more aligned and each to better understand and respect what the other side does and its requirements," he added. **51389**

EXCEL OVERLOAD

Spreadsheets can become a liability as they grow like weeds inside companies

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GLOBAL

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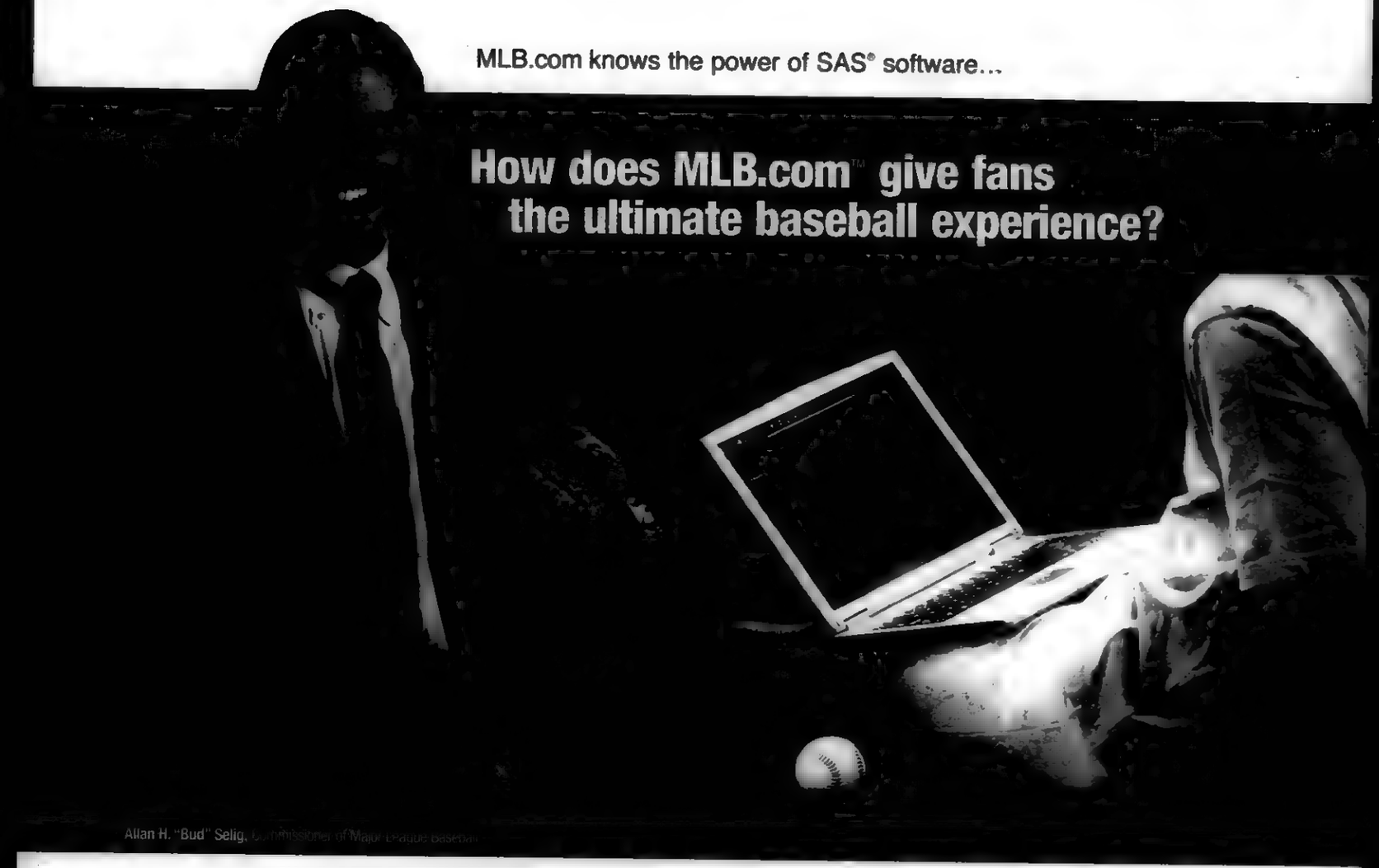
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Continued from page 1

Cisco

Cisco's Worldwide Analyst Conference here said that in recent months, the networking market leader has lowered some of its prices by a small amount or improved the performance of products without increasing their cost.

And two longtime customers said in phone interviews that they think Cisco has made steady strides on improving the price/performance characteristics of some products, although they added that there's still plenty of room for improvement in pricing on devices such as memory cards and peripherals for voice-over-IP phones.

"I'm of the opinion that generally speaking, Cisco's prices are improving and I get more for my money," said Matt Valenzisi, network manager at North Carolina State University in Raleigh. He said that's especially true for stackable switches such as Cisco's Catalyst 3750 product line, probably because Cisco has to compete against many other vendors in that segment of the market. The university plans to buy 22 Catalyst 3750s in the next few months, adding to its installed base of about 2,000 switches from various vendors.

In contrast, Valenzisi said he's alarmed by what he has to pay for memory upgrades to Cisco's switches and switching modules — something he routinely adds to purchases from Cisco to ensure interoperability. For example, he said, Cisco recently charged him $10,000 for a 1GB memory upgrade for an optical services module — many times what he expected to pay. "Their memory pricing is way too high," Valenzisi said.

A network manager at a heath care provider with 6,000 workers said his company is getting an increased amount of services on core infrastructure products from Cisco, such as its switches and routers, for the same prices that it was paying before.

But the user, who asked not to be identified, added that Cisco's prices "are still very high" for devices such as VoIP phones and their batteries and cables. A wireless VoIP phone can run well over $1,200 with all the added gear that end users need, he said.

Pricing Pressures

John Chambers, Cisco's president and CEO, acknowledged in an interview that users frequently voiced concerns about pricing when he talked to them in the past. However, Chambers said the complaints have stopped since he began conducting quarterly reviews of pricing and new-product development two years ago (see Q&A below).

> **"Generally speaking, Cisco's prices are improving and I get more for my money."**
>
> **MATT VALENZISI,** NETWORK MANAGER, NORTH CAROLINA STATE UNIVERSITY

Earlier this year, some IT managers said they were willing to pay premium prices for Cisco's products because of its financial stability, reliability and strong customer service [QuickLink 46376].

But Gartner Inc. analysts Mark Fabbi and Bob Hafner have written several reports over the past year urging users to seek rival bids in order to push Cisco's sales force to make more competitive counteroffers. That strategy seems to be working for users, according to Fabbi. "There's a lot more response by Cisco on competitive bids than a year ago," he said last week.

Fabbi added that Cisco seems to be paying more attention upfront to the prices it's charging, especially with its biggest users. "Cisco realizes they can't take customers for granted and has been proactive with discounts," he said.

Zeus Kerravala, an analyst at The Yankee Group in Boston, said that Cisco's prices "are still an issue with customers." Kerravala agreed with Chambers that there has been some improvement, but he added that it's very hard to quantify. **51392**

WHAT'S NEXT

Cisco officials gave a broad outline of new technologies the company is working on:
QuickLink 51394
www.computerworld.com

Chambers Eyes Rivals in Asia, Says Pricing Not an Issue for Users

Friday was the 20th anniversary of Cisco Systems' founding. John Chambers, the company's president and CEO, said during his keynote speech at last week's Worldwide Analyst Conference that Cisco "has become an adult." Later, in his San Jose office, Chambers spoke with *Computerworld* about the networking industry, pricing issues and Cisco's new technology initiatives.

In Cisco's last quarterly results call, you talked about the coming competition from Asian vendors. What's happening there, and why? I believe the best competitors globally will come from an environment that has a combination of three things. First, an extremely good education system that focuses on computer sciences, math and basic science. China, as an example, graduates 25% of its university graduates in these areas. We in the U.S. have less than 10% of our master's students go into these areas. Second, they have built a very competitive infrastructure. Third, they have an unusually supportive government, not just on issues such as education and an easy environment to do business in, but on stock options and other things. I find it ironic that the U.S. invented the sharing of the success of a company with its employees very broadly. Now we have other countries around the world that beat us not only in education and infrastructure, but also in terms of employee ownership.



At the conference, some analysts said Cisco seems to be reacting to criticism about high costs by dropping prices a bit on some products. What have you done on pricing? We tended to move in the past based on what our peers did in the industry, or on [the rollout of] a new generation of products. Then we made the decision almost two years ago that we were going to focus on designing our products in less time than Moore's Law (if 18 months and on making pricing changes to almost every product line at a pace of Moore's Law or faster – regardless of what the competitors did.

So every quarter, I sit down with Mario Mazzola, our chief development officer, and we go through all our products and say, "Where are we in the last 12 months?" And I ask, "Are we either announcing products with dramatically higher price/performance or announcing cuts in prices for the current products?"

We listened to our customers and, candidly, the industry press as well about pricing. This was an issue of fact, not of perception. But now we are being very open and talking about what has occurred on price/performance. I haven't had that issue raised in a customer call in a very long time. Looking back a year or two, by contrast, it might be raised in a customer call every third or fourth time.

There's a lot of speculation about the new technologies that Cisco will pursue beyond those you already offer. Any hints? When we move into a new advanced technology, we'll keep it relatively in stealth mode until we're ready for our customers to see it and get the feedback. But [we] have also been very open in the last three to four months about what we're going to do in the data center.

Our role in much of the virtualization of services and applications and resources plays perfectly for that area because you really want [access to data] to be transparent regardless of the type of device you have in your hand. That's what routing is really about. So the data center is a logical extension move.

Will the new data center offerings be done through partnerships? It will be through partnerships, internal development and acquisitions – all of the above.

You've also mentioned the possibility of getting into the market for Layer 4-7 switching. Will that be the case? The lines between Layers 1, 2, 3 and 4 are blurring very rapidly. The same is true as you go up the stack to Layer 7 for applications.

If you look at our network evolution, the first phase of where we're going to go for intelligent information networks is the movement of voice, data and video over combined networks. The second phase is this virtualization of services and resources.

And the third phase is this one of application-aware networks, which has huge implications in terms of the doors that it opens up. While this was pretty controversial two years ago when we started down this path, not many people disagree with the concept. The question is how far it will go and the level of implementation.

– *Matt Hamblen*

MORE ONLINE

Visit our Web site for an extended version of the John Chambers interview:
QuickLink 51391
www.computerworld.com

"For midsized and large organizations, a significant Linux deployment will neither be free nor easily accomplished. In fact, respondents at large organizations reported that a wholesale switch to Linux from Windows® or Unix would significantly increase TCO for the forseeable future."

–Laura DiDio, The Yankee Group, April 2004
Linux, Unix, and Windows TCO Comparison

The Yankee Group, a global research and consulting firm, concluded that a significant switch to Linux from Windows or Unix could cost three to four times as much without delivering tangibly better performance or business value. These findings are based on a non-sponsored worldwide survey of 1,000 IT administrators and C-level executives in midsized and large enterprises.

To get the full study, visit **microsoft.com/getthefacts**

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Microsoft® Windows Server System™

Life-Cycle Software Vendors Woo Small, Midsize Businesses

Several are forming alliances, offering more affordable, simplified tools

BY JAIKUMAR VIJAYAN

VENDORS ARE making product life-cycle management (PLM) software easier to deploy and use as interest in the technology grows in small and medium-size businesses.

For example, under a five-year partnership between Microsoft Corp. and Dassault Systemes SA announced last month, Dassault's 3-D SolidWorks products and its PLM software offerings such as Catia, Delmia and Enovia will be integrated with Microsoft's SQL Server, BizTalk Server, SharePoint Portal server software and .Net products.

The integrated products will allow manufacturers to more easily create, edit and share product-related information and 3-D drawings between Microsoft and Dassault environments, said John Squire, vice president of marketing at Suresnes, France-based Dassault.

Such interoperability is crucial to spurring adoption of PLM among small and midsize manufacturers, which tend to be Microsoft-centric, said Don Brown, managing partner of Collaborative Product Development Associates LLC in Port Chester, N.Y.

Dassault isn't the only company attempting to broaden the appeal of PLM products. Also last month, Parametric Technology Corp. in Needham, Mass., disclosed plans to use an IBM on-demand service center to deliver a hosted PLM service for small and medium-size businesses. The service allows those companies to use PTC's Windchill product management software under subscriptions starting at $100 per month.

Meanwhile, Agile Software Corp. launched its Small and Medium Enterprise initiative in October. The San Jose-based vendor is offering a hosted PLM service and a prepackaged PLM suite for smaller businesses.

In September, MatrixOne Inc. in Westford, Mass., announced the integration of its PLM suite with Microsoft's Office environment, with an eye toward spurring broader adoption of its products.

Gaining Attention

Such moves come at a time when adoption of PLM technologies — traditionally used only by very large companies — appears to be gaining attention in smaller manufacturing firms, said John Moore, an analyst at ARC Advisory Group Inc. in Dedham, Mass.

According to a report released this fall by Boston-based AMR Research Inc., companies that have annual revenues of less than $1 billion will invest more than $5 billion in PLM technologies by 2008 in an effort to gain more control over their product information.

"Vendors are starting to realize the market potential of small and medium businesses," said Stephen Segal, CIO at Loewen Inc., a maker of high-end custom windows in Steinbach, Manitoba. "We are seeing Tier 1 vendors repackaging and offering high-end tools that had been developed and available only for complex markets."

Loewen is in the midst of deploying Dassault's PLM technology to its engineering and design groups. Eventually, the company plans to use PLM to expose product information to workers in its sales and marketing groups, as well as to customers.

"We couldn't even look at PLM two or three years ago" because of its complexity and costs, Segal said.

EV3 Inc., a Plymouth, Minn.-based maker of cardiovascular equipment, is also taking advantage of MatrixOne's industry-specific PLM packages to implement a capability for managing product development information through its entire life cycle.

MatrixOne's support of functions and processes specific to the medical device market, including templates for complying with U.S. Food and Drug Administration and European Union regulations, has made the technology relatively simple to deploy, said EV3 CIO Pete Schaubach.

51318

How PLM Vendors Are Courting Smaller Firms

- **Parametric Technology** launched an on-demand subscription-based PLM service starting at $100 per month
- **Agile Software** has a Small and Medium Enterprise initiative that includes 250 packaged PLM services
- **IBM** offers PLM Express products that include integration to Microsoft Office
- **MatrixOne** sells its PLM software with Microsoft Office to attract smaller companies

IBM Security Chief Focuses On Compliance, Cyberattacks

McIrvine promises tighter integration of services and security products

BY JAIKUMAR VIJAYAN

As director of corporate security strategy at IBM, **Stuart McIrvine** *is responsible for developing its overall road map for IT security products, services and partnerships.*

McIrvine's job, which he took on in mid-October, involves managing a team that coordinates security-related initiatives across IBM's hardware, software, services and research groups.

McIrvine spoke with Computerworld *last week about IBM's security offerings and plans.*

What's your role at IBM? I have the responsibility for the development and enhancement of IBM's corporatewide security strategy — that is, a strategy to address the way the market sees security, wants to buy security [products and services], etc. From an internal perspective, it's very focused on aligning all the pieces we have.

What do you see as some of the key drivers of companies' IT security agendas? One of the main things is regulatory compliance, whether it's cross-industry regulations or industry-specific ones. Controlling access to systems, especially financial systems, [and] being able to provide audit trails are important.



Another big area is just basically preventing business damage from cyberattacks — the loss of productivity and the loss of revenue.

Another thing that customers are looking at is really how to cope with multiple communication mediums, such as the Internet, VoIP and wireless, combined with the multitude of devices that people are using to gain access to these [systems].

What is IBM doing to help IT managers address such issues? We have a business unit that's just focused on risk and compliance. They've developed a framework that is providing guidance for all of [the] regulatory compliance [needs of companies].

Customers can drill down on a specific regulation such as [the Sarbanes-Oxley Act], and we'll show particular focus areas of that regulation and map that to our portfolio.

What about helping them deal with cyberattacks? We have about half a million devices worldwide that monitor [network] trends. Approximately 2,700 IBM security professionals analyze the information that comes out of those monitors and provide daily reports and recommended action to help our customers.

What do you see as IBM's value-add over pure-play security vendors? IBM is looking at security not as an IT problem, but as a business problem. It's not just a case of focusing on firewalls and viruses.

We're investing heavily in security management, access management, identity management, patch management and federated ID management. A lot of that is around our Tivoli business.

What can users expect to see from IBM over the next year or so in terms of security products and services? It's really about tighter integration across our portfolio. You'll see a number of new management services, enhancements to our security management software portfolio and better integration across different departments providing security products. You'll also see a lot more focus on putting more security [capabilities] into the hardware.

51319

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Several are forming alliances, offering more affordable, simplified tools

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51318



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51319

AMD

When Microsoft invests sixty billion dollars, they don't use just any processor.

AMD 64 Opteron

To manage this much money, you need a solution that offers optimum performance and real-time flexibility. Microsoft found both in the AMD Opteron™ processor running Windows Server™ 2003, Enterprise Edition. The AMD Opteron processor with its Direct Connect Architecture already powers the world's highest performing 2-way and 4-way x86 servers. Now Microsoft Treasury managers are using it to slash the time it takes to run their complex risk-analysis software. Meanwhile, they have the flexibility to go from 32- to 64-bit applications without disrupting their business. At AMD, we believe it's critical that technology should migrate on your terms to help you realize your unique vision. It's one of the reasons why leading OEMs offer enterprise-class solutions powered by AMD Opteron processors. Would you like to learn just how much of a difference they can make to your company? **Go to www.amd.com/enterprise**

MARK HALL

Welcome, China

SERIOUSLY. When IBM entered the personal computer business in 1981, Apple Computer — then the dominant market leader and maker of the Apple IIe line of desktop machines — ran a full-page advertisement in *The Wall Street Journal* with the screaming headline: "Welcome, IBM. Seriously."



I'm guessing we'll see no such ads from Hewlett-Packard or Dell greeting the arrival of China's Lenovo Group after its $1.25 billion deal to buy IBM's PC business. That's because unlike Apple Computer's smug marketers of the early 1980s (and, need I say, beyond), HP and Dell know there's no reason to anger a dragon moving into your neighborhood.

Lenovo's acquisition is part of a long-term strategy by the company and its backers to become a major IT player in the West. It changed its name officially this year from Legend after it encountered too many trademark problems in Western countries. Executives knew that the new name had to be easy for English speakers to pronounce. I think they did a pretty fair job with "Lenovo."

The company is also working with the Chinese government to take a prominent role during the 2008 Beijing Summer Olympics. That's because it rankles government and business leaders that China hasn't produced even one global brand. The nation may be a global economic powerhouse, but none of its products are household names.

Lenovo plans to use the Olympics to help turn its name into something closer to, say, Coca-Cola or Nestlé than, well, Lenovo is today. But before it can buy endless spots on NBC Sports to promote itself, Lenovo must have something the world wants to buy. Hence, the agreement with IBM.

Whether Lenovo can succeed with IBM's PC line or not, China is making it clear that it wants your business — the enterprise IT business. It wants to create a corporate brand that you will believe in, because collectively your budgets pack a global wallop, one that can carry a company to worldwide brand status quickly.

Lenovo gets to use the IBM brand and assorted trademarks for five years. Expect to see lots of promotional material touting "the Lenovo ThinkPad" or "the IBM PC from Lenovo" for a couple of years. But by the time the pole vaulters and the sprinters have finished touring the Great Wall and have started competing in 2008, Lenovo hopes to have scrapped the IBM crutch and taken on HP and Dell with its own moniker.

The immediate benefit of this deal for IT is that Lenovo knows how to build cheap PCs. Today it sells a decent little machine for $360. It can apply its manufacturing prowess to benefit you. But Lenovo can't expect to become a global brand simply by putting an IBM product in your hands for a few bucks less. If that's the company's game plan, figure it to lose big in its global branding gamble.

Lenovo needs to innovate. IBM's PC group has been lackluster of late, slow to embrace tablets and adopt laptop features that users appreciate. If Lenovo advances the state of the art on PCs by integrating features that IT craves, such as security and reliability, while holding costs down, it stands a good chance of holding on to existing IBM PC buyers and winning new ones to the Lenovo brand.

If Lenovo fails to innovate and extend its IBM line, IT may very well withdraw its welcome mat. And China will need to restart its global brand strategy from scratch. **51320**



VIRGINIA ROBBINS

The Industry We Save Could Be Our Own

BETWEEN MEETINGS, I was catching up on my reading when this title caught my eye: "Can IT Save This Industry?" I'd never heard of IT saving a company, let alone an industry. After scanning the first page and finding very little that had to do with IT, I reached for the phone and called my company's head of marketing. She's a London School of Economics graduate and a former Andersen employee, so I knew I could count on her for a quick and thoughtful comment.

After exchanging a few pleasantries and warning her that my question didn't have anything to do with work, I told her about the article that had caught my attention and asked her if she knew of a case in which IT had saved an industry or a company. Five seconds of silence followed. I had to smile, and I told her that her answer wouldn't change the priority of our projects for marketing. She laughed, but then she said, "Those titles just irritate me. Management is what saves companies; leadership is what saves industries. IT is an enabler."



We spoke about Peter Drucker, James Collins and others whose research demonstrates that it's all about management. We both had meetings to run to, so I thanked her and hung up.

Why had my colleague found that article's title so irritating?

A few weeks ago, I had the opportunity to fill in for our chief executive at a student-loan-industry CEO conference. It was a small gathering, and I was able to meet most of the CEOs in attendance. Upon identifying myself as a CIO, I would receive one of two responses. Former CIOs launched into discussions about changes in the student loan industry; non-CIOs pulled me aside to confide that if there was one area of their businesses that they

worried about, it was technology.

What concerned the CEOs was that their businesses were completely enabled by technology; without IT, they couldn't compete. It wasn't that their IT groups were incompetent or that they had any immediate problems, but as lawyers, CPAs and former salespeople, the CEOs' skills lay in protecting and growing the business. They feared that the very expensive IT recommendations they were approving weren't going to be beneficial. They needed their IT staffs to understand them and their businesses in addition to knowing IT.

I think that when we in IT make claims such as "IT can save this industry," other executives question our understanding of what makes businesses succeed.

As CIOs, we spend much of our time working to retain and improve alignment between IT and business. In part, we do this by translating. We translate business goals into IT projects or metrics and, conversely, translate improvements in IT into business opportunities. Sensational words in article titles that irritate or create doubt rarely help translators.

Yes, it was only the title of an article, a few words that were probably chosen to attract readers. Yet whenever we use words that irritate and raise doubts about our skills, we reduce our effectiveness and harm ourselves and our industry. Let's be the best we can be and choose words that reinforce in the minds of our peers and our CEOs that we have the business knowledge they expect of us. **51241**

MICHAEL GARTENBERG

Longhorn, Blogs, Linux: Predicting '05

IT'S THAT TIME of year. LEDs flash with holiday cheer, and pundits pontificate about what will happen in the coming months. So once again, it's time for me to offer my predictions for the new year.

1. Longhorn is no longer the answer (or even the question). There was too much Longhorn hype in the past year and not enough details. Look for Microsoft to retreat from the "It will be fixed/added in Longhorn" mantra and make more attempts to keep the focus on Windows XP.

2. PDAs will become passé. Disconnected ones, that is. Over time, the real action will be moving core PDA functionality, centered on personal information management, to other devices such as cell phones. This will cause major IT headaches, since few cell phones are controlled by IT these days.

3. More people will lose their jobs over their weblogs. It's happened already, and it will happen again. If you're posting about your job or employer without consent, you're taking a lot of risk with your future.

4. But more corporations will create official blogs. Corporations have seen the weblog light, and blogs will become common for business use. Unfortunately, far too many of these efforts will just be marketing fluff disguised as weblogs.

5. Security FUD will drive IT policy. With all the fear about people using iPods



and flash memory devices to walk off with corporate data, IT will be forced to take more Draconian measures against users. Expect to see rigid policies about commingling personal and business technologies, and bans on USB flash disks and the like.

6. Wi-Fi will be ubiquitous, but not in the workplace. Wi-Fi is readily available in public places such as coffee shops, airports and hotels. IT shops, however, will slow deployments a bit over fears of security. End users will take matters into their own hands, so expect to see lots of ad hoc networks springing up.

7. VoIP will be a mainstream technology for business users. Voice over IP is perhaps the hottest technology in the telecommunications industry today. VoIP-based services will grow even more as a mainstream technology for business use. Expect a lot of competition for the trillions of minutes and billions of dollars' worth of voice calls that business users make each year.

8. Wireless VoIP will still be niche. The hype and press around voice over wireless LANs was significant in 2004. Expect more hype and some pilot programs, but not large growth for VoWLAN.

9. Linux will be adopted in greater numbers by IT, but desktop Linux will not. Linux is already a mainstream server solution for many IT shops. That success won't travel over to the desktop, however. Too much fragmentation, combined with a lack of critical desktop applications and increasing dependence on the Windows platform, will prevent desktop Linux adoption from increasing significantly.

10. Moore's Law will still be irrelevant. Just as in 2004, speed increases are nice, but they will remain hard to justify for most business users, for whom "fast" was "fast enough" around 1999. The most relevant market for fast PCs will be consumers who need all the speed they can get in their digital homes for entertainment.

Most importantly, may we all reap the benefits of technology in a new year filled with peace, prosperity and positive growth. Best wishes for the holidays, and see you in 2005. **51138**

WANT OUR OPINION?

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READERS' LETTERS

Are You Over It?

I HAVE A FEW PROBLEMS with Don Tennant's column "Get Over It" (QuickLink 50699). First, the attitude expressed in the title and the column itself is unprofessional. I expect to be better served by a journalist. Second, anyone with experience of real-world corporate IT knows that, as often as not, management makes shortsighted decisions about outsourcing. Shaving money off a budget for a financial year, or even for only a quarter, is sometimes all that matters to management. Third, *complain* and *whine* are two different words. Accusing laid-off IT workers of whining is not only insulting, it is also inaccurate. I wonder how you might react if suddenly *your* job were farmed out to someone half your age making pennies to your dollar.

Ken Shelby
Somers, N.Y.

I'LL *NOT* GET over it! Not as long as I can get around it, anyway. I have remade my career, moving from being an electronic technician to providing desktop and network systems service. I'm quite proficient with the TCP/IP suite, intimate with Unix and Windows, reasonably conversant with Macintosh (well enough to fix them and tune their performance) and can kill off spyware and viruses manually if necessary.

Is outsourcing good? In some cases, I'm certain it is. In others, it isn't. The planning and implementation of it is what is important. It's important to study whether outsourcing truly is a good fit with the business needs and if the outsourcing vendor is stable and knowledgeable. "It's what our competitors are doing" isn't a good enough reason.

I think the worst of this trend is behind us. Now we're into a rebalancing phase. In 10 years, this will be a mere footnote in the IT history books, whereas it currently is a painful experience. The pendulum will swing back and forth, then find the balance of necessity and utility.

Well, back to finding a new job, since my last contract ended up outsourced to a fully staffed company.

Stephen P. Villano
Philadelphia

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Shay Lynn
Database administrator, Greenwood Village, Colo.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification

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MARK HALL

Welcome, China

SERIOUSLY.

When IBM entered the personal computer business in 1981, Apple Computer — then the dominant market leader and maker of the Apple IIe line of desktop machines — ran a full-page advertisement in *The Wall Street*

Journal with the screaming headline: "Welcome, IBM. Seriously."



MARK HALL is a Computerworld editor at large. You can contact him at mark_hall@computerworld.com.

I'm guessing we'll see no such ads from Hewlett-Packard or Dell greeting the arrival of China's Lenovo Group after its $1.25 billion deal to buy IBM's PC business. That's because unlike Apple Computer's smug marketers of the early 1980s (and, need I say, beyond), HP and Dell know there's no reason to anger a dragon moving into your neighborhood.

Lenovo's acquisition is part of a long-term strategy by the company and its backers to become a major IT player in the West. It changed its name officially this year from Legend after it encountered too many trademark problems in Western countries. Executives knew that the new name had to be easy for English speakers to pronounce. I think they did a pretty fair job with "Lenovo."

The company is also working with the Chinese government to take a prominent role during the 2008 Beijing Summer Olympics. That's because it rankles government and business leaders that China hasn't produced even one global brand. The nation may be a global economic powerhouse, but none of its products are household names.

Lenovo plans to use the Olympics to help turn its name into something closer to, say, Coca-Cola or Nestlé than, well, Lenovo is today. But before it can buy endless spots on NBC Sports to promote itself, Lenovo must have something the world wants to buy. Hence, the agreement with IBM.

Whether Lenovo can succeed with IBM's PC line or not, China is making it clear that it wants your business — the enterprise IT business. It wants to create a corporate brand that you will believe in, because collectively your budgets pack a global wallop, one that can carry a company to worldwide brand status quickly.

Lenovo gets to use the IBM brand and assorted trademarks for five years. Expect to see lots of promotional material touting "the Lenovo ThinkPad" or "the IBM PC from Lenovo" for a couple of years. But by the time the pole vaulters and the sprinters have finished touring the Great Wall and have started competing in 2008, Lenovo hopes to have scrapped the IBM crutch and taken on HP and Dell with its own moniker.

The immediate benefit of this deal for IT is that Lenovo knows how to build cheap PCs. Today it sells a decent little machine for $360. It can apply its manufacturing prowess to benefit you. But Lenovo can't expect to become a global brand simply by putting an IBM product in your hands for a few bucks less. If that's the company's game plan, figure it to lose big in its global branding gamble.

Lenovo needs to innovate. IBM's PC group has been lackluster of late, slow to embrace tablets and adopt laptop features that users appreciate. If Lenovo advances the state of the art on PCs by integrating features that IT craves, such as security and reliability, while holding costs down, it stands a good chance of holding on to existing IBM PC buyers and winning new ones to the Lenovo brand.

If Lenovo fails to innovate and extend its IBM line, IT may very well withdraw its welcome mat. And China will need to restart its global brand strategy from scratch. 51320

Don Tennant is off this week.



VIRGINIA ROBBINS

The Industry We Save Could Be Our Own

BETWEEN MEETINGS, I was catching up on my reading when this title caught my eye: "Can IT Save This Industry?" I'd never heard of IT saving a company, let alone an industry. After scanning the first page and finding very little that had to do with IT, I reached for the phone and called my company's head of marketing. She's a London School of Economics graduate and a former Andersen employee, so I knew I could count on her for a quick and thoughtful comment.

After exchanging a few pleasantries and warning her that my question didn't have anything to do with work, I told her about the article that had caught my attention and asked her if she knew of a case in which IT had saved an industry or a company. Five seconds of silence followed. I had to smile, and I told her that her answer wouldn't change the priority of our projects for marketing. She laughed, but then she said, "Those titles just irritate me. Management is what saves companies; leadership is what saves industries. IT is an enabler."



VIRGINIA ROBBINS is CIO and managing director at Chela Education Financing in San Francisco. Contact her at v_m_robbins@yahoo.com.

We spoke about Peter Drucker, James Collins and others whose research demonstrates that it's all about management. We both had meetings to run to, so I thanked her and hung up.

Why had my colleague found that article's title so irritating?

A few weeks ago, I had the opportunity to fill in for our chief executive at a student-loan-industry CEO conference. It was a small gathering, and I was able to meet most of the CEOs in attendance. Upon identifying myself as a CIO, I would receive one of two responses. Former CIOs launched into discussions about changes in the student loan industry; non-CIOs pulled me aside to confide that if there was one area of their businesses that they

worried about, it was technology.

What concerned the CEOs was that their businesses were completely enabled by technology; without IT, they couldn't compete. It wasn't that their IT groups were incompetent or that they had any immediate problems, but as lawyers, CPAs and former salespeople, the CEOs' skills lay in protecting and growing the business. They feared that the very expensive IT recommendations they were approving weren't going to be beneficial. They needed their IT staffs to understand them and their businesses in addition to knowing IT.

I think that when we in IT make claims such as "IT can save this industry," other executives question our understanding of what makes businesses succeed.

As CIOs, we spend much of our time working to retain and improve alignment between IT and business. In part, we do this by translating. We translate business goals into IT projects or metrics and, conversely, translate improvements in IT into business opportunities. Sensational words in article titles that irritate or create doubt rarely help translators.

Yes, it was only the title of an article, a few words that were probably chosen to attract readers. Yet whenever we use words that irritate and raise doubts about our skills, we reduce our effectiveness and harm ourselves and our industry. Let's be the best we can be and choose words that reinforce in the minds of our peers and our CEOs that we have the business knowledge they expect of us. **51241**

MICHAEL GARTENBERG

Longhorn, Blogs, Linux: Predicting '05

IT'S THAT TIME of year. LEDs flash with holiday cheer, and pundits pontificate about what will happen in the coming months. So once again, it's time for me to offer my predictions for the new year.

1. Longhorn is no longer the answer (or even the question). There was too much Longhorn hype in the past year and not enough details. Look for Microsoft to retreat from the "It will be fixed/added in Longhorn" mantra and make more attempts to keep the focus on Windows XP.

2. PDAs will become passé. Disconnected ones, that is. Over time, the real action will be moving core PDA functionality, centered on personal information management, to other devices such as cell phones. This will cause major IT headaches, since few cell phones are controlled by IT these days.

3. More people will lose their jobs over their weblogs. It's happened already, and it will happen again. If you're posting about your job or employer without consent, you're taking a lot of risk with your future.

4. But more corporations will create official blogs. Corporations have seen the weblog light, and blogs will become common for business use. Unfortunately, far too many of these efforts will just be marketing fluff disguised as weblogs.

5. Security FUD will drive IT policy. With all the fear about people using iPods and flash memory devices to walk off with corporate data, IT will be forced to take more Draconian measures against users. Expect to see rigid policies about commingling personal and business technologies, and bans on USB flash disks and the like.



MICHAEL GARTENBERG is vice president and research director for the Personal Technology & Access and Custom Research groups at Jupiter Research in New York. Contact him at mgartenberg@optonline.net. His weblog and RSS feed are at *http://weblogs.jupiterresearch.com/analysts/gartenberg*

6. Wi-Fi will be ubiquitous, but not in the workplace. Wi-Fi is readily available in public places such as coffee shops, airports and hotels. IT shops, however, will slow deployments a bit over fears of security. End users will take matters into their own hands, so expect to see lots of ad hoc networks springing up.

7. VoIP will be a mainstream technology for business users. Voice over IP is perhaps the hottest technology in the telecommunications industry today. VoIP-based services will grow even more as a mainstream technology for business use. Expect a lot of competition for the trillions of minutes and billions of dollars' worth of voice calls that business users make each year.

8. Wireless VoIP will still be niche. The hype and press around voice over wireless LANs was significant in 2004. Expect more hype and some pilot programs, but not large growth for VoWLAN.

9. Linux will be adopted in greater numbers by IT, but desktop Linux will not. Linux is already a mainstream server solution for many IT shops. That success won't travel over to the desktop, however. Too much fragmentation, combined with a lack of critical desktop applications and increasing dependence on the Windows platform, will prevent desktop Linux adoption from increasing significantly.

10. Moore's Law will still be irrelevant. Just as in 2004, speed increases are nice, but they will remain hard to justify for most business users, for whom "fast" was "fast enough" around 1999. The most relevant market for fast PCs will be consumers who need all the speed they can get in their digital homes for entertainment.

Most importantly, may we all reap the benefits of technology in a new year filled with peace, prosperity and positive growth. Best wishes for the holidays, and see you in 2005. **51138**

WANT OUR OPINION?

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Are You Over It?

I HAVE A FEW PROBLEMS with Don Tennant's column "Get Over It" (QuickLink 50699). First, the attitude expressed in the title and the column itself is unprofessional. I expect to be better served by a journalist. Second, anyone with experience of real-world corporate IT knows that, as often as not, management makes shortsighted decisions about outsourcing. Shaving money off a budget for a financial year, or even for only a quarter, is sometimes all that matters to management. Third, *complain* and *whine* are two different words. Accusing laid-off IT workers of whining is not only insulting, it is also inaccurate. I wonder how you might react if suddenly *your* job were farmed out to someone half your age making pennies to your dollar.

Ken Shelby
Somers, N.Y.

I'LL *NOT* GET over it! Not as long as I can get around it, anyway. I have remade my career, moving from being an electronic technician to providing desktop and network systems service. I'm quite proficient with the TCP/IP suite, intimate with Unix and Windows, reasonably conversant with Macintosh (well enough to fix them and tune their performance) and can kill off spyware and viruses manually if necessary.

Is outsourcing good? In some cases, I'm certain it is. In others, it isn't. The planning and implementation of it is what is important. It's important to study whether outsourcing truly is a good fit with the business needs and if the outsourcing vendor is stable and knowledgeable. "It's what our competitors are doing" isn't a good enough reason.

I think the worst of this trend is behind us. Now we're into a rebalancing phase. In 10 years, this will be a mere footnote in the IT history books, whereas it currently is a painful experience. The pendulum will swing back and forth, then find the balance of necessity and utility.

Well, back to finding a new job, since my last contract ended up outsourced to a fully staffed company.

Stephen P. Villano
Philadelphia

MOST OF THE discussions about IT outsourcing are based on one fatally flawed concept: that American businesses still do actual cost-benefit analyses when choosing a course of action. The idea that a company will sacrifice this quarter's earnings for future benefits is, as Alberto Gonzales said about the Geneva Convention, "quaintly obsolete." Management makes all the right noises — "Quality is No. 1" and "We strive for excellence" — but the message that gets delivered down the chain is, "Get it done fast and cheap, and we'll worry about the fallout later."

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Microsoft Reports For BI Duty

Microsoft's Reporting Services tool isn't quite ready for business users yet, but it's causing a commotion in the business intelligence market. **Page 26**

QUICKSTUDY

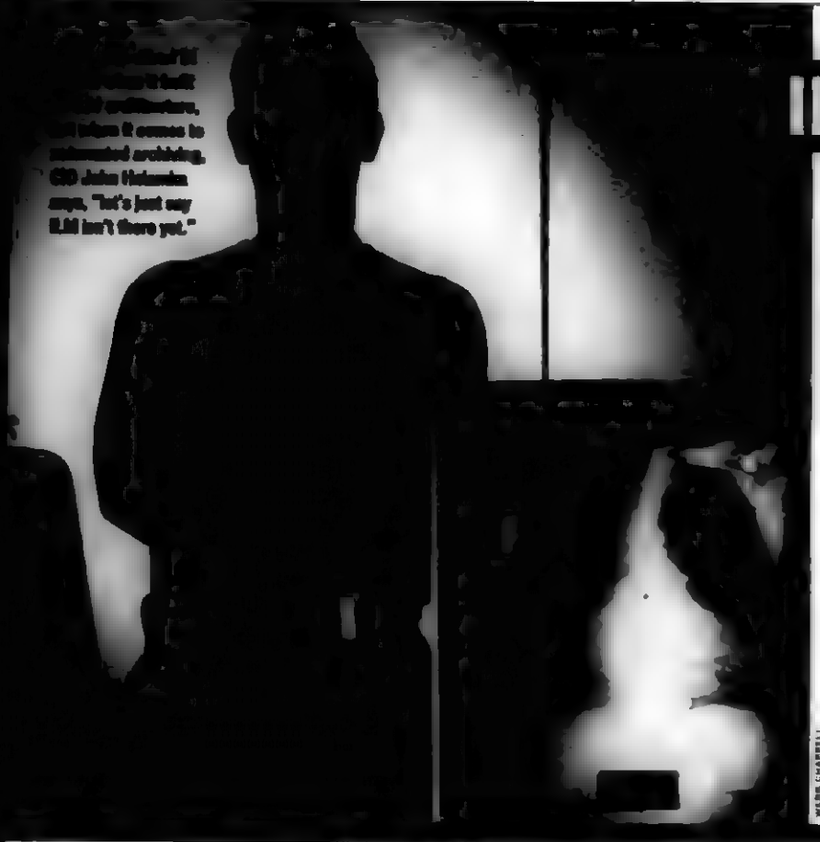
VANs

Value-added networks are communication networks supplied and managed by third-party companies that facilitate electronic data interchange, Web services and transaction delivery by providing extra networking services. **Page 30**

SECURITY MANAGER'S JOURNAL

SecurID Rollout Calls for Planning

With two-factor authentication about to roll out to the masses, a step-by-step plan is drawn up. You've got to think ahead if you're going to introduce 5,000 users to something new, says Mathias Thurman. **Page 32**



WEBB CHAPPELL

ILM: Putting THE PIECES Together

Users are still looking for ways to fully integrate and automate information life-cycle management technologies.

BY LUCAS MEARIAN

INFORMATION LIFE-CYCLE management (ILM) holds the promise of automating storage from the moment data is created by business applications to the time it's deleted from digital tapes stored in underground vaults. But the technology may never realize its full potential without the automation of business rules and processes, or standards to tie heterogeneous storage-area networks (SAN) and network-attached storage together into a tight mesh of resources from which to draw, say users and analysts.

The limitations of ILM are now apparent even in its success stories. John Halamka, CIO at Boston-based CareGroup Inc., says the ILM architecture he built saved his hospital management company more than $1 million by allowing him to avoid the purchase of high-performance systems to store older X-ray images and other data that isn't critical but still needs to be readily accessible.

Halamka says only about 20% of the data in his Oracle database is active, and the rest can be relegated to Tier 2 storage. "The value of a payroll check today is very important, but a year after W-2s are issued — well, we can move off to different storage," he says.

The CareGroup ILM architecture, which took four years to build, automatically migrates data through four levels of storage, each less expensive and slower-performing than the last.

Halamka's IT team wrote its own middleware to perform the data migration with radiology image management software from General Electric Co. and Veritas Software Corp.'s application management software, which monitors the performance of its internal physician Web site, CareWeb.

Halamka's infrastructure consists of 200 Wintel servers from Hewlett-Packard Co. and 25 high-end HP rp8400s running Unix. Its 100TB of storage comprises 35TB of Symmetrix arrays, 35TB of Clariion CX600 arrays and 30TB of Celerra network-attached storage for file serving, all from EMC Corp. A Powderhorn tape library from Storage Technology Corp. is used for long-term archival storage. A pair of 112-port MDS 9509 switches from Cisco Systems Inc. provides a layer of abstraction between application servers and back-end storage, allowing capacity to be served up as if from a single pool instead of many arrays.

Halamka cobbled together his architecture and acknowledges that not every company could afford its $3 million price tag, which included software and hardware. But he says it was cheaper than the alternative.

The state of Massachusetts requires CareGroup to keep clinical records for up to 30 years. Halamka says he'd love to put the data on high-end Symmetrix arrays, "but just my capital budget restrictions alone are going to require me to identify what data is mission-critical and [needed] in milliseconds and what data is not so mission-critical so I can wait a few seconds to retrieve it." Halamka is still addressing e-mail backup and automating his tape-archival infrastructure, and he has yet to find a utility that will automatically migrate data in business applications

Continued on page 24

PUT IT IN THE SERVER ROOM.

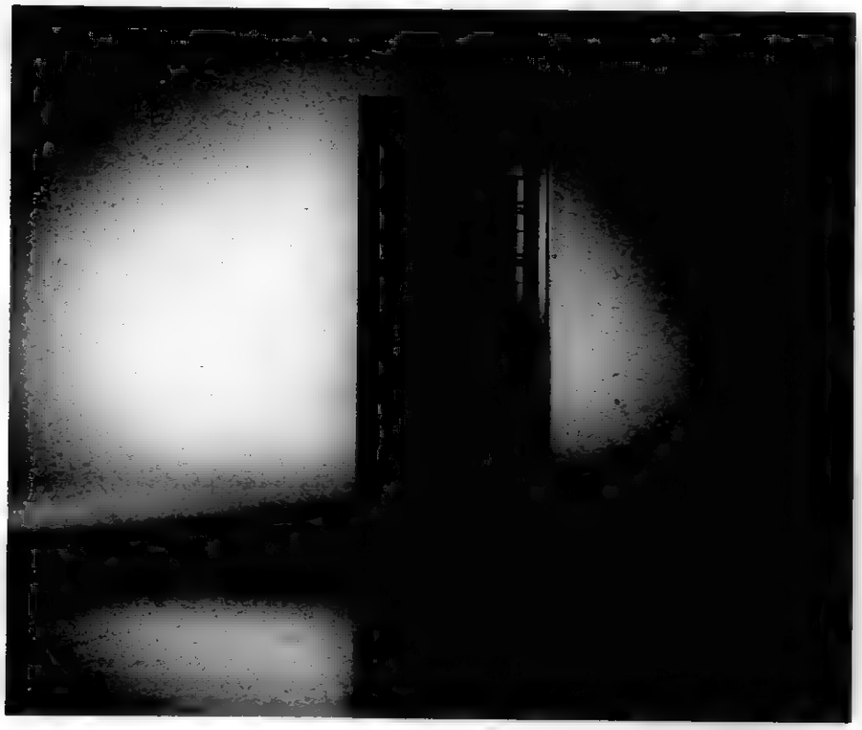
FEEL IT IN THE BOARDROOM.

[1]Based on two-tier SAP Sales and Distribution (SAP SD) Standard Application Benchmark result on the 8-way IBM eServer p5 570 (AIX 5L v5.3, DB2 UDB v8.1) of 2,600 benchmark users, 1.99 second average response time (certification number 2004041), as compared to the 8-way HP Integrity rx7620 (HP/UX 11i, Oracle 9i) result of 1,500 benchmark users, 1.95 second average response time (certification number 2003045). Current as of November 24, 2004. Source: http://www.sap.com/benchmark. [2]Operating systems sold separately. [3]Available on select models. IBM, eServer, the eServer

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Continued from page 21

onto his tiered storage architecture.

"I run PeopleSoft for all of my 12,000 employees' payroll. Wouldn't it be great to say after you cut the checks this week, 'Do we really need all the raw data that generated the checks? Let's move that off into archival storage.'" Halamka says. "Let's just say ILM isn't there yet."

Halamka and other IT managers are waiting for vendors to produce heterogeneous data-migration tools, which are only now beginning to emerge with the Storage Management Initiative Specification, known as SMI-S.

But pieces of ILM, which can relieve systems administrators of arduous manual processes and produce fast ROI, do exist today. Vendors such as Princeton Softech Inc., OuterBay Technologies Inc. and Applimation Inc. sell software that will remove unused or nonessential data from databases and migrate it to storage based on business policies. Using rules engines, the software can distinguish between open and closed business transactions.

Policy-based Archiving

E-mail archiving tools from companies such as Veritas, KVS Inc., Zantaz Inc., Connected Corp., and EMC's Legato Software division use policies to automatically move e-mail and attachments out of applications such as Exchange, Outlook and Lotus Notes onto disk or tape, which can then be searched.

But still missing in third-party software for ILM is the automation of business processes and standards to tie heterogeneous SANs together.

Tape library manufacturer Advanced Digital Information Corp. in Redmond, Wash., plans to release an upgrade this month to its Pathlight VX appliance that will present a single management interface between EMC Clariion disk arrays and its own tape libraries as well as libraries from StorageTek. But that addresses only hierarchal storage management.

The industry must change how it looks at storage management and operations, say analysts and users.

"Let's work from the basis of business requirements and business practices," says Mike Peterson, president of Strategic Research Corp. in Santa Barbara, Calif., and program director of the Storage Networking Industry Association's (SNIA) Data Management Forum. "We have to instrument the infrastructure so it can be operated automatically. We have to move back to basics."

"It's hard for us to imagine thinking about this as a storage problem," says Kate Kristenson, vice president of information product support at Inovant LLC, Visa International Inc.'s IT organization. "You have to think of it as a systems integration problem. The operating systems have a role to play. The application packages have a role to play. The database has a role to play. The real challenge is how do you think through the application integration end to end."

Foster City, Calif.-based Visa spent 14 months choosing vendors when it built a 150TB relational database and a SAN to support it. Upgrades to the database went online in September. The database is the data store for 300 million transactions per day. Visa looked for vendors that would tailor their software to its ILM needs and take responsibility to grow along with the company, Kristenson says.

FIVE STEPS TO ILM

1. Consolidate data and implement network storage.
2. Classify data according to service-level objectives. Tier storage and data services into consistent configurations in support of those objectives.
3. Align best practices to service-level agreements.
4. Automate ILM technologies with management tools.
5. Standardize practices and use standards-based technology across multiple sites for heterogeneous interoperability.

"We've been able to influence the development of the technology from our vendors. That has saved us on development time internally," she says.

Visa uses extract, transform and load tools from Lexington, Mass.-based Ab Initio Software Corp. to perform near-real-time analysis of data being stored in the relational database.

Data generated in that database is stored in several tiers — from 120TB of high-performance Symmetrix and 70TB of IBM FAStT midrange disk arrays to tape libraries — for real-time or near-real-time retrieval for six months.

Visa spent three years creating its relational database and tiered storage infrastructure. Prior to that, data was siloed by business unit and couldn't be viewed in real time.

"We're now moving to the point where we have all the fundamental data in one place, and we're now using it to drive new business decisions," says Joel Mittler, senior vice president of information services at Inovant.

After transactional data has been viewable in real time on disk for six months, it's automatically migrated to StorageTek tape libraries that hold up to 2 petabytes. Administrators can retrieve information in minutes from the libraries. After two and a half years, the tapes are shipped off-site, and retrieving that data can take a day or more.

Storage resource management (SRM) tools — software that can report on devices, SAN utilization rates and where business applications access and store data on arrays — are essential building blocks in ILM architectures. Without them, administrators are flying blind when it comes to the efficiency and utilization of their storage infrastructures, analysts say.

According to Bill North, an analyst at IDC in Framingham, Mass., SRM software will be the fastest growing storage software segment through 2008.

Currently, storage vendors such as EMC, IBM and Hitachi Data Systems Corp. have products that operate within homogeneous islands of storage that can perform policy-based migration of data or ILM. But products are emerging that can migrate data between competing vendors' machines. Even when the technology is available to tie the pieces of ILM together, however, users may be slow to embrace it.

Gary Theus, a field support supervisor at Thompson Hine LLP, a Cleveland-based international law firm with about 360 attorneys, is in the middle of deploying 6TB of Advanced Technology Attachment disk storage from Nexsan Technologies Inc. in Woodland Hills, Calif., as a second tier of storage below high-end systems from Hitachi. Theus says his company paid $30,000 for the 6TB of storage on an ATABeast array from Nexsan, whereas he paid $200,000 for 1.5TB of Hitachi storage.

But before Theus can begin thinking about ILM, he has to agree with the business side on how to classify data in order to determine the law firm's retention policies. He expects to tackle that project next year. (To see how other IT executives are handling that challenge, go to QuickLink 50394.)

Right now, like in many IT shops, Theus' policy for the deletion of records such as e-mails is "everything past five years."

"We've just not wrapped our arms around [ILM] yet," Theus says.

QuickLink 51097

Data Classification Standards Coming

SNIA EXPECTS TO RELEASE by the middle of 2005 a standard for classifying data in order to store it according to its business importance.

In October, the SNIA Data Management Forum published a road map for creating standards to tie heterogeneous storage systems together. It also published best practices and classified the development stages of ILM, which should help users determine what they have to do to achieve a utility storage model.

IDC analyst Bill North agrees that simplifying the classification of data – what needs high-performance storage and what doesn't – is crucial to any ILM strategy.

"Beyond when a file has been created, modified or last used, you need to know who it belongs to. And Windows, Unix and mainframe applications all need to be treated separately because all the data looks different," North says.

The SNIA is also working on a standard for data services – such as backup and replication – that will become part of its existing Storage Management Initiative Specification. That will likely be out in 2006, says Mike Peterson, program director of the Data Management Forum.

"We're talking about business processes that have to be automated in a standards fashion. That's called operations management. That product doesn't exist yet," Peterson says.

One impediment to progress is vendor push-back, says Peterson. Vendors are worried that if they standardize, their products will become commoditized. Other resistance comes from business application vendors, he says.

For example, database vendors don't see any burning need to build policies for offloading data into their products. Their position is that "If you have more money and can throw it at more CPUs and storage, then it doesn't make a difference," Peterson says.

– Lucas Mearian

Continued from page 21

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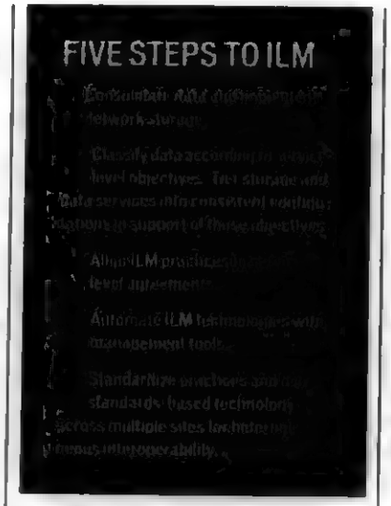
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"Let's work from the basis of business requirements and business practices," says Mike Peterson, president of Strategic Research Corp. in Santa Barbara, Calif., and program director of the Storage Networking Industry Association's (SNIA) Data Management Forum. "We have to instrument the infrastructure so it can be operated automatically. We have to move back to basics."

"It's hard for us to imagine thinking about this as a storage problem," says Kate Kristenson, vice president of information product support at Inovant LLC, Visa International Inc.'s IT organization. "You have to think of it as a systems integration problem. The operating systems have a role to play. The application packages have a role to play. The database has a role to play. The real challenge is how do you think through the application integration end to end."



Foster City, Calif.-based Visa spent 14 months choosing vendors when it built a 150TB relational database and a SAN to support it. Upgrades to the database went online in September. The database is the data store for 300 million transactions per day. Visa looked for vendors that would tailor their software to its ILM needs and take responsibility to grow along with the company, Kristenson says.

"We've been able to influence the development of the technology from our vendors. That has saved us on development time internally," she says.

Visa uses extract, transform and load tools from Lexington, Mass.-based Ab Initio Software Corp. to perform near-real-time analysis of data being stored in the relational database.

Data generated in that database is stored in several tiers — from 120TB of high-performance Symmetrix and 70TB of IBM FAStT midrange disk arrays to tape libraries — for real-time or near-real-time retrieval for six months.

Visa spent three years creating its relational database and tiered storage infrastructure. Prior to that, data was siloed by business unit and couldn't be viewed in real time.

"We're now moving to the point where we have all the fundamental data in one place, and we're now using it to drive new business decisions," says Joel Mittler, senior vice president of information services at Inovant.

After transactional data has been viewable in real time on disk for six months, it's automatically migrated to StorageTek tape libraries that hold up to 2 petabytes. Administrators can retrieve information in minutes from the libraries. After two and a half years, the tapes are shipped off-site, and retrieving that data can take a day or more.

Storage resource management (SRM) tools — software that can report on devices, SAN utilization rates and where business applications access and store data on arrays — are essential building blocks in ILM architectures. Without them, administrators are flying blind when it comes to the efficiency and utilization of their storage infrastructures, analysts say.

According to Bill North, an analyst at IDC in Framingham, Mass., SRM software will be the fastest growing storage software segment through 2008.

Currently, storage vendors such as EMC, IBM and Hitachi Data Systems Corp. have products that operate within homogeneous islands of storage that can perform policy-based migration of data or ILM. But products are emerging that can migrate data between competing vendors' machines. Even when the technology is available to tie the pieces of ILM together, however, users may be slow to embrace it.

Gary Theus, a field support supervisor at Thompson Hine LLP, a Cleveland-based international law firm with about 360 attorneys, is in the middle of deploying 6TB of Advanced Technology Attachment disk storage from Nexsan Technologies Inc. in Woodland Hills, Calif., as a second tier of storage below high-end systems from Hitachi. Theus says his company paid $30,000 for the 6TB of storage on an ATABeast array from Nexsan, whereas he paid $200,000 for 1.5TB of Hitachi storage.

But before Theus can begin thinking about ILM, he has to agree with the business side on how to classify data in order to determine the law firm's retention policies. He expects to tackle that project next year. (To see how other IT executives are handling that challenge, go to QuickLink 50394.)

Right now, like in many IT shops, Theus' policy for the deletion of records such as e-mails is "everything past five years."

"We've just not wrapped our arms around [ILM] yet," Theus says.

QuickLink 51087



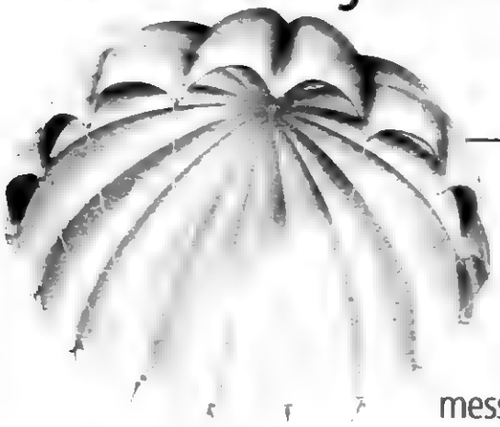
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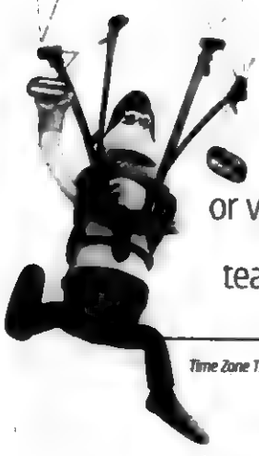


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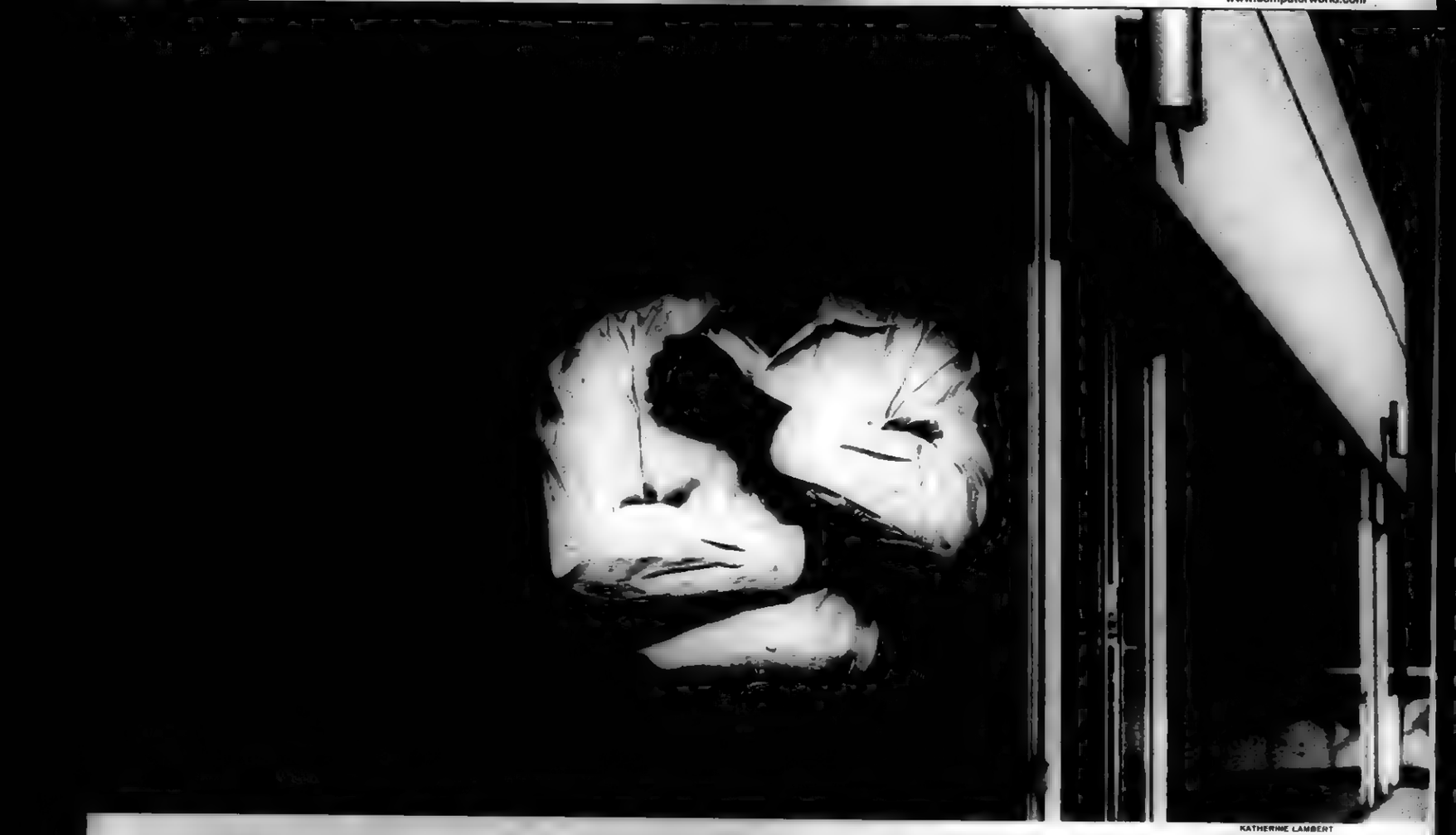


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KATHERINE LAMBERT

MICROSOFT REPORTS FOR BI DUTY

WITH ITS FREE REPORTING SERVICES SOFTWARE, THE DESKTOP DOMINATOR DISRUPTS THE REPORTING TOOLS LANDSCAPE.

BY HEATHER HAVENSTEIN

WHEN RESIDENTIAL REAL ESTATE AGENCY Long & Foster Cos. decided to update the way it prepares financial reports and replace a system it had been using for 20 years, the company chose Microsoft Corp.'s first reporting tool to do the job.

Long & Foster opted to use a beta version of Microsoft's Reporting Services (RS) to anchor its entire process for generating financial reports for company management, even though other tools had been on the market for years — and some even ship with Microsoft's own SQL Server 2000.

"That was a bold and to some degree risky move," says Mayur Raichura, the company's director of information services.

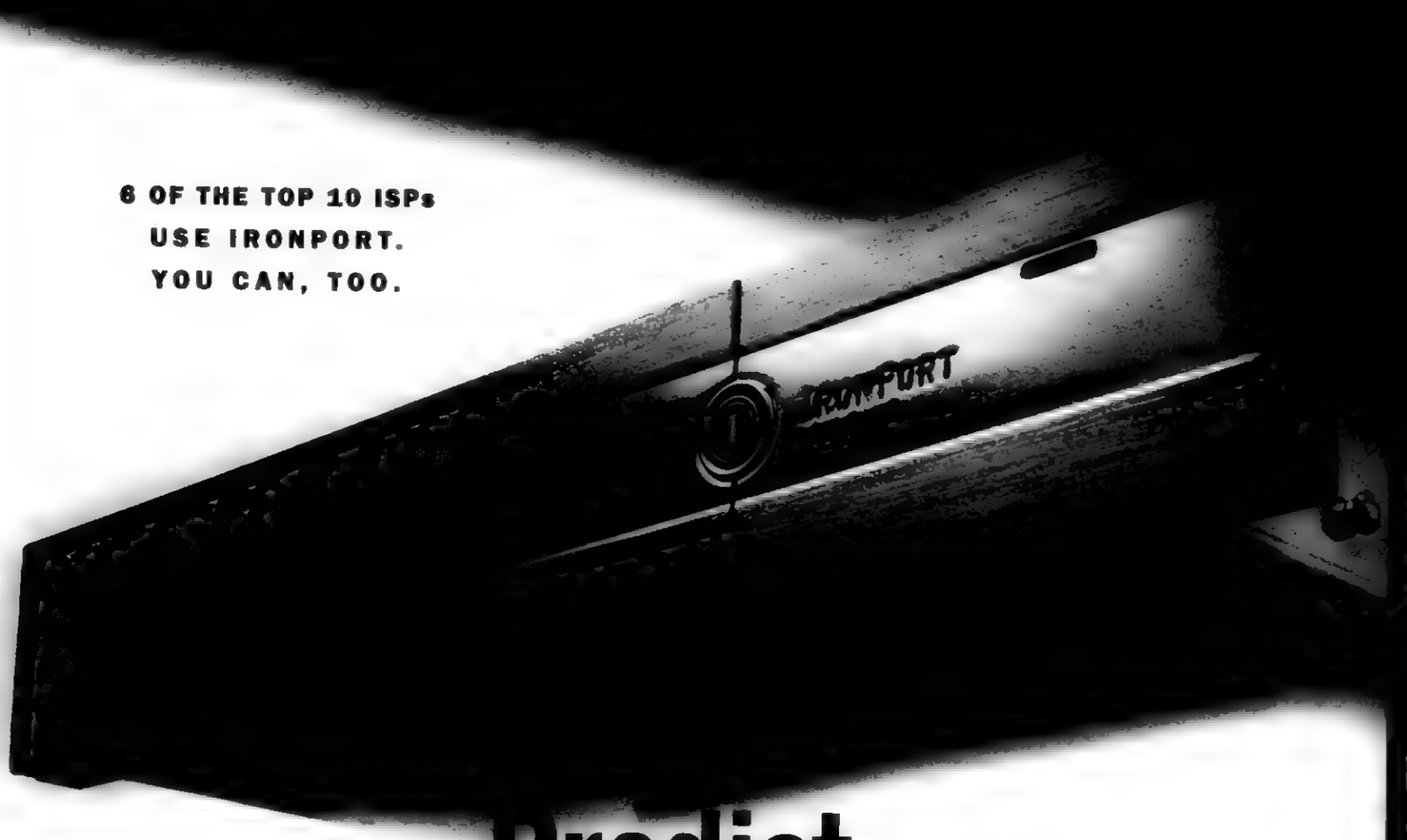
But the gamble seems to have paid off for Fairfax, Va.-based Long & Foster. In four months, it developed 40 different reports for its 212 offices using Microsoft's SQL Server 2000 RS — eight months ahead of the schedule projected by developers.

Users now can access reports instantaneously over the Web instead of receiving them monthly. Raichura estimates that the company is saving approximately $530,000 per year by using RS in lieu of paper copies delivered by couriers.

Long & Foster is one of a growing number of companies using RS to create, manage and publish reports from data pulled from a data warehouse. Microsoft says more than 100,000 users have downloaded the tool since its introduction in January. Users say the price is right for the server-based reporting platform: It's free for SQL Server users who need to run only one instance of the business intelligence database. (If they need more instances, they must buy more server licenses.) Users are also attracted to RS's tight integration with the Visual Studio .Net development environment.

However, while RS can deliver production-style reports from OLTP database queries, it can't provide management-style reporting designed to allow users

Continued on page 28



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to author their own reports. Users and analysts alike say that while the product's tight integration with .Net is helpful for developers, it locks out users who don't have knowledge of the development platform. Competitors in the reporting arena, including Business Objects SA, Cognos Corp., MicroStrategy Inc. and Hyperion Solutions Corp., support both production and management reporting.

Nonetheless, Long & Foster and other companies are making RS a corporate standard for reporting.

For example, copper producer Phelps Dodge Corp. has replaced its Crystal Reports tools (marketed by Business Objects, which acquired Crystal Decisions late last year) with RS, which now serves up 400 to 500 daily financial reports to managers. James Faith, lead engineer at the Phoenix-based company, says RS had an advantage because it was was available for free with Phelps' existing SQL Server license and because it allowed the company to push Web-based reports to users.

"It has absolutely changed the way we do our reporting," Faith says. "We can have it so it automatically e-mails out to users . . . to do financial reporting on a daily basis. It is very file-based, and it allows you to move from various environments pretty seamlessly. It takes our developers no time at all to produce these, get them tested . . . and into production."

Cindi Howson, a faculty member at The Data Warehousing Institute in Seattle and author of the independent BIScorecard.com report, which evaluates business intelligence tools, said RS is most likely to be found in Microsoft shops, given its tight integration with other Microsoft products.

"If your standard for application servers is Microsoft-based, then definitely you should be looking at the Microsoft stack," Howson says. "If a company has decided to have a different application server, or if they're running all on Unix, Microsoft doesn't meet that need."

She adds that RS does, however, have capabilities that other popular reporting tools don't, such as a data-driven subscription model.

"[Microsoft] reuses some of the components, like scheduling, that are inherent in SQL Server," she says. "What Microsoft can do that Crystal can't do is have multiple data sets populate a report, which really creates a dashboardlike report."

Market Shake-up

Microsoft shook up the business intelligence market in 2003, when it announced its intentions to add a reporting tool to its BI stack, which already included online analytical processing and extract, transform and load tools. After Microsoft disclosed its plan, Business Objects acquired reporting-tool vendor Crystal Decisions, Cognos rolled out its own reporting tool, and Hyperion snapped up tool vendor Brio.

Now, Microsoft is maneuvering to expand the functionality of RS. The new features will debut in the version of RS that ships with SQL Server 2005 (see sidebar). Microsoft also has announced two new Report Packs report templates that allow reporting against its CRM and Exchange applications.

"You have this case where Microsoft used to be dependent on outside vendors like Crystal for reporting," says Rob Helm, an analyst at Directions on Microsoft, an independent research firm in Kirkland, Wash. "Now it has an in-house product that looks basically to be pretty much ubiquitous in the Microsoft product line. It's going to have a huge impact over the next two to three years simply because it will ship with so many Microsoft products."

Perhaps the biggest enhancement will come when Microsoft adds Report Builder to RS in SQL Server 2005. Report Builder is rebranded technology from Active Views Inc., which Microsoft acquired earlier this year.

"Report Builder will go after that group that wants to come in and build their own report or modify an existing report and not have to live in the Visual Studio environment, but more importantly not have to understand the database," says Alex Payne, senior product manager on Microsoft's SQL Server team. "I can drag and drop report entities onto a palette, effectively allowing me to build a report, an ad hoc report . . . but I'm browsing a semantic layer — I'm not building it off a database."

But despite the initial buzz around Microsoft's entrance into the reporting world and the new features planned for RS, some users haven't been lured away from their existing tools.

For example, the Federal Home Loan Bank of San Francisco, a Microsoft shop, took a look at RS but opted to stick with its Crystal reporting tools, says Rose Kim, the bank's vice president of application development and support.

"Microsoft is doing with Reporting Services what they do with everything else — they are introducing it now, and in three to four years time, they may have all the industry-leading features," Kim says. "For now, we're looking to continue to build upon the tools we already have. Part of it is a human investment in terms of training and knowledge. The ability to become agile and proficient at a particular tool requires some time."

In addition, users should be aware that while RS is essentially free for SQL users, heavy demands for report generation may require enterprises to run more than a single instance of SQL, says Keith Gile, an analyst at Forrester Research Inc. "It is not recommended that any company with a large report library or a heavy demand for report generation use a single instance of SQL Server for all database and reporting activities," Gile says. "Companies need to understand how much of an additional load a production-reporting environment will place on the SQL Server engine." 51123

EXTENDING THE REACH

MICROSOFT IS MANEUVERING to broaden the appeal of Reporting Services by integrating it into more products and adding new features.

The company has already shipped RS in the latest version of its Microsoft Operations Manager. And Visual Studio 2005 will include embeddable reporting controls that Microsoft says will allow developers to more easily build applications with RS. And RS will be integrated into the next version of Microsoft's CRM software.

For SQL Server 2005 – now due out next summer – Microsoft will add an MDX designer into Reporting Services to allow enterprises to create and run relational and OLAP queries against SQL Server.

The most highly anticipated improvement slated for RS is probably the new Report Builder, which will be available in SQL Server 2005. Report Builder will incorporate current technology with an end-user query and report-authoring environment that has drag-and-drop features that are more suitable for business users.

Most analysts and users agree that RS's biggest drawback is that it is mostly limited to developers who have experience in Microsoft's Visual Studio .Net.

Report Builder will provide the type of functionality that Hans Rasmussen, an IT project leader at TDC AS, says he has been waiting for since the Danish telecommunications company began using RS in January. Rasmussen says he was surprised to find that the designer interface of RS was in Visual Studio, meaning end users couldn't use it to build reports. Still, he says he has high hopes for Report Builder, which he has previewed.

"I believe that with this interface we can push Reporting Services all the way to the end users in the business lines," he says.

Rasmussen estimates that by using Report Builder, TDC can save up to $543,000 – the amount the company is spending annually to license a Brio reporting tool.

While Report Builder will provide the native report-writing that was missing from RS, the onus now will be on Microsoft to present benchmarks and customer case studies that prove RS can stand up to the rigors of production enterprise and analytic reporting, says Forrester Research analyst Keith Gile.

"This will take time, and prospective users need to understand that even though SQL Server is a mature and proven relational database management system, Reporting Services is still brand-new and relatively unproven," he says.

– Heather Havenstein

PLAYERS PRODUCTS

Major vendors of production query and reporting tools (for querying OLTP databases and formatting reports) and management query and reporting tools (for users who want to author their own reports):

VENDOR	PRODUCTION TOOL	MANAGEMENT TOOL
Business Objects	Crystal Reports (acquired from Crystal Decisions)	Business Objects for desktop authoring; WebIntelligence for Web-based authoring
Cognos	ReportNet	ReportNet QueryStudio
Microsoft	Reporting Services	Not available until SQL Server 2005 ships
MicroStrategy	Report Services	Desktop for desktop authoring; Web for Web authoring
Hyperion	Reports (for financial reporting) SQR (acquired from Brio)	Intelligence (acquired from Brio)
Informatica Corp.	None available	Power Analyzer

Continued from page 26

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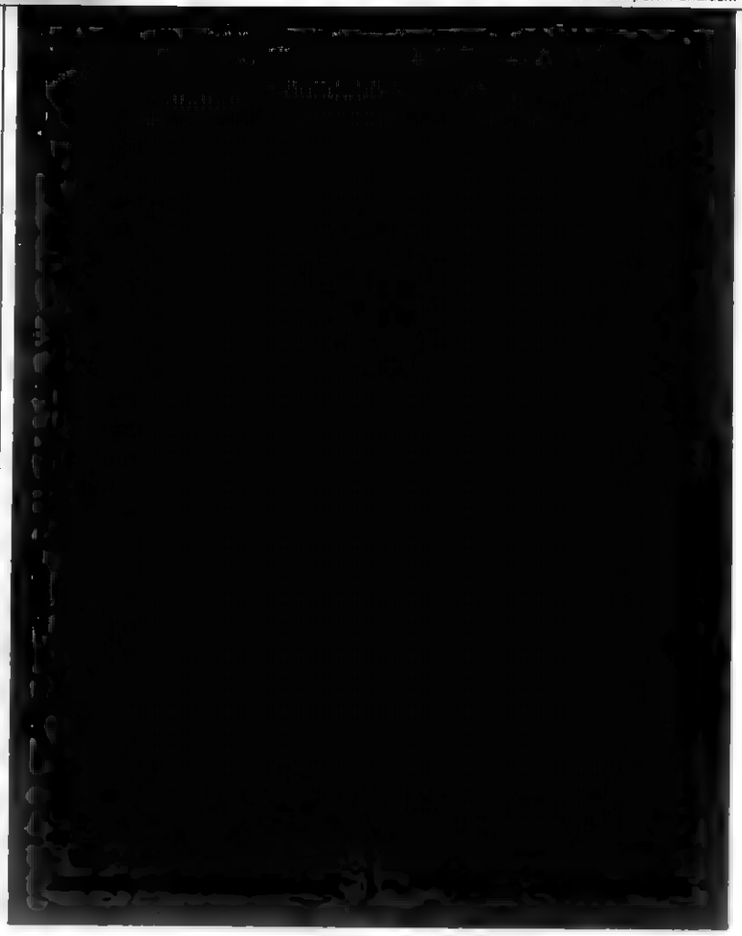
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12:45pm to 2:00pm	Networking Lounge & Luncheon
5:30pm to 8:00pm	Networking Lounge & Dinner

TUESDAY, MARCH 8TH

8:00am to 5:30pm	Conference Sessions
12:45pm to 2:15pm	Networking Lounge & Luncheon
7:00pm to 7:30pm	Cocktail Reception
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Charlie Feld, former CIO and e-Leader, Delta Air Lines, Currently EVP, Portfolio Management, EDS

Charlie will address the issue of business resilience vs. business transformation and follow his presentation with an interactive dialogue on how these trends are impacting organizations worldwide.

Converting IT Security Investments Into Business Value



Ira Winkler, Security Expert, Author of *Corporate Espionage* (often described as the bible of the Information Security field) and author of *Spies Among Us*

The Art of Balancing Business Risk and IT Innovation



Ron Ponder, EVP, Information Services & CIO, WellPoint Health Networks, Inc.

IT's Role in New Product Development at Baxter



John Moon, Corporate VP & CIO, Baxter International Inc.

The Passionate Pursuit of IT/Business Alignment



Paul Higday, VP, IT & Program Development, Owens & Minor, Inc.

Battlefield Leadership

Richard Dooley, Leadership Expert & Founding Member of SIM Hal Nelson, U.S. Army General (retired)

Each October, a group of IT leaders walks the hills and hollows of the Gettysburg battlefield retracing Pickett's Charge, but they aren't studying history; they're studying business. Dick Dooley, a founding member of the Society for Information Management and creator of the Leadership Learning Forums, and Hal Nelson, a military historian and retired U.S. Army general, have combined two learning strategies to create their battlefield leadership seminar. Using photos and film clips to augment their presentation, they'll focus on the critical importance of improvisation alongside planning, the use and power of timing, the connection between how information is gathered and how decisions are made and the positive and negative influence of strong personal relationships.

IT Mentor: Valuable Lessons Learned on the Front Lines of Business



Thornton A. May, Corporate Futurist

Corporate futurist Thornton May, publisher of the prestigious "CIO Habitat Study" moderates a panel of IT leaders offering their first-hand experiences and candid advice on post-merger and acquisition IT integration; bringing IT back in-house after outsourcing and deploying unproven, bleeding-edge technology as a means of gaining competitive business advantage.

Star Search: The Quest for the Best Executive IT Talent

A panel of leading corporate IT executive recruiters disclose the specific hard skills and personal attributes companies are looking for in a CIO today plus shifting reporting relationships and how a new CIO can gain credibility quickly. Other issues include the impact of outsourcing on the CIO's role and how a CIO's success is measured. Bring your list of questions!



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6th Annual
COMPUTERWORLD
PREMIER 100
IT LEADERS CONFERENCE

March 6-8, 2005
JW Marriott Desert Ridge Resort
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All dollar amounts are in U.S. funds; registrations include full access to all sessions, the Expo and Networking Lounge, meals and receptions. Transportation and hotel accommodations are your responsibility. Computerworld reserves the right to limit and/or refuse any registration for any reason.

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❑ I am an IT End-User:*	❑ $1,495	❑ $1,795

* IT End-Users are defined as those who are attending Computerworld's Premier 100 IT Leaders Conference with an intent (and an IT spending budget) to potentially buy/lease hardware/software/services, etc. from our conference sponsors and are not themselves an IT vendor. As such, account representatives, business development personnel, analysts, consultants and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Interpretation and enforcement of this policy are at the sole discretion of Computerworld. Questions? Please call 1-800-883-9090.

NOTE: If you are not an IT End-User, you may register as a Non-Sponsoring Vendor

❑ I am a Non-Sponsoring Vendor:**	❑ $5,000	❑ $5,000

** Vendors are encouraged to participate in Computerworld's Premier 100 IT Leaders Conference through sponsorship. (Details are available by calling Leo Leger at 1-508-820-8212.) Alternatively, vendors (as well as other "non-IT end-user" professionals as defined by Computerworld), may apply for registration at the "non-sponsoring vendor" rate. Determination of what constitutes a "non-sponsoring vendor" registration is at the sole discretion of Computerworld.

Attendee Profile: (This section **must** be completed in order to process your application)

Your business/industry:
- ❑ Aerospace
- ❑ Manufacturing & Process Industries (non-computer related)
- ❑ Finance/Banking/Accounting
- ❑ Insurance/Real Estate/Legal Services
- ❑ Government: Federal (including Military)
- ❑ Government: State or Local
- ❑ Health/Medical/Dental Services
- ❑ Retailer/Wholesaler/Distributor (non-computer related)
- ❑ Transportation/Utilities
- ❑ Communication Carriers (ISP, Telecomm, Data Comm, TV/Cable)
- ❑ Construction/Architecture/Engineering
- ❑ Data Processing Services
- ❑ Education
- ❑ Agriculture/Forestry/Fisheries
- ❑ Mining/Oil/Gas
- ❑ Travel/Hospitality/Recreation/Entertainment
- ❑ Publishing/Broadcast/Advertising/Public Relations/Marketing
- ❑ Research/Development Lab
- ❑ Business Services/Consultant (non-computer related)
- ❑ Mfg. of Computers, Communications, Peripheral Equipment or Software

Your job title/function:

IT MANAGEMENT
- ❑ CIO, CTO, CSO
- ❑ Executive VP, Sr. VP
- ❑ Vice President
- ❑ Director
- ❑ Manager/Other IT Manager
- ❑ Supervisor

BUSINESS MANAGEMENT
- ❑ CEO, COO, Chairman, President
- ❑ CFO, Controller, Treasurer
- ❑ Executive VP, Sr. VP, VP General Manager
- ❑ Director, Manager
- ❑ Other Corporate/Business Manager

Number of employees in your entire organization (ALL locations):
- ❑ 20,000 or more
- ❑ 10,000 - 19,999
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ 50 - 99
- ❑ Less than 50

What is your organization's annual IT/IS budget for all IT/IS products?:
- ❑ $1 billion or more
- ❑ $500 to $999.9 million
- ❑ $100 to $499.9 million
- ❑ $50 to $99.9 million
- ❑ $10 to $49.9 million
- ❑ $1 to $9.9 million
- ❑ $500,000 to $999,999
- ❑ $250,000 to $499,999
- ❑ $100,000 to $249,999
- ❑ Under $100,000
- ❑ None

What is the estimated annual revenue of your entire organization?:
- ❑ $10 Billion+
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ Less than $100 Million

The one item that best describes your involvement in the IT purchase process:
- ❑ Authorize/approve purchase
- ❑ Evaluate/recommend products, brands, vendors
- ❑ Specify features/technical requirements
- ❑ Set budget for expenditures
- ❑ Determine need to purchase
- ❑ Create IT strategy
- ❑ All of the above
- ❑ None of the above

What is your organization's MOST mission critical development/implementation project this year?
- ❑ Business Intelligence/BPM/Customer Analytics
- ❑ Data Management
- ❑ Mobile & Wireless
- ❑ Enterprise Infrastructure/Data Center Buildout/Consolidation
- ❑ Network Infrastructure/Storage
- ❑ Security
- ❑ Application Development and Integration (Web services/EAI)
- ❑ Compliance

What is your organization's SECOND-MOST mission critical development/implementation project this year?
- ❑ Business Intelligence/BPM/Customer Analytics
- ❑ Data Management
- ❑ Mobile & Wireless
- ❑ Enterprise Infrastructure/Data Center Buildout/Consolidation
- ❑ Network Infrastructure/Storage
- ❑ Security
- ❑ Application Development and Integration (Web services/EAI)
- ❑ Compliance

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In the event of cancellation, the registrant has three options:

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2) He or she may transfer this registration to Computerworld's 2006 Premier 100 IT Leaders conference.
3) The registration fee will be refunded, less a $250 service charge, if written notice is received by February 16, 2005.

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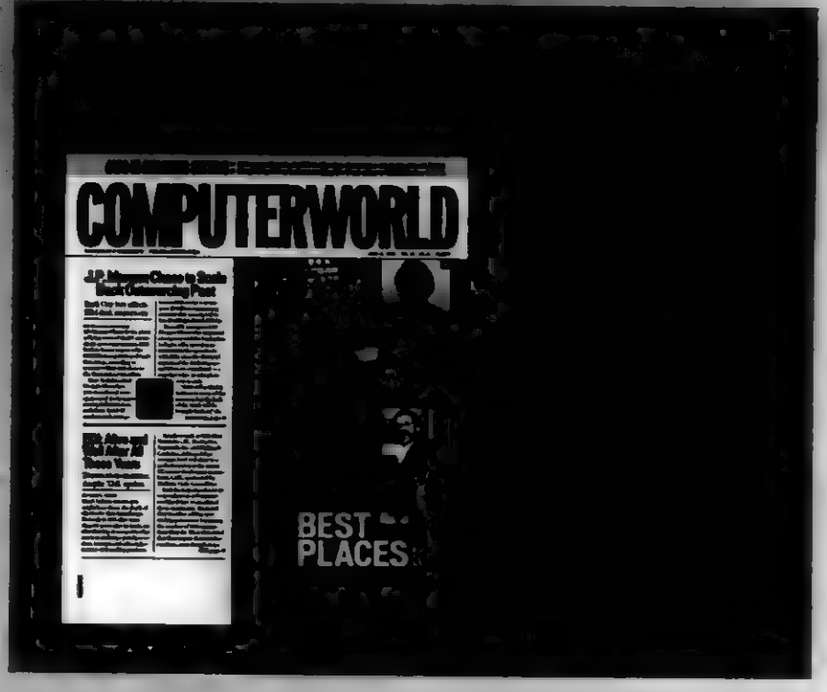
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VANs

DEFINITION

Value-added networks (VAN) are communications networks supplied and managed by third-party companies that facilitate electronic data interchange, Web services and transaction delivery by providing extra networking services.

BY RUSSELL KAY

VALUE-ADDED networks got their first real foothold in the business world in the area of electronic data interchange (EDI). VANs were deployed to help trading and supply chain partners automate many business-to-business communications and thereby reduce the number of paper transfers needed, cut costs and speed up a wide range of tasks and processes, from inventory and order management to payment.

In today's world, e-commerce is increasingly based on XML, though EDI remains an important part of business and still relies on value-added networks. But other types of VANs have begun to appear, including Web services networks and transaction delivery networks.

A VAN is created when a network provider leases communications lines from a common carrier (such as a telephone company), enhances them by adding services and improvements that facilitate business-to-business application integration, and then resells the network connection and services to others for a fee. Value, then, refers to what the supplier provides beyond the basic network connection and becomes the critical element differentiating one network offering from another.

VANs and EDI

In the 1980s, VANs emerged as a way to connect supply chain participants. They offered store-and-forward mailboxes that provided protocol conversion, security and guaranteed delivery.

However, EDI VANs proved to be too costly for most businesses. Only the largest of supply chain participants could afford the expensive setup fees associated with EDI software, not to mention the sometimes exorbitant per-transaction fees. This meant that many small and midsize firms couldn't afford to join electronic, automated supply chains. And since the smaller companies couldn't join in, the larger ones that continued to do business with them still couldn't eliminate a lot of their traditional, paper-based processes. When the Internet and the World Wide Web entered the picture, along with standards like ebXML, some observers felt that VANs might simply disappear.

While traditional EDI is in many ways inferior to newer approaches, it still offers a compelling business model. In fact, the continuing presence of EDI is not a result of its fundamental technology but instead can be attributed to its underlying communications structure, the VAN, which can guarantee and secure B2B interaction over a network.

Web Services Networks

In its reincarnation, the EDI VAN model has become the Web services network (WSN, or sometimes WSVAN), which has to meet many of the same requirements and features that EDI users depend on.

WSNs are characterized by loosely coupled, asynchronous service-oriented architectures (read the SOA QuickStudy at QuickLink 44708) supporting standards such as XML, the Simple Object Access Protocol [QuickLink a5220], the Web Services Description Language and UDDI [QuickLink 32418]. This helps individual Web services providers keep their offerings simple in design and frees them from having to separately implement network housekeeping functions.

The final hurdles for business-to-business interaction across the Internet are dependability and security. Most systems and networks within a given company are designed to manage transaction flows behind a secure, centrally managed firewall. Unfortunately, the B2B world exists between firewalls, with partners often sharing no common infrastructure. Moreover, the Internet itself offers little security, reliability or accountability.

Transaction Delivery Networks

The newest evolution of VANs, which first appeared in 2000, are the transaction delivery networks (TDN) that provide services for secure end-to-end management of electronic transactions.

Also called transaction processing networks or Internet utility platforms, TDNs can guarantee delivery and nonrepudiation of messages in addition to providing high security and availability, network performance monitoring and centralized directory management.

TDNs typically use a store-and-forward messaging architecture that's designed to adapt readily to a wide range of disparate systems and support any kind of transaction. Most TDNs offer secure encryption using a public-key infrastructure and certificate authorization for trading partners.

TDNs provide standards-based application programming interfaces that developers can use to create custom applications to link internal data sources with the TDN. In addition, most TDNs provide application adapters that plug directly into existing computing environments, such as messaging middleware. **51105**

Kay is a Computerworld *contributing writer in Worcester, Mass. Reach him at russkay@charter.net.*

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Analyst Benoit Lheureux at Gartner Inc. says there are four fundamental types of features that add value to a network: network services, integration services, application services and trading-partner services. Each category can include numerous specific services.

NETWORK SERVICES
- Error detection and correction
- Encryption
- Quality of service to guarantee availability and response times
- Protocol and speed conversion
- Certificate authorization

INTEGRATION SERVICES
- Data storage
- Directories
- Database access

APPLICATION SERVICES
- Data translation
- E-mail and other messaging-related functions

TRADING PARTNER SERVICES
- Electronic funds transfers
- Electronic mailboxing of EDI transmissions
- EDI record-keeping for audit tracking

EDI Basics

ELECTRONIC data interchange is a standards-based format for exchanging business data. Traditional EDI networks have been based on trading partners loading standardized, formatted data into separate systems on each end of the line.

An EDI message is made up of a string of data elements, each representing a particular item (such as a price, quantity or product model number) and separated by a delimiter. The entire string is called a data segment. Take one or more data segments, frame them with a header and trailer, and you have the basic EDI unit of transmission (equivalent to a message), called a transaction set.

A transaction set typically involves the transfer of information that would normally be contained in a business document or form, such as an order or invoice. The parties that exchange EDI transmissions are called trading partners. EDI messages can be encrypted.

The standard behind EDI, ANSI X12, was developed by the Data Interchange Standards Association, adopted by the American National Standards Institute and coordinated with a United Nations standard called Electronic Data Interchange for Administration, Commerce and Transport.

– Russell Kay

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QUICK STUDY

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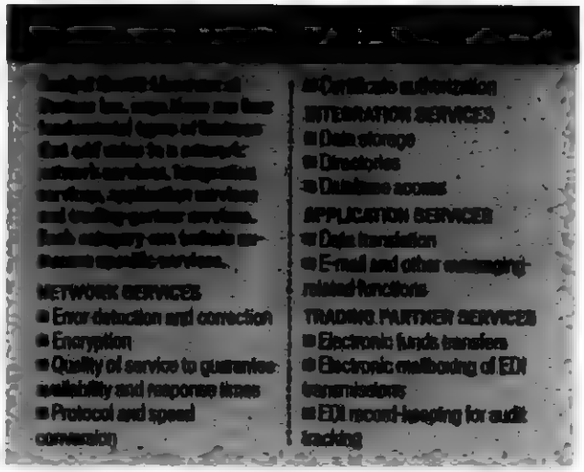
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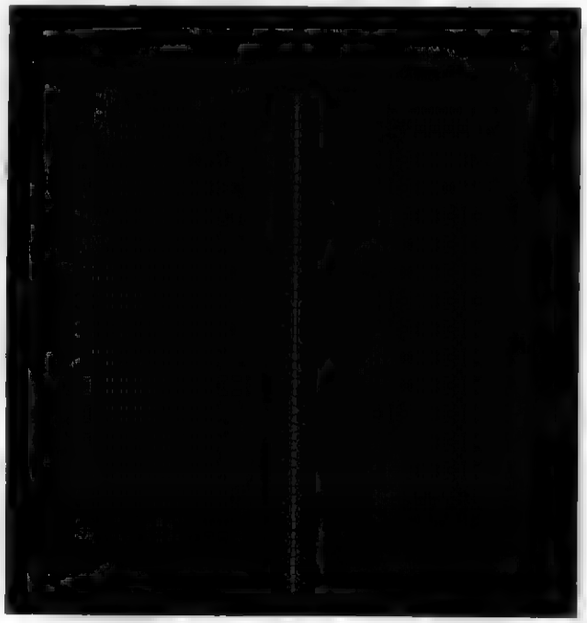
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FUJIFILM

SecurID Rollout Calls for Planning

With two-factor authentication about to head out to the masses, a step-by-step plan is drawn up. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

AS I'VE MENTIONED in previous columns, my company has invested in RSA SecurID to provide two-factor authentication for access to our critical infrastructure, namely routers, switches, firewalls and production Unix servers. As you might recall, two-factor authentication entails something you have (like a bank ATM card) and something you know (your PIN).

On our network, the SecurID token (something you have) displays a random number, or "tokencode," which changes every 60 seconds. That, combined with a user-defined PIN (something you know), represents what is termed a "passcode."

To date, we have deployed about 150 tokens to mostly network engineers, systems administrators and information security personnel. They are fairly savvy individuals, so deployment, support and administration have been pretty straightforward.

Soon, though, we will begin to spread two-factor authentication to other areas of the company. Any employee who needs to remotely access the network via our Cisco VPN will need a SecurID token to authenticate to the network. SecurID tokens will also be required to associate to one of our corporate wireless access points. They'll be needed when off-site users check their e-mail via Microsoft Outlook Web Access. And the list goes on.

Eventually, every employee will have a SecurID token. Once that happens, it will be fairly easy to SecurID-enable applications and other areas of the enterprise, because no matter what a user is attempting to access, the use of the token remains the same.

For now, we're focusing on more than 5,000 employees, but deploying tokens to that many users and then supporting them calls for proper planning. A dedicated project manager is coordinating the various steps in this project, the first of which involves communication and training. We want end users to feel familiar with SecurID tokens before they actually receive one. The training and communication process will include mass e-mailings, a Web site with an FAQ and PowerPoint slides. Some of these materials have been developed by my infosec group, and others are being provided by RSA Security Inc.

Token Logistics

The next step will be distribution. Those 5,000 employees are located in almost every state and major city in the U.S., plus India, Singapore, China, Mexico and Europe. To handle this logistical nightmare, we're splitting the token recipients into three groups.

Deploying SecurID tokens to more than 5,000 users and then supporting them calls for proper planning.

The largest of these groups by far is made up of employees who need SecurID tokens. We decided that the most efficient method of providing them is to have a consultant send tokens to geographically identified contacts, who will then deliver tokens to individual users. The consultants will be able to focus entirely on the token deployment and not be distracted by other duties.

The second group consists of new employees. With them, the easiest thing to do is to work with the security badge office. Each new hire, even those who will work in home offices, is required to have a security badge. All we have to do is modify the new-user provisioning process to flag those who will need a token.

The third group is made up of existing employees whom we haven't identified as needing tokens but who suddenly require one. Those users will be asked to contact the help desk to obtain authorization. After that, the security badge office will send out the token.

Once an employee has his token, he must initialize it using an RSA SecurID Web-based application called Deployment Manager. Each user will visit a Web page, where he will answer a series of questions in order to be authenticated, enter the serial number on his token and then set up a PIN. Deployment Manager runs on an Apache Web server and will talk to a back-end Oracle database server, so our database administrators are involved in the overall project plan. They're creating the database so that we can test functionality prior to production.

The help desk will play an integral part in supporting the SecurID deployment. Inevitably, some users will forget their PINs, lose their tokens or cause the tokens to be out of sync. The help desk will address the most common issues with another Web-based application from RSA Security, called Quick Admin. We already use this application to support our initial 150 savvy users, but we'll have to provide the appropriate amount of training to the help desk staffers so they can attend to the brunt of support calls. The infosec group will handle anything outside of what the Quick Admin tool provides.

On the hardware front, a primary authentication server and two replicas are currently handling all the SecurID token transactions. The primary RSA ACE/Server contains the database of authorized users, including the permitted relationships between individual users and protected devices. The primary database is frequently synchronized with the replicas, and the load is automatically balanced, providing for a pretty decent fail-over configuration. If the primary or either replica should fail, the other servers can handle authentication requests.

Although our current deployment model could probably handle the increase in authentication requests as we scale from 150 users to more than 5,000, we plan to upgrade the servers and increase the number of replicas, some of which will be placed in key overseas locations.

All in all, and with the project manager's help, we have a robust, comprehensive plan, and I expect that when we finally pull the trigger, we'll have a smooth deployment and an aggressive support model to address user needs.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: QuickLink a1560

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Consortium Takes On IM Threats

A group of Internet security and instant messaging providers have teamed up to detect and thwart IM and peer-to-peer viruses and worms. The consortium, led by corporate IM software vendor Bantegic Inc. in Waltham, Mass., is setting up a threat center to analyze and warn against vulnerabilities. It's offering threat management and free alerts and e-mail notifications of risk assessments for subscribers. The group also includes Akonix Inc., Sybari Software Inc., Yahoo Inc., Ameritas Online Inc. and Microsoft Corp.

Online Shoppers Seek Security

According to the results of a survey conducted by Gartner Inc., online consumers are growing frustrated with the lack of security provided by banks and online retailers and feel that passwords are no longer sufficient to secure their online transactions. In the survey of 5,000 adult Internet users, almost 80% said they are concerned or very concerned about online security, said Gartner analyst Avivah Litan. Even more important for online retailers: More than 60% of those surveyed said they would buy more from an online vendor that offered them more than just a username and password to protect their accounts, she said.

Secure Data Gets Oracle Support

Stamford, Conn.-based Protegrity Corp. announced that its Secure Data software for centralized management and auditing of data security policies and data encryption now supports Oracle8i on the Solaris, HP-UX, Windows and AIX systems. Secure Data Version 3 also supports Oracle8i and earlier database versions. Protegrity plans to include support for Oracle 10g early next year.

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Microsoft

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BRIEFS

Microsoft Releases SP1, x64 to Beta

■ Microsoft Corp. last week announced the availability of the first release candidates for Windows Server 2003 Service Pack 1 (SP1) and the x64 editions of Windows Server 2003 and Windows XP Professional. The products will be available within the next month to users in Microsoft's Customer Preview Program. The final releases are due in the first half of 2005. The x64 editions of Windows Server 2003 and Windows XP Professional allow users to run both 32- and 64-bit applications, according to the company.

Cellwave Unveils Mobile Call Services

■ Voice-over-IP application vendor CallWave Inc. has unveiled new call-screening and call-transfer services for mobile phone users. The Santa Barbara, Calif.-based company said its new Mobile Call Screening service will allow users to listen to voice messages in real time, and its new Mobile Call Transfer service lets users transfer call phone calls to a home or office phone. The CallWave services work with all cell phones and carriers and start at $3.95 a month.

Phatware to Offer Monitoring Tool

■ PhatWare Corp. in Mountain View, Calif., has released software that allows network administrators to analyze and diagnose problems on packet-based networks used with Windows-based mobile Pocket PCs. The PhatNet network monitoring software allows IT workers to conduct real-time analyses on any kind of LAN or WAN and to filter packet-based data by IP address, User Datagram Protocol or TCP port, hardware address or data string, according to Phatware. The professional version of the application sells for $299, and a personal edition is $99.

DOUGLAS SCHWEITZER

Tiny Storage Devices Carry a Big Risk

WE'VE ALL SEEN THEM — portable MP3 players, sexy new iPods and "finger-size" drives in varying colors that use the ubiquitous Universal Serial Bus or FireWire port for connectivity. While they look innocent enough, they nevertheless pose a serious security threat to organizations. In fact, some companies have banned their use outright. Unfortunately, too many others continue to ignore the potential security risks posed by the use of MP3 players, USB flash drives and other, similar high-capacity portable storage devices.



DOUGLAS SCHWEITZER is a [illegible] security specialist with a focus on [illegible] code. He is the author of several books, including *Internet Security Made Easy, Securing the Network from Malicious Code* and *Incident Response: Computer Forensics Toolkit*. Contact him at [illegible]

These easily concealed devices — which employees often bring into the workplace — can be readily plugged into any USB port, allowing users to quickly and effortlessly download sensitive corporate information. Then that information can all too easily be taken to the outside world. Even when transgressions are unintentional, security risks abound, since portable storage devices are able to circumvent network perimeter defenses such as firewalls and antivirus products at the mail server and can introduce viruses or other malware.

In a recent Computer Security Institute/FBI Computer Crime and Security Survey, over three quarters of all respondents cited insider abuse of network access as a top security concern for companies. And rightly so, since the survey indicated that disgruntled employees were responsible for most attacks on company networks. More than $70 million was lost by organizations in just one year as a result of theft of proprietary information.

And financial losses aren't the only consideration when it comes to insider abuses. An organization's reputation may be at stake if word gets out that employees have leaked information, especially in fields where client privacy is critical, such as finance or medicine.

Gartner issued a report in July in which it cited portable storage devices as considerable workplace security risks because they may be instrumental in downloading private, proprietary information or for admitting a virus. Pocket-size hard drives that connect using FireWire or a USB hard drive or keychain drive, disk-based MP3 players (like the iPod), memory sticks, compact flash and other memory media, and digital cameras with media cards were all identified as security threats. Especially dangerous are USB sticks, which can be easily concealed and are capable of storing up to 1GB of data.

Insider threats can lead to the loss, corruption or unavailability of information, resulting in a disruption of service to an organization's clientele. Since fraud, theft and blackmail can be accomplished more easily by insiders, employee-awareness programs and computer security policies are imperative. Restricting access to information that may be altered or misappropriated reduces exposure. An organization may be held liable for the release of any sensitive or confidential information pertaining to its customers; therefore, appropriate procedures to safeguard that information are warranted. And don't overlook physical security.

While procedures and policies go a long way toward securing networks, administrators may want to use any one of several software tools currently available to help lock down USB ports. One such product is DynaComm i:scan from FutureSoft (*www.dciseries.com*). DynaComm i:scan acts as a real-time monitor, permitting management of the network from a centralized location while helping administrators enforce an organization's policies for using removable media across their networks.

From GFI Security (*www.gfi.com*) comes another handy tool, the GFI LANguard Portable Storage Control. This software enables administrators to maintain control of the organization's network by allowing users to plug in USB sticks, download and upload digital camera data, and connect MP3 players, smart phones, handhelds and the like. Administrators using the product can determine which people are permitted to use removable media centrally from Windows Active Directory.

There's no question that portable devices play a valuable role in the storage arena for organizations in today's work environments. Banning them across the board would be more detrimental than practical, and security experts agree that the preferable, more secure alternative is a controlled approach. The network is best protected by the organization adopting comprehensive security measures, including policy directives and security tools. Your network administrative team is wise to remember that threats don't arise solely from outside the network, but from (sometimes unwitting) users and their portable devices. In addition to what's out there already, security teams can anticipate a continuing influx of products for addressing client-side security. 51309

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BRIEFS

Microsoft Releases SP1, x64 to Beta

■ Microsoft Corp. last week announced the availability of the first release candidates for Windows Server 2003 Service Pack 1 (SP1) and the x64 editions of Windows Server 2003 and Windows XP Professional. The products will be available within the next month to users in Microsoft's Customer Preview Program. The final releases are due in the first half of 2005. The x64 editions of Windows Server 2003 and Windows XP Professional allow users to run both 32- and 64-bit applications, according to the company.

Cellwave Unveils Mobile Call Services

■ Voice-over-IP application vendor CallWave Inc. has unveiled new call-screening and call-transfer services for mobile phone users. The Santa Barbara, Calif.-based company said its new Mobile Call Screening service will allow users to listen to voice messages in real time, and its new Mobile Call Transfer service lets users transfer cell phone calls to a home or office phone. The CallWave services work with all cell phones and carriers and start at $3.95 a month.

Phatware to Offer Monitoring Tool

■ PhatWare Corp. in Mountain View, Calif., has released software that allows network administrators to analyze and diagnose problems on packet-based networks used with Windows-based mobile Pocket PCs. The PhatNet network monitoring software allows IT workers to conduct real-time analyses on any kind of LAN or WAN and to filter packet-based data by IP address, User Datagram Protocol or TCP port, hardware address or data string, according to Phatware. The professional version of the application sells for $299, and a personal edition is $99.

DOUGLAS SCHWEITZER

Tiny Storage Devices Carry a Big Risk

WE'VE ALL SEEN THEM — portable MP3 players, sexy new iPods and "finger-size" drives in varying colors that use the ubiquitous Universal Serial Bus or FireWire port for connectivity. While they look innocent enough, they nevertheless pose a serious security threat to organizations. In fact, some companies have banned their use outright. Unfortunately, too many others continue to ignore the potential security risks posed by the use of MP3 players, USB flash drives and other, similar high-capacity portable storage devices.



These easily concealed devices — which employees often bring into the workplace — can be readily plugged into any USB port, allowing users to quickly and effortlessly download sensitive corporate information. Then that information can all too easily be taken to the outside world. Even when transgressions are unintentional, security risks abound, since portable storage devices are able to circumvent network perimeter defenses such as firewalls and antivirus products at the mail server and can introduce viruses or other malware.

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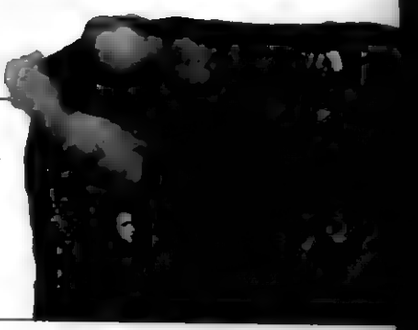

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IT MENTOR

Powerful Partnerships

Every IT vendor wants to be your partner, but Wharton School CIO Deirdre Woods has found a way to leverage collaborations to deliver great — and sometimes unexpected — results. **Page 40**



OPINION

Don't Outsource These!

Knowing which IT functions belong in-house is as important as deciding what to outsource, Bart Perkins says. Here are some of the keepers. **Page 46**

Finish the Feud

Searching for a way to thaw the cold war between IT users and the help desk? Here are some tips to help bring about détente. **Page 42**



DOUGLAS MOORE

Good TO Great

CIO Joe Amado's focus on leadership, project management and customer service has revved up IT performance at Philip Morris USA. **BY THOMAS HOFFMAN**



THE IT DEPARTMENT at Philip Morris USA Inc. is a poster child for aligning IT with a company's business divisions. Just ask Henry P. Long Jr.

Long, vice president of leaf purchasing at the tobacco giant, raves about how IT leaders work side by side with the heads of various departments to develop an IT strategy to support their respective business plans.

Over the past four years, the IT group has also put into place a more disciplined project management methodology that's helping it deliver projects on schedule, on budget and within scope 85% to 87% of the time, according to a benchmarking study conducted by The Hackett Group in September. That's up from a 50% to 60% delivery rate in 2000.

But what impresses Long the most is the fact that IT leaders get together with him and other business executives every quarter to find out how well the IT department is meeting project requirements, delivering on strategic objectives and supporting day-to-day operations. "They're very much aligned with each business function," says Long. "There's a real effort to focus on the client and move the business forward."

Such praise from a 26-year Philip Morris veteran is a testament to CIO

Joe Amado and his masterful recrafting of the 560-person IT organization he inherited in 2000. (A combination of attrition and outsourcing has since decreased the staff to 480.)

Prior to Amado's promotion, Richmond, Va.-based Philip Morris' IT department was historically viewed as technically adept but lacking in organizational leadership competence, says Howard Guttman, president of Guttman Development Strategies Inc. in Ledgewood, N.J., who has been working with Amado and his team to drive organizational improvement since 2000.

"The people who had been at the top had IT competence, but they needed to ratchet up their leadership competence," says Guttman.

Enter Amado, who by 2000 had risen to the top IT post, 15 years after joining the company as a programmer. He found that the section on customer satisfaction with IT in that year's biannual corporate employee survey revealed that improvements were needed in managing projects and aligning IT with the business.

"We had a mantra: 'We're good today, but we want to be great,' " says Amado. That helped set the tone for a multipronged strategy aimed at developing a world-class IT organization, he says.

Leadership

Amado's first goal was to broaden the leadership capabilities of Philip Morris' IT managers. In 2001, Amado and Guttman held a two-day off-site meeting with the company's senior IT managers. Amado discussed steps they could take to improve their leadership capabilities, while Guttman provided executive coaching on teamwork.

"Some of the issues that came up were around conflict aversion, where there was a reluctance among IT managers to hold their peers accountable," says Guttman. He set up meetings between IT managers from different functional areas to help them build stronger bonds and identify ways to support one another "instead of relying upon Joe to be the answer man," Guttman says.

The effort continues. This November, Amado launched a three-day off-site IT leadership course that will enable him and his top managers to provide hands-on training to 25 to 30 IT managers at a time. The plan is to put 100 to 120 IT managers and staffers through the program by mid-2005, he says.

"Ten years ago, if you wanted instruction in leadership, you went to a class," says Amado. Nowadays, he says, peer training is more effective.

Philip Morris has also benefited from adopting a more structured approach to project management, drawing upon best practices espoused by the Project Management Institute Inc. in Newtown Square, Pa., and creating a project management office. This has enabled the IT organization to improve its ability to forecast and monitor the financial goals set for various initiatives, says Lisa Hunt, director of information services.

Amado explains that the biggest challenge he faced during the IT transformation was ensuring that his team was establishing the right business metrics to measure the group's performance. "I wanted to make sure we were improving the client experience," Amado says.



"The organization was looking for that road map of where we were going and why. I wanted to make sure we were crystal clear on the value this organization delivers."

JOE AMADO CIO, PHILIP MORRIS USA

Apparently, he made the right choices. Amado "tries to look at metrics that are very client-focused and have meaning," such as how a particular application is helping a business division to cut costs or improve productivity, says Howard Rubin, an analyst at Meta Group Inc. in Stamford, Conn., who has worked with Amado and his team.

Thanks to a combination of online, third-party and in-house training on finance, Philip Morris IT staffers are now more adept at building business cases for projects based on metrics such as return on investment, workload and risk reduction, competitive advantage, and alignment with business objectives, Hunt says.

By using a standard set of tools and techniques, the IT organization is better equipped to predict project outcomes, says Joe Miller, senior director of service delivery. "Before, [project management] was more seat-of-your-pants," he explains. "Now, we're better able to foresee issues we may be coming up against."

CIO Joe Amado gauges his IT team's performance against a number of customer-service-oriented metrics. Here are just a few of the results.

In 2002, the Philip Morris USA IT group completed 35 major projects; in 2003, it completed 75; in 2004, it will complete more than 100.

Project-delivery success has improved from about 60% to 85%.

Over the past two years, average IT employee satisfaction has risen from 3.3 to 3.93 on a scale of 1 to 5.

During the same time period, average internal client satisfaction with IT services and value has risen from 3.5 to 4.

The company didn't qualify as one of *Computerworld*'s Best Places to Work in IT prior to 2002. In 2003, it was No. 43; this year, it's No. 17.

It placed No. 6 in the career development category in *Computerworld*'s Best Places rankings.

Thomas Hoffman

"What we were trying to do was to put in repeatable processes" to help improve the group's project-delivery success rates, Amado says.

Three years ago, Amado assigned a group of four people to conduct project "health checks" to ensure that those processes are followed. They meet regularly with project managers and sponsors, monitoring the use of standard methodologies.

Customer Connection

Amado has also worked hard to align his IT organization more closely with the business. Recalling the valuable business experience he gained working in IT support roles in Philip Morris' sales, marketing and manufacturing divisions, Amado has placed IT managers directly into the business divisions to better understand business requirements.

He also encourages IT managers to transfer out of the technology area for a year or two to work in other divisions within the company. About 20 have done so over the past two years, Amado says.

"We have a lot more people now who are focused on the creation of business value," Miller says.

In another effort to improve alignment between IT and the business, Amado has developed a set of "visioning sessions." He brings IT and business leaders off-site to discuss business and IT strategies and how to align them more closely.

That, too, seems to be working. Ross Webster, vice president of trade marketing and distribution at Philip Morris, credits Amado with identifying the need to upgrade some systems in order to deliver real-time sales data to field reps. Those efforts, which began in 2000, produce daily updates on sales activities, such as the number of sales calls made and the number of stores contacted.

"[IT] is giving us the tools to have a much more productive sales organization," Webster says.

Despite all the changes that have taken place within the IT culture over the past four years, Amado says there hasn't been much resistance from his staffers. That's partly because the seeds for the IT department's transformation were planted throughout the 1990s as the organization intensified its focus on understanding and aligning itself more closely with the business.

"The organization was looking for that road map of where we were going and why," Amado says. "I wanted to make sure we were crystal clear on the value this organization delivers."

Amado's ability to communicate is one of his strengths, says Meta Group's Rubin. "Joe likes to look not at qualitative benchmarks but [at] his business partners and whether he and his group are doing a good job for them," he says.

Looking ahead to 2005, Amado will be working to improve business processes through the use of IT. While the processes are owned by business units (for example, supply chain management is overseen by the logistics department), IT is focused on how those processes work from an end-to-end systems perspective, he says.

The goal: continuous improvement. "I feel good about where we are today because of what I hear from our clients," says Amado. "Are we great? I think we're getting close." **50639**

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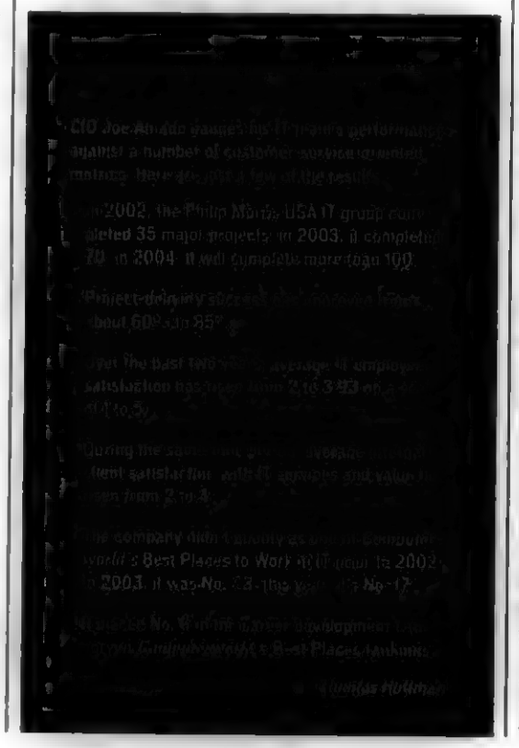
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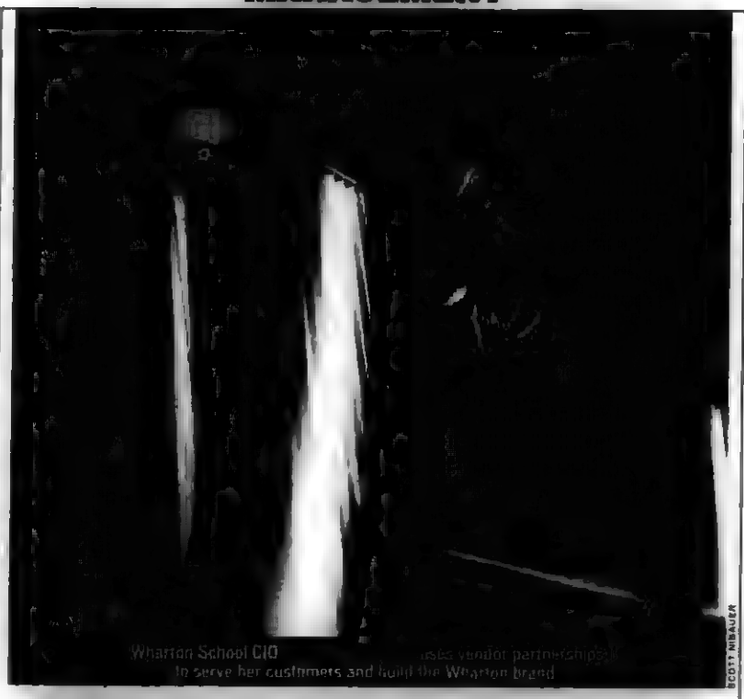
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Wharton School CIO uses vendor partnerships to serve her customers and build the Wharton brand

POWERFUL PARTNERSHIPS

Here's how the Wharton School has leveraged IT vendor collaboration to reap unexpected rewards.

BY DEIRDRE WOODS

PARTNERSHIPS are a fact of life in today's world. Strong IT partnerships have the power to vitalize and even transform a business, provided you follow a clear strategy and manage them carefully.

At the Wharton School of the University of Pennsylvania, we've developed partnerships that not only serve our IT needs but also contribute to the overall mission of the university. The strategy we follow is straightforward enough to work for any IT organization: First, serve the customer — in our case, that's faculty and students — and second, build the brand.

I rely on four basic techniques to maintain and leverage partnerships. And while it's true that businesses come in different shapes and sizes, any company can apply these concepts to create opportunities for growth.

1. Insure the Essentials

The most crucial collaborations are what I call "insurance policies." These are the must-have partnerships that support infrastructure and critical services. Although they're the most obvious kinds of partnerships, they're not necessarily the easiest to nail down. It can take time to find the right fit.

At Wharton, our relationship with IBM fits into this category, because when it comes to our infrastructure, we know the company will be there when we need it.

One of the tough lessons I've learned is that many vendors may not be able to deliver what you need. A few years ago, we temporarily lost our entire application environment, which was running on another vendor's servers. When we really needed top-notch support, it was clear that our old vendor's best just wasn't good enough.

Our partnership with IBM works because the company understands our operation and has the resources to deliver on its commitments. This provides us with the stability and confidence to extend our reach beyond the basics.

2. Promote the Brand

An insurance-policy partnership gives you the freedom to explore other opportunities, like partnerships that can build your brand. An example of this at Wharton is Wharton Research Data Services (WRDS), our financial research tool.

When we first developed WRDS, we were simply responding to the needs of students and faculty, who wanted a comprehensive research tool for financial data. We formed partnerships with Standard & Poor's Compustat unit and the Center for Research in Securities Prices at the University of Chicago Graduate School of Business to secure the necessary data, and we developed a unified, Web-based interface to these and other data sets in 1996.

Not long after the launch of WRDS, one of Wharton's top competitors inquired about buying the service for its students. After other schools contacted us, we realized we had a great opportunity to build Wharton's brand. So we pursued additional partnerships with data providers, transforming a tool developed for internal customers into the leading resource for academic financial data.

Today, WRDS serves 115 top-tier academic institutions and is academia's de facto standard for financial data research. Thousands of times each day, when researchers at, say, Harvard or Stanford look up financial data, it's the Wharton brand they see.

3. Tap New Technology

You can also use partnerships to tap — and perhaps shape — new technologies and products. They can even fuel business transformations to keep you ahead of the competition.

For example, Adobe Systems Inc.'s PDF files are now ubiquitous, but it wasn't that way in 1993, when Wharton was a beta-test site for Adobe's new Acrobat technology. Our partnership based around the PostScript technology had put us on the inside track by the time Adobe began to explore electronic document technologies. Wharton has been a test site and an early adopter of each new generation of Acrobat technologies, allowing us to integrate them into our operations much more quickly than would have been possible otherwise.

Wharton's relationship with Macromedia Inc. also shows how IT partnerships can transform an organization. Early adoption of Macromedia technologies such as DreamWeaver, ColdFusion and Flash have been key to the development of Spike, our award-winning student intranet. Communications on campus were streamlined and redefined through this early implementation of an information portal. Spike, which has been recognized as an industry best practice, is now in its 10th version. And Macromedia technologies continue to underpin many of Wharton's intranet and Web-based services, including our main Web site and the advanced simulations developed by Wharton's Learning Lab.

These relationships work not just because great products are involved but also because the vendors are willing to be full-fledged partners. Uncovering such opportunities takes trial and error, of course, but the right investment ultimately more than pays for itself.

4. Share the Wealth

We also use IT partnerships to benefit other areas of Wharton in ways that stretch far beyond IT's normal realm. We've called on partners to help serve various school initiatives, and in the true spirit of partnership, the benefits flow in both directions.

For example, our online business magazine, *Knowledge@Wharton*, which has 400,000 readers, recently ran interviews with top executives of some of our IT partners, including Adobe CEO Bruce Chizen and Macromedia Chairman and CEO Rob Burgess.

We've invited a number of CEOs from partners such as Xerox Corp. and Adobe to visit Wharton and meet with faculty and students. We're also looking into setting up career services programs with our partners to give Wharton graduates access to job opportunities at top technology firms while giving our partners access to some of the country's top MBA students.

None of the partnerships I've mentioned are new, and that's no coincidence: Strong partnerships take time to build. Be prepared for some false starts, because it often takes a while to find the right fit for your company. And don't forget that true partnerships are a two-way street. The way to make the relationship work is to ensure that it's mutually beneficial. **50842**

Woods is associate dean and CIO at the Wharton School of the University of Pennsylvania. Contact her at woods@wharton.upenn.edu.

Network Friendly.



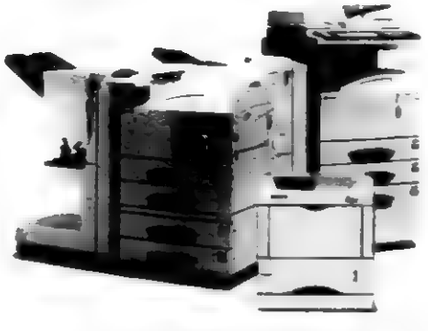
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Finish THE Feud

HOW TO GET USERS AND THE HELP DESK TO PLAY NICELY TOGETHER.

BY ALAN S. HOROWITZ

FEW AREAS in business create more sparks, conflict and frustration than the interplay between tech support and its customers. Expectations on both sides are often unrealistic, and appreciating each other's position is tough. Here are some tips to help take the sting out of the help desk/customer relationship.

EDUCATE: Who, you may ask, has the time and money to train users? But training pays. The managing director of IT at a New England hospital chain who didn't want to be identified says one of his facilities, a large city hospital with 700 to 800 physicians, does little user training. A smaller community hospital, with about 100 physicians, teaches its staff everything from logging on to putting in orders and getting reports.

The payoff: Tech support gets complaints every day from the city hospital, but it has had only two in the past six months from the community hospital.

INFILTRATE: Well-placed and well-trained users can help relieve the pressure on both sides. Quadion Corp., a Minneapolis manufacturer of rubber and plastic components, has as its first line of tech support a business person in each department who has been trained by IT to handle support issues.

Called IT coordinators, these users understand software applications and other technical issues typical of their departments and provide tech support in addition to their regular jobs. Only when they can't solve a problem does IT get involved.

According to Steve Paskach, vice president of IT, this decentralized model has shortened the time it takes to solve users' technical problems from four hours to about five minutes, with the coordinators able to handle about 85% of the questions.

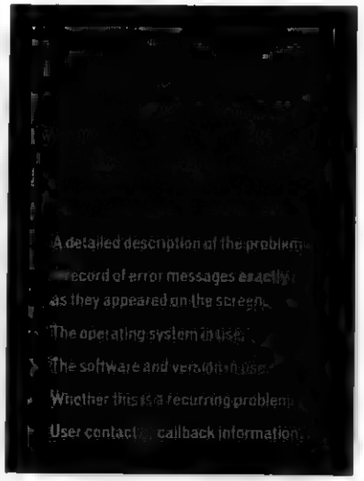
AUTOMATE: Simplifying manual processes is what IT is for — and it can head off problems. The IT staff at Harrah's Entertainment Inc., a Las Vegas-based gaming and hotel company, found that when users were on the road, they often had trouble using their laptops to communicate through the company network. "We had to walk people through the process of setting up their laptops innumerable times," says senior vice president of IT and CIO Tim Stanley.

So IT developed a script that users access through an icon at the bottom of their screens. Launching the icon automatically handles all the setup issues. The result: few, if any, support calls.

DIFFERENTIATE: Users should be encouraged to do some things, but others are best left to professionals. They need to know the difference. "The R's are always a good place to start: reboot, restart, replug and retry," says Dave Farrow, director of IT finance and customer support at packaging maker Smurfit-Stone Container Corp. in Chicago.

Cora Calhoun, director of support services at Lanier Worldwide Inc. in Atlanta, concurs, saying that if a user is on a PC, rebooting is a good idea. "For anything else, I would prefer they call."

COMMUNICATE: "You cannot overcommunicate with your user community," says Jim Burdiss, vice president and CIO at Smurfit-Stone. When there's a problem, the company quickly e-mails all users. IT also publishes an annual report that discusses the partnership between business and IT.



ENUNCIATE: Help desk workers should explain things carefully and encourage users to ask them to repeat things if they don't understand, Calhoun says. Always encourage questions, and never make users feel embarrassed to ask.

REMONSTRATE: Help desk workers should never accept abuse. Frustrated users may take it out on tech support, but workers should politely let users know when they are out of line.

Sometimes, user abuse isn't what it seems. Mary Backus, director of library information and customer service at Middlebury College in Middlebury, Vt., tells of a student who would swear and shout every time she called the help desk. The tech-support people asked a supervisor to talk to the student. The student was shocked to hear about her reputation. She said she loved tech support. She wasn't swearing at them; she was aiming her venom at her computer, which she hated.

RELATE: Even the best help desk staff can't read minds. If no one answers at the help desk, CIO Steve McDowell of Holiday Retirement Corp. in Salem, Ore., has a tip for users: Leave a message. "If we don't receive a message, we can't help," he says. "And users are almost always more frustrated the second time they call."

RECIPROCATE: Finally, when the help desk solves a problem, users should do what their mothers taught them: say thank you. **50854**

Horowitz is a freelance writer in Salt Lake City. Contact him at alan@ahorowitz.com.



MICHAEL MORGENSTERN

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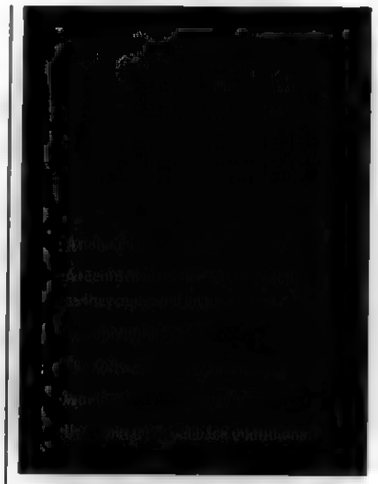
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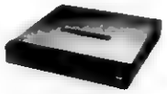
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Career Watch

Most Wanted

HOTTEST TECH SKILLS	MAJOR MARKETS	WHAT IT'S WORTH
Operating systems 1. Unix 2. Windows **Databases** 1. Oracle 2. SQL **Programming languages** 1. C, C++ 2. ASP	1. Washington (including Baltimore, Northern Virginia, Southern Maryland) 2. New York (including Long Island, Westchester, Northern New Jersey) 3. Silicon Valley (including San Francisco, Oakland, San Jose) 4. Los Angeles (including Riverside and Orange County) 5. Chicago (including suburbs)	Average IT annual salary: $63,301 Contract: $66,475 Permanent: $61,933 **CONSULTANT COUNTDOWN** Permanent jobs: 33,361 Contract jobs: 26,463

BASE: 59,157 job listings on Dice.com
SOURCE: The job, location and salary information is based on November job postings on Dice.com.

Holiday Bonus? Humbug!

MOST U.S. COMPANIES won't award a holiday bonus this year, according to a survey of 271 U.S. companies by Hewitt Associates Inc., a human resources services firm in Lincolnshire, Ill.

But the percentage of organizations offering performance-based bonuses has continued to rise, from 59% in 1995 to nearly 80% in 2004.

Hewitt's study found that 85% of companies providing holiday bonuses budgeted less than 1% of payroll expenses for these awards, while 9% budgeted 1% to 2% of payroll. The monetary value of these awards varies by type. For example, companies plan to spend a median of $550 per employee on cash awards and a median of $25 on both gift certificates and food.

51018

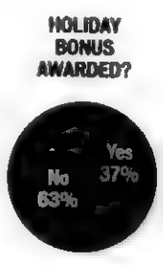
REASONS FOR ELIMINATING HOLIDAY BONUS:

Cost	85%
Entitlement issues	37%
Development of pay-for-performance programs	28%

REASONS FOR CONTINUING HOLIDAY BONUS:

Appreciation	54%
Tradition	24%
Morale	17%

HOLIDAY BONUS AWARDED?



ASK A PREMIER 100 LEADER



Q&A

Vice president of technology [illegible] The Weather Channel Interactive Inc., Atlanta.

Agronow is this month's guest Premier 100 IT Leader, answering readers' questions about new job opportunities and skills development. If you have a question you'd like to pose to one of our Premier 100 IT Leaders, send it to [illegible]@computerworld.com and watch for this column each month.

In the current environment of outsourcing and jobs going overseas, what are the new opportunities in the IT market for the next five years? I see growth and a premium paid for people focused on security and, as always, database work. I also see a premium for individuals with cross-platform experience – for example, Linux (Unix) and Windows. And I see a severe shortage of Flash programmers – not designers, but coders.

I'm a J2EE programmer. I have more than two years of experience, but I'm still not able to find a job. I want to take an IT course that might help me. Can you make a suggestion? Yes: Broaden your skills. It would be helpful if you were proficiently able to code in other areas, such as HTML, Flash, JavaScript and C++, for example.

I'll be 28 when I graduate with a bachelor's degree, and I've also done a short technology internship. Will my age hurt my chances of landing an entry-level job? Also, which fields (like database administration or programming) do you think will remain somewhat immune to offshoring? No, your age won't hurt you. But in regard to offshoring, no area is completely immune. That depends on the philosophy of the company at which you work. However, of the two choices you provide, I would expect that database administration jobs would be less likely to be moved offshore.

H-1B Visas Upped

Responding to pressure from high-tech businesses and industry groups, Congress approved an increase in the number of H-1B visas to be awarded in the current fiscal year from 65,000 to 85,000 but restricted the additional visas to specially qualified students. The legislation, included in the omnibus budget bill, reportedly allows foreign-national master's and Ph.D. graduates of U.S. universities to apply for the additional H-1B visas.

High-tech trade groups and businesses such as Microsoft Corp. and Intel Corp. have been urging Congress to raise the cap, while organizations representing IT workers wanted Congress to keep this year's cap at 65,000.

That cap was reached on Oct. 1, the first day of the federal government's 2005 fiscal year. It was the first time that the visa quota had been met so quickly.

– Patrick Thibodeau

IT Security Boom

93%

Employs 10 full-time and five part-time staffers. Reports to IT, ultimately directed by the CIO.

Has 15 years of general IT experience plus seven years in security. Holds multiple security-related certifications, including at least one that's vendor-neutral and one that's vendor-related.

Career Watch



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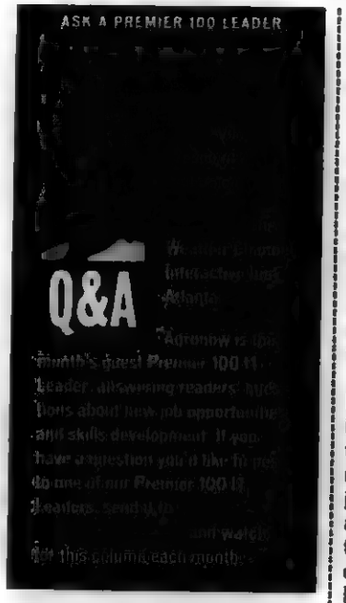
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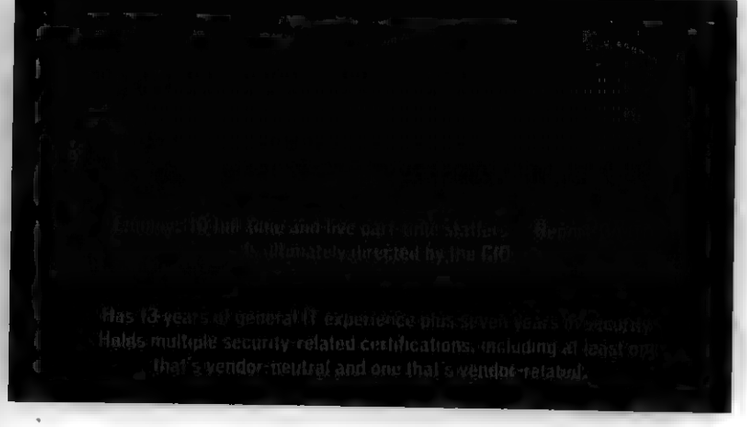
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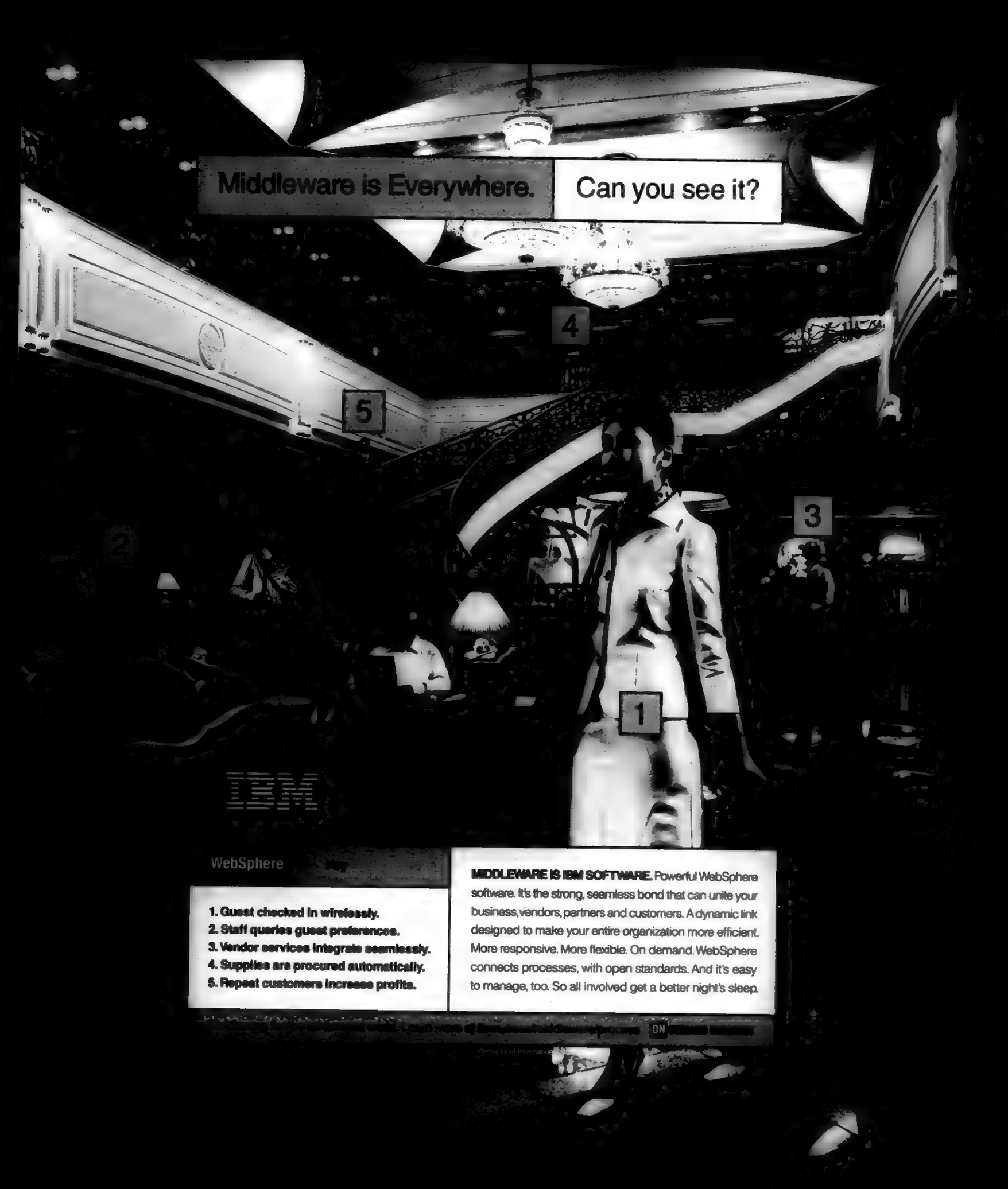
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Middleware is Everywhere.
Can you see it?
4
5
3
1
IBM
WebSphere
1. Guest checked in wirelessly.
2. Staff queries guest preferences.
3. Vendor services integrate seamlessly.
4. Supplies are procured automatically.
5. Repeat customers increase profits.
MIDDLEWARE IS IBM SOFTWARE. Powerful WebSphere software. It's the strong, seamless bond that can unite your business, vendors, partners and customers. A dynamic link designed to make your entire organization more efficient. More responsive. More flexible. On demand. WebSphere connects processes, with open standards. And it's easy to manage, too. So all involved get a better night's sleep.

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BART PERKINS

Don't Outsource These!

WHEN A COMPANY considers outsourcing, there are many discussions regarding the benefits of contracting out specific functions or processes, but it's equally important to discuss what your company should *not* outsource.



Not all functions are viable candidates for outsourcing. There's an important distinction between the operation of a function and its management controls. If you outsource a function's management controls, you essentially abdicate responsibility for its execution and day-to-day management. This is particularly true in offshore situations, where "out of sight, out of mind" is a common pitfall. Never outsource responsibility for the effectiveness and overall success of a function.

Many management controls come under the auspices of project, program and supplier management positions. As IT builds less and buys more, these specialized skills are critical to your organization's success. Deciding to keep these functions in-house doesn't preclude augmenting your staff with outside resources, however. Consultants provide valuable expertise, independent objectivity and staffing flexibility.

Here are some other functions you shouldn't outsource:

■ **Strategic planning.** You have to establish your own strategy, plan and architecture. Companies often hire outside specialists to assist with this process, but you and your staff must ensure that it accurately reflects the direction in which your organization wants to move. Having your staff participate also builds buy-in and gets commitment to the plan's implementation.

■ **Activities subject to massive business change.** Every contract needs to be developed with enough flexibility to protect your business interests when change occurs. In times of dramatic business change, it's nearly impossible to anticipate and provide contingencies for every possible outcome. Moreover, if you try to provide for too many contingencies in the contract, the outsourcer will have to charge you for its flexibility, and the costs may become prohibitive.

■ **Poorly run systems or processes.** In general, outsourcing a broken process or system means it will still be broken. Fix it before you outsource it. One exception is when you are able to adopt the outsourcer's process or system unchanged in order to solve a problem. For example, one company had multiple payroll systems in its business units. Adopting an outsourcer's payroll system allowed the company to get around the political infighting and standardize the payroll process across the enterprise. But be cautious about accepting someone else's solution to your problem.

■ **Critical systems and processes.** Business processes and systems that differentiate you from your competition should be kept confidential. You need the required technical skills and delivery capability in-house, with minimal assistance from outside resources.

■ **IT customer relationship management.** You need to own the relationship with in-house and external customers. Your outsourcer may help customers with requirements and implementation, but you're ultimately responsible for the customer's satisfaction and the project's success. If you neglect customer relationships, you may get blindsided. One CIO hired an outsourcer to upgrade Oracle Financials in a business unit. In the process, the outsourcer convinced the business unit to switch to PeopleSoft. The company's financial systems are no longer standardized and the CIO has support issues.

■ **Compliance management.** The recent increases in regulatory mandates make compliance management too critical to outsource (though you may need consultants to develop compliance programs or audit financial systems). For example, when your CEO and CFO sign their Sarbanes-Oxley statements, they need you to vouch for the integrity of the IT systems. No one else can provide this assurance without exposing your company to risk.

■ **IT management support.** The functions that help manage the IT organization need to stay in-house in order to be effective. Financial management, people management and security management shouldn't be outsourced.

Determining what to retain inside your organization is as important as determining what to outsource. In addition, the more critical a function is to your business, the more crucial it is to keep the associated management controls in-house. Leverage the success of your outsourcing efforts by selecting the right things to outsource and the right things to keep. **50906**

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Here are some other functions you shouldn't outsource:

■ **Strategic planning.** You have to establish your own strategy, plan and architecture. Companies often hire outside specialists to assist with this process, but you and your staff must ensure that it accurately reflects the direction in which your organization wants to move. Having your staff participate also builds buy-in and gets commitment to the plan's implementation.

■ **Activities subject to massive business change.** Every contract needs to be developed with enough flexibility to protect your business interests when change occurs. In times of dramatic business change, it's nearly impossible to anticipate and provide contingencies for every possible outcome. Moreover, if you try to provide for too many contingencies in the contract, the outsourcer will have to charge you for its flexibility, and the costs may become prohibitive.

■ **Poorly run systems or processes.** In general, outsourcing a broken process or system means it will still be broken. Fix it before you outsource it. One exception is when you are able to adopt the outsourcer's process or system unchanged in order to solve a problem. For example, one company had multiple payroll systems in its business units. Adopting an outsourcer's payroll system allowed the company to get around the political infighting and standardize the payroll process across the enterprise. But be cautious about accepting someone else's solution to your problem.

■ **Critical systems and processes.** Business processes and systems that differentiate you from your competition should be kept confidential. You need the required technical skills and delivery capability in-house, with minimal assistance from outside resources.

■ **IT customer relationship management.** You need to own the relationship with in-house and external customers. Your outsourcer may help customers with requirements and implementation, but you're ultimately responsible for the customer's satisfaction and the project's success. If you neglect customer relationships, you may get blindsided. One CIO hired an outsourcer to upgrade Oracle Financials in a business unit. In the process, the outsourcer convinced the business unit to switch to PeopleSoft. The company's financial systems are no longer standardized and the CIO has support issues.

■ **Compliance management.** The recent increases in regulatory mandates make compliance management too critical to outsource (though you may need consultants to develop compliance programs or audit financial systems). For example, when your CEO and CFO sign their Sarbanes-Oxley statements, they need you to vouch for the integrity of the IT systems. No one else can provide this assurance without exposing your company to risk.

■ **IT management support.** The functions that help manage the IT organization need to stay in-house in order to be effective. Financial management, people management and security management shouldn't be outsourced.

Determining what to retain inside your organization is as important as determining what to outsource. In addition, the more critical a function is to your business, the more crucial it is to keep the associated management controls in-house. Leverage the success of your outsourcing efforts by selecting the right things to outsource and the right things to keep. **50906**

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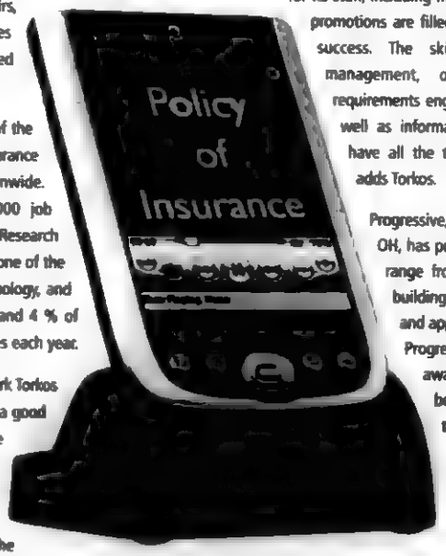
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Advertising Supplement

IT Careers in Insurance

While IT professionals continue to monitor a fairly slow job market, there's one industry segment that is seeing heightened competition for filling jobs. Andy Baker, human resources senior manager for Allstate Insurance Co., says in Chicago-land candidates are again seeing multiple offers. "One of the biggest challenges we have, as an industry, is building awareness. When we go to career fairs, individuals say things like 'Allstate does technology? I thought they just hired agents'," Baker says.



Baker's comments are echoed by two of the country's most technologically savvy insurance companies – Progressive and Nationwide. Between the three firms, nearly 1,000 job openings exist for the coming months. Research indicates that the insurance industry is one of the industries most likely to invest in technology, and tech leaders estimate that between 3 and 4 % of revenues are invested in new capabilities each year.

Nationwide Property & Casualty CIO Mark Torkos says the primary reason the industry is a good choice for IT professionals is that the sector has been relatively stable, the use of technology is aggressive, and there remains plenty of room for technology advances. "Technology provides the enablers for how we (as insurers) improve growth and profitability," says Torkos. "The nature of the projects we're working on is increasingly complex, and we're looking to do these with a faster time to market. That really drives up the skill set and competency required."

Nationwide employs 5,000 IT professionals in the Des Moines and Columbus (OH) areas. The company is committed to development for its staff, including measuring how many jobs and promotions are filled from within as evidence of success. The skill sets include program management, object-oriented skill sets, requirements engineering and architecture, as well as information security. "We want to have all the talent we need (internally)," adds Torkos.

Progressive, which is based in Mayfield, OH, has projects lined up for 2005 that range from a new billing system to building a second major data center and application development center. Progressive has claimed numerous awards for its use of technology, beginning with its position as the first auto insurer to launch a website and the first to receive a customer payment via a personal digital assistant (PDA).

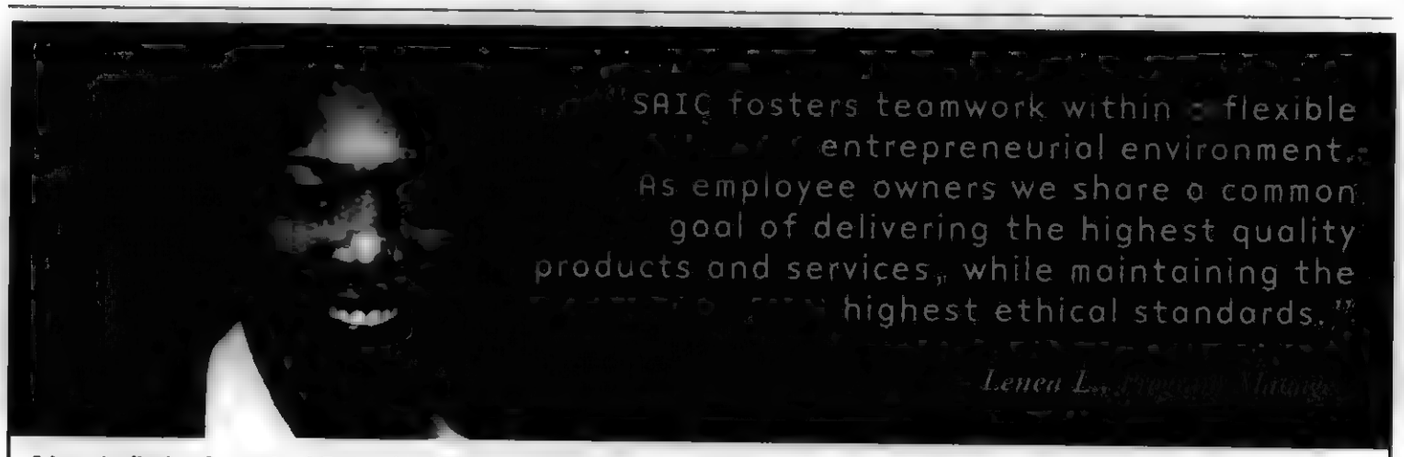
Frank Holowach, business IT director at Progressive, says competencies include "people intimately involved in understanding the real business issues facing the company." This includes speed of service to the customer, enabling agents to open policies for customers more easily and faster and tools that give customers more control over their insurance policy. "Creativity and business go hand in hand," says Holowach. "We promote this in our culture and look for it when hiring. We look for strategic and creative people – doers and leaders – who challenge the status quo, take risk and initiative and thrive in a free-thinking, creative environment."

Allstate's Baker says the insurer will continue pushing the envelope, requiring additional IT professional staff members in the areas of application development, dot-net technology, software evaluation/test, technical architecture, database administration and information security. "We are all looking for the same people – people with insurance or financial services experience," he says. "It is a different type of data, and that data is an asset."

As with all the insurers, Allstate is looking for strong leaders and project managers who have experience in the full lifecycle of application development and implementation. Another characteristic being sought is cross-platform experience as different parts of the company have legacy, client/server and web-based architecture.

For more information about IT Careers advertising, please call: 800.762.2977

Produced by Carole R. Hedden



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SOFTWARE ENGINEER, Sen-or Level (Yonkers, NY)-Full Time. Develop application interface screen in ASP.NET code using GUI tools that execute complex VB.NET & JavaScript validation routines. Write T-SQL stored procedures according to high level specification & design conventions. Build internet applications in the medical care arena, moving from prototype to execution with support to 200+ sites. Supervise a team of 4 programmers. Bachelor's degree or equivalent in Comp. Sci, CIS, MIS or related field reqd. 4 yrs exp. reqd. At least 2 of those years in healthcare IT industry, developing .NET. Send CV to Emerging Health Information Technology, 3 Odell Plaza, Yonkers, NY 10701, Fax 914-457-6206. Attn: David Fletcher.

Livermore Software Technology Corp (LSTC), owner of LS-Dyna, LS-PrePost, LS-Opt, is expanding worldwide & seeks software developers in area of multimaterial Eulerian fluids. Minimum qualification is BS/MS with 1-5 year experience. Please mail resumes to 7374 Las Positas Road Livermore, CA 94550. EOE.

Computer Professionals, Product Engineers wanted by TAC Automotive to design and develop converter-Clutch Control, torque converters using CAE, AutoCAD tools. Must have System or Computer engineering degree with related experience. Please send resumes to: jobs@tacautomotive.com. EOE. No calls.

Research Scientist

Conduct research in image processing for still & video image compression & data streaming, investigate current compression standards; design image/video codec systems, block diagrams for medical imaging applications; design novel compression techniques for human anatomical & physiological data, develop preprocessing & post-processing scheme of noisy sources. Ph.D. in EE. Exp. in JPEG, JPEG2000, H.263, H.264, MPEG 1/2/4/7/21, DCT, wavelet transform. Send resume w/ salary req. to Tom Meriten, Crowley Davis Research Inc., 280 S. Academy Ave., #140, Eagle, ID 83616.

SENIOR SYSTEMS ANALYST to analyze, design, develop, test and implement application software systems using Java, JSP, Oracle, TIBCO Portal Builder, TIBCO Rendezvous, TIBCO Active Database Adapter, TIBCO MessageBroker and SQL Server on Windows platform. Require: Bachelor's degree (or equivalent) in Computer Science, Management Info Systems, or a closely related field with 2 yrs of exp in the job offered or as a Software Engineer. Each three years of progressively responsible work experience in the field will be considered equivalent to one year of college education. Competitive salary offered. Send resume to: Peter Forstrom, Macquenum, Inc., 1800 Peachtree St., NW Suite 250, Atlanta, GA30309. Attn: Job #N

GlobalSource IT, Inc. (GSI) is a recognized leader in the specialty ERP professional services market. We seek SAP, PeopleSoft, Oracle, J D Edwards or Baan consultants. Candidates must have BS/MS with IT experience. Competitive salary with full benefits. Please forward resumes to referral@globalsourcet.com. EOE. No calls.

Bayou Healthcare LLC (dba CrossRoads Regional Hospital) is looking for system analysts or software engineers to handle our IT projects. We offer competitive wage. Interested applicants must have Bachelor or Master degree with IT experience. Please mail resumes to 644 High Plains Ave, Baton Rouge, LA 70810. EOE.

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IndustRAD seeks engineers & IT staff to design & develop application software for Marine engines & advanced diesel engine using ANSI C program. Write test plan & procedures. Must have MS/BS with exp. Good wage with benefits. Please send resume to info@industrad.com. EOE.

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ShellSoft seeks IT professionals (programmers/system analysts, DBA, software engineers), project engineers using Oracle, SAP, SQL, Java, C/C++. Minimum requirement is MS/BS with IT experience. Some positions require travel. Please send resume to jobs@shellsoftinc.com. EOE.

Internet company seeks Ph.D. Research Engineers responsible for innovative research. Interested applicants should send resumes to: K. Wolfe: 1600 Ampitheatre Parkway; Mt. View, CA 94043. Visit www.google.com for additional information.

IT professionals wanted by Cene Healthcare Management to design & develop LAN & WAN, handle DSL and CISCO Routers, SQL Server. Must have BS/MS with IT exp. Please send resumes 4000 Town Center, Ste 980, Southfield, MI 48075. Competitive wages. No calls. EOE.

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Software Engineer: Research, analyze req., design, develop, test, & implement a complete development environment & support bus. appl., component development, debugging, integrating components & diagnostics of web based tech. as well as Client/Server architecture using tech. such as: Java, JDBC, JSP, Java Script, Rational Rose, Cold Fusion, XML, XSLT & ERWIN. Apply knowledge in the following: VB, SQL Server, Oracle, & ASP. Design, develop, and integrate software appl. that support internet/intranet systems. Perform product design, testing, documentation & analysis of software appl.; May require travel to client sites in the U.S.; 9AM to 5PM; 40hrs/wk; $55,000/yr. Edu: Bachelors or for. acad. equiv. in Comp. Sci., CIS, Engg.; Exp. 3 yrs. in offered or as a Systems Exec., Sr. Programmer/Analyst or any exp. providing skills in described duties. Send resume to: Job Order # FL-2583480, Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869.

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Install & maintain SUN servers & workstations running Solaris, HP/9000 bus. servers running HP-UX & Intel X86 servers running Linux. Perform operating system upgrades & patch installation. Install & maintain storage area network & storage arrays. Perform backup & recovery duties using enterprise backup packages. 2 yrs of college in Comp. Sci. or Electrical or Electronics Engnrg + 2 yrs exp in job offered or as a Software Engnr - Sys. Admin. reqd. Exp. must incl: Solaris, HP-UX & Linux operating systems; Veritas file systems; UNIX shell scripts, apache, php & mysql server components; & Legato Networker, HP Omniback & Oracle RMAN backup & recovery. High mobility preferred. 40 hrs/wk, OT as reqd, 8am - 5pm, $66,730/yr. Submit resume to: Site Administrator, Greene County CareerLink, 4 West High Street, Waynesburg, PA 15370-1324. Refer to Job Order No. 478216.

Software Applications Engineer - Design, develop, implement and modify computer software applications for use in testing and validating integration of software and hardware systems employed in FDA regulated medical devices, and conduct research to validate systems and report results, utilizing Labview, advanced computer simulation techniques, computational physics, advanced ENM, and superconductivity. Requires B.S. or equivalent degree in Computer Science, Math, Physics, Engineering, Chemistry (math based) or closely related field, and three years experience developing software applications utilized to test and validate operational software and hardware in medical devices. (Note: Employer will accept M.S. level degree in Computer Science, Math, Physics, Engineering, Chemistry (math based) or closely related field in lieu of, three years of experience.) Send resume to: Michelle Bakken, Human Resources, Stereotaxis, Inc., 4041 Forest Park Ave., St. Louis, MO 63108.

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Perform full lifecycle software applns incl: requirements gathering, analysis, dsgn, testing & implementation. Analyze, dsgn, dvlp, extract, transform & load processes & launch high profile e-commerce systems using tier architecture & object-oriented technologies. B.S. in Comp Sci. or Electrical or Electronics Engnrg + 3 yrs exp. in job offered or as a Software Engnr - Web Dvlpmnt reqd. Exp. must include XML, ASP.net, C#, SQL Server & Visual Basic 5/6 Net. High mobility preferred. 40 hrs/wk, OT as reqd, 8am - 5pm, $66,731/yr. Submit resume to Site Administrator, Greene County CareerLink, 4 West High Street, Waynesburg, PA 15370-1324. Refer to Job Order No. 478204.

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Financial System Administrator. Utilizing understanding of applicable business process functions and their related systems, identify and develop IS plan to support business goals of company utilizing Ultipro, Cognos, Great Plains, Kronos, and FRX applications. Act as liason between functional business units, outside vendors, and application managers. Use requirement gathering models and techniques to prepare detailed business specifications for development systems. Develop and maintain user training materials. Oversee system control procedures. Qualified applicants must have Master in Accounting or Finance and 3 years or more experience in Business Application related products with a strong Accounting and Fixed Assets background. Submit resume and references to Amy Haus (Reference FNSYSAN) 50 Applied Card Way, Glen Mills, PA 19342.



Programmer-Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Develop and design computer applications for clients located throughout the U.S. Write data acquisition applications in a Windows environment. Write device drivers. Develop libraries (DLL's) that interact with device drivers and data acquisition applications. Develop firmware. Work with Real Time Kernels and developing Real Time Software. Applicant must have B.S. degree in Computer Science, Business, Math or Engineering. Applicant must also have 6 mos. exp. in the job duties described above or in any computer related occupation which includes the skills listed above. 40hrs/wk, 8am-5pm, M-F, $80,000/yr. Send resumes to: Job No. 29981, P.O. Box 468, Montpelier, VT 05601-0468.

Programmer Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design, develop, test, and document computer programs and applications in a web-based environment for clients located throughout the U.S. Use iLog, XML, Java, J2EE, WebLogic, and Oracle. Applicant must have B.S. degree in Computer Science, Business, Math or Engineering. Applicant must also have 2 yrs. exp. in the job duties described above or in any computer related occupation which includes the skills listed above. 40hrs/wk, 8am-5pm, M-F, $80,000/yr. Send resumes to: Job No. 29787, P.O. Box 468, Montpelier, VT 05601-0468.

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Software Engineer - Applications
Design, develop, test and deploy customized IT applications based on a client's needs and environment. Prepare and test cases and scripts, test execution, perform application performance tests. Make changes based on client reviews, provide client training following product deployment and presentation. Bachelors degree in CS or Eng. or related field and 2 yrs.of exp. or 2yrs. of exp. in a related position w/ability to use: UNIX, IBM Mainframe, Toad, Java, C/C++ & Oracle9i. 40.0 hrs./wk 9:00 AM - 6:00 PM **Applicants send cover letter and resume to:** Trans Atlantic Systems, 1945 Cliff Valley Way, #270, Atlanta, GA 30339. **ATTN: S. Hagarajan**

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Soft. Engg/SAP Consultants/Bus. Syst. Analysts/Bus. Analysts Needed. Sev. Positions available for candidates possessing MS/BS or equivalent and/or relevant work experience. Mail resume, ref. and sal. req. to: Seal Consulting, Inc., 101 Fieldcrest Ave., Raritan Plaza III, Edison, NJ 08837.

Software Applications Engineer - Assigned as IT Consultant with project management responsibility, to design, develop and modify JSP, Servlets and software for web and general computer applications utilizing J2EE, STRUTS, Oracle/SQL and Java SDK. Multiple Openings Available. Requires Bachelors or equivalent-level degree in Computer Science, Computer Engineering, Mathematics or closely related field, and three years experience as Java/J2EE Developer in Web Applications. Send resume to Rick Heinlein, Ferguson Consulting, Inc., 12444 Powerscourt Dr., Ste. 235, St. Louis, MO 63131.

2 Full time positions to work as System Analysts, with experience in all phases of SDLC using J2EE, UML, ANT, JProbe, Introscope, Grinder, CruiseControl, XML, XSL on Windows, AIX, FileNet, P8 (AE, CE, PE, WAT), SWT, ETL Datastage, SWING, LR, QTP, WR, Shell Scripts,Test Director, Clear Quest. Prior direct implementation using the protocols TCP/IP, UDP, SMTP, POP, DNS, Telnet Requires Masters degree in CS or CIS and 1 year of experience in job offered. Applicants send resume to Pyramid Consulting Inc, 8685 Providence Drive, Noblesville, IN 46060.

Support Engineer (Madison, WI)- Engineering development including integration with Systems Engineering and Platform Engineering. Manage processes and builds. Maintain licensing system and creation of licenses for customers. Develop software for build system which compiles source code, configuration and upgrade elements to generate complete deployment package. Will utilize object oriented programming, Linux or Unix, relational databases, and normalization. Will utilize hardware, databases and operating systems in Enterprise environment. Provide technical support to systems engineering team. Must be willing to be on call 24 x 7. Must be willing to travel locally and internationally.

Must have a Masters degree or foreign degree equivalent in Computer Science, Engineering, or related field OR Bachelor's degree or foreign degree equivalent in Computer Science, Engineering, or related field AND 2 years of experience in a software development position. Educational coursework must include calculus and differential Equations. Education or work background may have been obtained concurrently and must include: (i) object oriented programming, (ii) relational databases, (iii) normalization, (iv) utilizing hardware, databases and operating systems in Enterprise environment, (v) Linux or Unix; and (vi) Java. Must have legal authority to work in U.S. Send resume to P. Fetterolf (REF:SE), Emageon UV, Inc., 1200 Corporate Dr., Ste. 400, Birmingham, AL 35242.

Computer Programmer Analyst. Full time position to work as Computer Programmer Analyst, needs Implementation and Development Experience using ECMAP and Gentran Suites, EDI Standards (ANSIX12, HL7, EDIFACT), HIPAA ToolKit, Experience in developing ANSI Transaction Maps like ANSI 834, 278, 820, 834, 837Prof, 837Inst, 270 / 271,with proficiency in Implementation of Siebel, Actuate Developer workbench and with experience in Net, JAVA, J2EE, XML, EJB, ORACLE, SQL Server, PL/SQL, SYBASE, WebSphere, WebLogic, JBoss, Struts Framework, MVC, RationalRose, UML and with Testing Tools like JUnit, WinRunner, LoadRunner Requires Bachelor's degree in Engineering or CS or CIS or equivalent and 2 years of experience in the job offered. Applicants send resume to Pyramid Consulting Inc, 8685 Providence Drive, Noblesville, IN 46060.

Software Engineer. Design, plan, develop, document and test computer programs, applying knowledge of programming techniques and computer systems. Analyze business, scientific and technical problems for application to data processing systems. Encode equations for processing by computer systems using knowledge of C, C++, JAVA, Visual Basic 6.0, Oracle 8.0, SQL Server 2000, ASP, VB Script, COM+, VSS and the application of computer software tools to system analysis and design. Requirements: Bachelors Degree or equivalent (3 yrs. exp. for each yr. of college) with 2 yrs. exp. as a software engineer or programmer. Must be Microsoft Certified Solutions Developer. Salary: $66,730/yr. 40 hrs/wk. Apply: Site Manager, Beaver County CareerLink, 2103 Ninth Ave., Beaver Falls, PA 15010-3957. Refer to Job Order No. WEB 477746.

Senior Database/OLAP Architect - Raleigh, NC-Responsible for all aspects of database administration & architecture including reliability, availability, scalability. Perform corporate & database security, development, staging, & server environments specifically pertaining to all OLAP cube & data mining development & maintenance. Responsible for maintaining the public database & corporate database. Provide maintenance & administration of development, staging & production servers. Provide OLAP/Data warehousing implementation along with Proclarity Reporting tool. Perform Database Schema Clean-up from SQL 7.0 to SQL 2000. Perform database modeling & design for new products & integration with current environment. Apply service packs & maintain database server's health. Perform database & log backups & restoration, backup strategies, scheduling backups, & implement disaster recovery plans when necessary. Mon-Fri, 8am-5pm. 40 hpw. $73,000/yr. Reqs: Masters in Computer Science or Engineering & 2 yrs. exp in position offered or 2 yrs. exp as Database Programmer or SQL Architect. Exp must include SQL Server, VisualBasic, ASP programming language with COM+/DCOM & MS SQL Analysis Server. Applicants should submit resume to Employment Security Commission, 3351 Carl Sandburg Court, Raleigh, NC 27610 or apply to nearest NC Employment Security Commission Office. Resumes must include applicant's Social Security Number. Job Order #NC7252105 + DOT Code 039.162.010.

Database Analyst/Administrator. Study and analyze logical and physical design of database using ERwin and Visio 2000 Data Modeler, build entity relationship diagrams and SQL and UNIX Shell scripts. Install and configure Oracle 9i Real Application Cluster and Data Warehouse Databases, Internet Application Server 9iAS, Apworx 5.1 Scheduler, TOAD 7.6 on HP Tru64, Sun Solaris 2.8, AIX 5.1, Linux and Windows platforms. Perform online hot and offline cold backup using tools like Recovery Manager and Veritas. Performance tuning of database and load balancing of multi-terabytes database system. Optimize new features and automate maintenance tasks. Maintain data integrity and consistency. Implement security to industry standards. Requirements: Bachelors Degree or equivalent (3 yrs. exp. for each yr. of college) in Engineering, Information Systems, Computer Science, or related field. 4 yrs. exp. as database administrator, computer programmer, software engineer or programmer analyst. Salary: $80,000/yr. 40 hrs/wk. Apply: Site Manager, Beaver County CareerLink, 2103 Ninth Ave., Beaver Falls, PA 15010-3957. Refer to Job Order No. WEB 477737.

Computer Programmer/Analyst-System analysis, design, programming, debugging and testing for software development. Requires a bachelor's degree, foreign bachelor's, or equivalent and two years of experience in C++, .NET, JAVA, J2EE, and Oracle. We have positions throughout the US and job will require extensive travel or relocation to the job location depending on duration of the project. Please forward the resumes to IT Technical Recruiter, Niagara Consulting Group, Inc., Tech-Recruiter@niagaraconsulting.com. Reference Code: WEB0822.

Computer Professionals

We have openings for the following positions to work at client sites throughout the United States. Send Resumes to Webtest Technology Inc, 256 A Main St Suite #5 Nashua NH 03060

Java Programmer Analyst
Design and develop software applications using Java, JDBC, J2EE, Websphere, Tomcat and XML. Perform object-oriented methodologies and problem diagnosis.

Visual Basic
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Design, develop and test software applications using SQL Server, VB, ASP, .NET and Crystal Reports. Involved in trouble shooting, query optimization, testing and production support.

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SAP Functional Consultant
This position involves configuration of WM, MM and TF Technology implementation. Hands on experience using SAP modules like Material management and Sales and Distribution.

QA Tester Design, develop and prepare the test scripts for the business applications using the testing tools Winrunner, QTP and Test Director on Windows NT/Windows2000/UNIX operating systems.

Bethesda MD Software Consulting Company seeks Sr Software Analyst to design/develop/test/deploy custom ERP solutions using Java J2EE technologies EJB, Servlets, Java Beans, JSP, JDBC, RMI, JAXP, Xsockets and .NET technologies ASP, .NET, ADO.NET C# data base including SQL server, Mysql, SAPDB, Oracle and writing stored procedures using SQL/PLSQL, UML, ERD diagrams req. Min Master degree in computer science (or equ.) 2 yrs exp/job/job related exp. Sun Certified JAVA Programmer, Sun Certified Web Component Developer, Brainbench Certified C++ programmer. Should also have experience in Struts, SQL, javascript, Hibernate, Crystal reports C/C++, PHP Resumes: 4905 Dalray Ave #937 Bethesda, MD No calls. EOE.

ATM Leader
Manage team of software developers for ATM driving solutions, quality assurance, functional delivery; enhance software quality using Java, Python & Weaz, SQL Server Oracle & DB2 databases; Windows/Linux (Redhat/SuSe) OS, settle/reconcile transactions. Req MS Comp Sci. or equiv & 2 yrs. exp. in job or 2 yrs exp as Software Eng or related. Resume to HR, Mosaic Software 600 Fairway Dr., Ste 108 Deerfield Beach, FL 33441 No calls.

Computer Support Specialist wanted by TripodSoft, Inc (NJ) to support TripodSoft software developers on hardware, networking & operating systems. Requires MS in Comp Sc or related field with min 3 yrs exp in install, config & admin of LAN/WAN, AIX & PBX. Must be familiar with ERP, EAI, Websphere, OnDemand & DB2. Email resume to: jobs4tripodsoft@yahoo.com

Consultants: Design, develop, test, document & maintain web-based, objoriented bus. apps for Intel Win 2000 Server, IBM Websphere/Weblogic, ZEUS Channel Server using Java, C++, C#, MS-SQL, XML, SOAP, JSP, ASP, & HTML on J2EE, .NET platforms. Req: BS comp. sci. engg, or related & knowledge of Intel/Windows 2000 Server, Java, ASP, & HTML. Resumes to: N. Green, S1, Inc., 3500 Lenox Rd., Suite 200, Atlanta, GA 30326

INTERNAL TECH CONSULTANT Database dvlpmnt, admin, & maintenance for core manufctng system. Analysis & tech design of IT manufactng solutions B.A. Comp Science/ Engin or equiv & 2 yrs. database dvlpmnt experience, must be proficient in MS SQL Server, MS DTS, Transact-SQL, Oracle & bus intell. Apply to: Harland Co., Attn: Caryl James, 2939 Miller Road Atlanta, Ga 30035.

Management Analyst - 8a-5p; 40 hrs/wk. Evaluate business organization/management data, information flow, operating procedures, records, design applications & prep operations manuals for management using systems analysis & design, database management systems, Visual Basic, C++, & AS400. Bachelors or equiv degree in Bus Admin., Management Information Systems, Comp. Sci. or Engineering or related field. Resume: S3 Group, Inc., 4124 Chattahoochee Trace, Ste 103, Duluth, GA 30097

Multiple openings for software engineer/consultants, programmer analysts, network engineer, dba, project engineer/manager, program mgr (Biz Dev). Some positions req Bachelor (or equiv.) while others req Masters (or equiv.) in a related field. We will accept the foreign edu. equiv. &/or its equiv. in edu. & exp. Exp. req. will depend on position. Mail resumes to HR, Harvard Soft, 150 Westford Road, Suite # 28, Tyngsboro, MA 01879

Performance Measurement Consultant wanted by software comp in NYC. Analyze, develop & consult on MIS software for asset mgmt clients. Internal & external consultation. Resumes to: StatPro, Inc., 185 Madison Ave, NY, NY 10016.

Systems Engineer, Database. Must have BS or equiv. in Comp. Sci. or Info Sys. and 1 yr exp. Fluency in Japanese reqd. Send resume to: Mr. Marx, Hartz Mountain Corp, 400 Plaza Dr., Secaucus, NJ 07094.

Webesphere Administrators to configure, install and administer WebSphere Application Server, IIS, Nokia Wap Serve etc; create and manage the connection pools of the WebSphere and cluster; run korn jobs in AIX to generate reports; analyze UML design patterns using Rational Rose; perform appl support in testing, identifying issues and tracking bugs and solving problems. Require BS or foreign equiv in CS/Computer Engg with 6 months exp in Webesphere administration. Travel involved. F/T position. competitive salary. Resume to: HR, Koneru Software Services, 333 Swanson Dr., Ste 124, Lawrenceville, GA30043.

Wireless Test Engr. Conduct wireless product testing & requirements analysis, develop test plans, generate test cases & automate testing procedures for GSM & GPRS. Bach's deg in Comp Sci, Physics or Elec Engrg reqd + 5 yrs exp. Fax resume to PMCDU, 770-338-6001, Attn: D. Greer, PC

Programmer Analyst
Design and develop custom accounting software to serve as Virtual Private Network by using C#, ASP.net, VB.net and MS-SQL, Java and Oracle 8i. Analyze business procedures, solve problems, redefine data and convert data to a programmable form by using MS Project, Excel & Access. Req. Bachelor in Comp. Science or Engg. with 1 yr of exp. Send resume to HR., TTSF LP # 5, 10110 Westview Dr., Houston, TX 77043 or E-mail: ttsf_jobs@ebcglobal.net

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Design and develop custom accounting software to serve as Virtual Private Network by using C#, ASP.net, VB.net and MS-SQL, Java and Oracle 8i. Analyze business procedures, solve problems, redefine data and convert data to a programmable form by using MS Project, Excel & Access. Req. Bachelor in Comp. Science or Engg. with 1 yr of exp. Send resume to HR., TTSF LP # 5, 10110 Westview Dr., Houston, TX 77043 or E-mail: ttsf_jobs@ebcglobal.net.

Programmer Analysts to analyze, design, s/w appls using Java, ASP, Servlets, JDBC, HTML, Oracle, PL/SQL, Dev 2000, Forms, Reports Windows OS; design web pages dynamically using JavaScript, design database structure using UML; provide on site maintenance support, debug, modify, fine tune and perform code optimization. Require: BS or Foreign equiv with concentration in CS/Science/Engg (any branch) with 2 yrs exp in IT. Competitive salary. F/T positions. Travel involved. Resume to IOR Technologies, Inc. 2400 86th st, Ste12, Urbandale, IA50322. Job ID IORPA1104

Senior Prog/Analysts to lead teams to analyze, design, enterprise applications with OOAD methodologies using J2EE, JDK, JDBC, EJB, Java, HTML, JavaScript, XML, Weblogic, Websphere, Oracle, MS SQL Server on Windows environment; evaluate user requests for new programs or complex modifications to existing programs; test and debug programs; monitor ongoing program and system performance; provide training to team members. Require: BS or foreign equiv in CS/Engg (any branch) & 3 yrs exp. in IT. Competitive salary. Travel involved. F/T. Resume to: HR, Bahwan Cybertek Technologies, Inc., 200 West Central Street, Ste 312, Natick, MA01760.

S/W Application Programmers to identify, solve problems/incidents in SAP or Oracle suite of appls; analyze, design, maintain appls using either SAP, ABAP, VB, NET, DW or Oracle database, Oracle appls (Financial, Manufacturing, Distribution, HR, Project), Oracle Appl Server PL/SQL, Reports/Forms on Windows/UNIX OS; perform req analysis, conduct functional testing/debugging; document, maintain & update use cases. Require: BS or foreign equiv. in CS/Engg (any branch) or related field and 2 years exp in IT. Travel involved. F/T position. Comp. salary. Resume to: HR, Quest America, Inc., 211 East Ontario Street, Suite 1600, Chicago, IL60611

DATABASE ADMINISTRATOR sought by flooring Co. in Sugar Land, TX. Req'd degree & exp. Respond by resume only to: Mr. A. Abdelghani, K/H#10, Floor Max, 11102 Hwy 6 South, Ste 100, Sugar Land, TX 77478.



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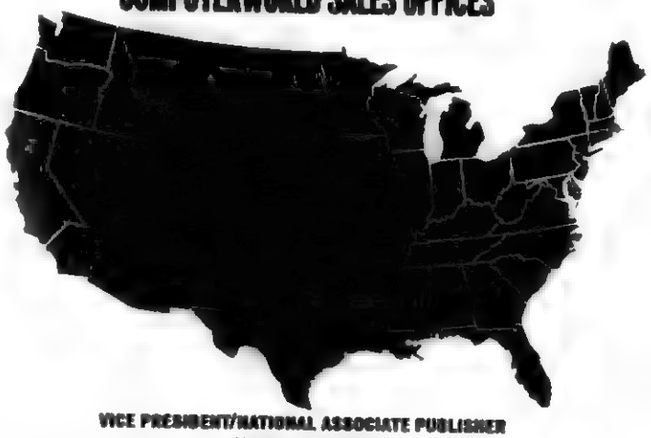
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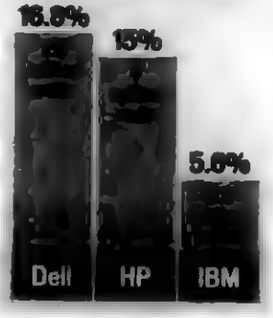
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BY LUCAS MEARIAN

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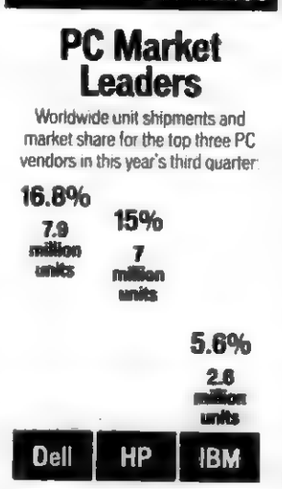
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FRANK HAYES • FRANKLY SPEAKING

Making a List

"JOHNNY? ROBOSAPIEN. JAMAL? ROBOSAPIEN," said Santa. For once, he was zipping through the list of gifts for good boys and girls at top speed. "Edgar? Robosapien. Heather? Hmm. She asked for a Barbie. I don't suppose we could put a blond wig on a programmable robot and give her that instead, could we?"

"I don't think so, big guy," said the elf sitting next to him, scrolling down the computer screen. "But how about we take a break from the kids and decide what all these IT people will get under the tree?"

"Couldn't we just give them all Robosapiens too?" Santa asked. "Those robots should appeal to the techies — they can be programmed to run, kick, belch, dance . . . "

"Bill Gates already has Steve Ballmer," the elf said. "Scott McNealy, too, come to that. How about a magic trick? Gates claims Microsoft's new Dynamic Systems Initiative for simplifying systems management works like magic."

"Sure," said Santa. "Give him the one that turns a $1 bill into a 10 spot, not that he needs it. What about Steve Jobs?"

"Apple's stock has been defying gravity — it tripled in price this year," said the elf. "One of those remote-control flying saucers should work for him. And we know what Larry Ellison wants, but how do you wrap up PeopleSoft?"

"Oracle's lawyers are doing that right now," Santa said, looking over the elf's shoulder. "Give him a genuine IBM PC. It'll be a collector's item soon, just like Larry's thin clients. Who's Chris Stone?"

"The guy that got Novell into the Linux business, then bailed out when he didn't get to be boss. Rumor was it's because he had some rough edges," said the elf. "We've also got Sanjay Kumar, who got to be big cheese at Computer Associates and then had to quit this year after he was indicted."

"Put them both down for books by Martha Stewart," said Santa. "An etiquette manual for Stone and, for Kumar, her prison memoirs. Maybe those guys at Lycos who came up with the screen saver that's impolite to spammers could use an etiquette book too."

"Except now some virus writers have created a fake version that infects the user instead of annoying the spammers," replied the elf. "Do you think the Lycos folks would learn to look a few moves ahead if they got a chess set?"

"It's worth a try," Santa said. "And wrap up a pro-wrestling video game for Daimler-Chrysler's lawyers — they really laid a smackdown on The SCO Group when SCO sued them. Why is the U.S. Interior Department on this list?"

"They just got back on the Internet," the elf said. "A federal judge cut off their access in March, supposedly because he was worried about security. Actually, the Bureau of Indian Affairs lost track of some money — well, it's a long story."

"They've been off the Net a long time," said Santa. "Those poor bureaucrats probably don't even remember what worms, phishing or Nigerian spam letters look like. Better give them a firewall — the bigger the better.

"Let's see, for the vendors who make electronic voting machines, make it bus tickets to the North Carolina shore in January. That's when they're rerunning an election that went bad because the spiffy new machines lost thousands of votes. And send the Linux gang a pallet of legal pads — they'll need them while rewriting the GPL."



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

"What about all the regular IT folks?" the elf asked. "The ones still slugging it out with Sarbanes-Oxley and security and offshoring and open-source — and especially the ones slaving away for CIOs who chase after every technology trend and management fad?"

Santa laughed heartily. "Ho, ho, ho! So there is a place for all those Robosapiens among the techies after all. But all I can do is deliver the toys," he said. "Actually replacing one robotic CIO with another will be up to them." ● 51346

Not What I Had in Mind

A bank's IT staff replaces some server disk drives, and just for fun, this IT manager pilot fish hands a tech a sledgehammer to make sure the data is destroyed. "Rather than going outside, he decided to pound them right next to our main cash vault – the one with vibration sensors to detect penetration attempts," says fish. "Eventually, we got the situation resolved, but it took a little explaining to the rather tense police officer with his gun drawn and aimed at us."

SHARK TANK

So?

This school's IT coordinator pilot fish is showing voice-recognition software to the principal, who asks the nearby custodians to watch too. "I opened a bunch of windows on-screen, then uttered the command, 'Close all windows.' " fish says. "The computer closed every window. When I didn't hear the expected oohs and ahhs, I looked up to see the custodians waiting for all the windows in the room to close. Needless to say, they weren't that impressed."

Unclear on The Concept

Government field staffer gets his first PC and cell phone, but something's not working, so he calls the help desk. Pilot fish asks him to dial up on his phone line, then call fish on his cell phone. "He said his phone was in the truck, but the cord wouldn't reach from there to the computer," says fish. "When told to unplug the cell phone and bring it to the PC, he said that wouldn't work because he didn't have any of these types of plugs in the house. The call went downhill from there."

Then Wait For Her

Boss setting up a new office calls the help desk desperate for assistance with copying a file to a floppy disk, reports an IT pilot fish. "Our department secretary says, 'All of our techs are busy – why don't I send our trainer over to show you how to do it and answer any questions you might have?' " fish says. "The administrator replies, 'I don't need to know how. I'll have a secretary for that!' "

Problem Solved

Pilot fish e-mails his résumé to a technical manager. "Some mail filters block Microsoft Word documents because they can contain macro viruses, so I first converted my file to rich-text format," fish says. "The response: 'Our scanning filter found your résumé ending in .rtf to be suspicious. If you'd like to resend as a Word doc, please do.' " Fish sends a note pointing out that Word files are much more likely to be a problem. Tech manager: "All I know is that I do not have your résumé. If you are interested, please resend it."

HEY, SHARKY'S INTERESTED. Send me your true tale of IT life at sharky@computerworld.com. You'll snag a snazzy Shark shirt if I use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at computerworld.com/sharky.



FRANK HAYES ■ FRANKLY SPEAKING

Making a List

"JOHNNY? ROBOSAPIEN. JAMAL? ROBOSAPIEN," said Santa. For once, he was zipping through the list of gifts for good boys and girls at top speed. "Edgar? Robosapien. Heather? Hmm. She asked for a Barbie. I don't suppose we could put a blond wig on a programmable robot and give her that instead, could we?"

"I don't think so, big guy," said the elf sitting next to him, scrolling down the computer screen. "But how about we take a break from the kids and decide what all these IT people will get under the tree?"

"Couldn't we just give them all Robosapiens too?" Santa asked. "Those robots should appeal to the techies — they can be programmed to run, kick, belch, dance . . . "

"Bill Gates already has Steve Ballmer," the elf said. "Scott McNealy, too, come to that. How about a magic trick? Gates claims Microsoft's new Dynamic Systems Initiative for simplifying systems management works like magic."

"Sure," said Santa. "Give him the one that turns a $1 bill into a 10 spot, not that he needs it. What about Steve Jobs?"

"Apple's stock has been defying gravity — it tripled in price this year," said the elf. "One of those remote-control flying saucers should work for him. And we know what Larry Ellison wants, but how do you wrap up PeopleSoft?"

"Oracle's lawyers are doing that right now," Santa said, looking over the elf's shoulder. "Give him a genuine IBM PC. It'll be a collector's item soon, just like Larry's thin clients. Who's Chris Stone?"

"The guy that got Novell into the Linux business, then bailed out when he didn't get to be boss. Rumor was it's because he had some rough edges," said the elf. "We've also got Sanjay Kumar, who got to be big cheese at Computer Associates and then had to quit this year after he was indicted."

"Put them both down for books by Martha Stewart," said Santa. "An etiquette manual for Stone and, for Kumar, her prison memoirs. Maybe those guys at Lycos who came up with the screen saver that's impolite to spammers could use an etiquette book too."

"Except now some virus writers have created a fake version that infects the user instead of annoying the spammers," replied the elf. "Do you think the Lycos folks would learn to look a few moves ahead if they got a chess set?"

"It's worth a try," Santa said. "And wrap up a pro-wrestling video game for DaimlerChrysler's lawyers — they really laid a smackdown on The SCO Group when SCO sued them. Why is the U.S. Interior Department on this list?"

"They just got back on the Internet," the elf said. "A federal judge cut off their access in March, supposedly because he was worried about security. Actually, the Bureau of Indian Affairs lost track of some money — well, it's a long story."

"They've been off the Net a long time," said Santa. "Those poor bureaucrats probably don't even remember what worms, phishing or Nigerian spam letters look like. Better give them a firewall — the bigger the better.

"Let's see, for the vendors who make electronic voting machines, make it bus tickets to the North Carolina shore in January. That's when they're rerunning an election that went bad because the spiffy new machines lost thousands of votes. And send the Linux gang a pallet of legal pads — they'll need them while rewriting the GPL."



"What about all the regular IT folks?" the elf asked. "The ones still slugging it out with Sarbanes-Oxley and security and offshoring and open-source — and especially the ones slaving away for CIOs who chase after every technology trend and management fad?"

Santa laughed heartily. "Ho, ho, ho! So there is a place for all those Robosapiens among the techies after all. But all I can do is deliver the toys," he said. "Actually replacing one robotic CIO with another will be up to them." ● 51346




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Then there's this. Oracle will drop the current level of support for Oracle Database 8i at the end of 2004. Meaning limited support, higher cost or a complete migration to current versions. Fortunately, IBM offers ongoing, around-the-clock service and support for DB2.

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For some IT execs, the consolidation of wireless carriers spurs thoughts of lower prices and more useful applications.

David Moschella says there's still one vertically integrated part of the IT industry: The IT shop.

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DECEMBER 20, 2004 • VOL. 38 • NO. 51 • $5/COPY

Symantec Expands Beyond Security Via Veritas Purchase

But some users and analysts see product integration as a hurdle

BY JAIKUMAR VIJAYAN

Symantec Corp.'s planned acquisition of Veritas Software Corp. gives the IT security vendor an opportunity to significantly expand its presence in the market for enterprise software, users and analysts said last week.



But, some of them added, the move to absorb Veritas creates technology integration challenges for Symantec and is being driven partly by increased competition for security-related business from heavyweight vendors such as Microsoft Corp. and Cisco Systems Inc.

Symantec claimed that the merger will make it the fourth-largest independent software vendor worldwide, with projected annual revenue of about $5 billion and a product portfolio that combines its

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IBM Builds Java System For NYSE

Custom trading app said to end downtime

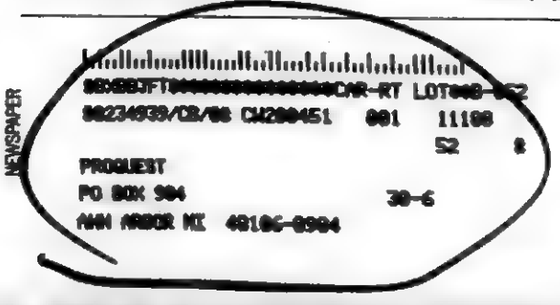
BY LUCAS MEARIAN

New York Stock Exchange Inc. announced last week that it's rolling out a Java-based trading system that includes customized wireless handheld devices for traders. The new technology could mean the beginning of the end to the shouts of "Buy" and "Sell" that have long been the trademark of the nation's oldest and largest stock exchange.

The NYSE awarded IBM a contract two years ago to build a stock order management system that would provide uninterrupted availability to its brokers, who now collectively send and receive an average of 75,000 messages per day — up 200% from when the deal was signed.

The TradeWorks system

NYSE, page 14

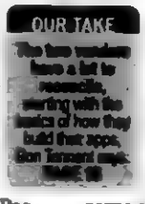


PeopleSoft Users Put Oracle on Probation

IT managers demand detailed road map, solid support of applications from victorious vendor

BY MARC L. SONGINI

Now that Oracle Corp. has gotten what it wanted — ownership of PeopleSoft Inc. — it must face thousands of users who are skeptical about its intentions.



Having overcome formidable obstacles to its hostile takeover bid, including a resistant PeopleSoft board, staunch opposition from former PeopleSoft CEO Craig Conway and a legal challenge from the U.S. Department of Justice, Oracle's biggest test may well be winning the trust of the installed base of the 12,700 customers that it's inheriting.

Two of the 10 users interviewed about the deal last week said they were guardedly optimistic about Oracle's ability to earn their business. But all of the users cited concerns about Oracle and said they were putting the vendor on a sort of probation before making any decisions.

Robert Robinson, business systems supervisor at Durr Industries Inc. in Plymouth, Mich., said he needs not only a promise from Oracle that PeopleSoft's applications will be supported, but also a better explanation of its plans for the World and EnterpriseOne product lines that PeopleSoft acquired with its purchase of J.D. Edwards & Co. last year.

Durr, an automotive supplier, is about to upgrade from World to EnterpriseOne. "We're scrambling to move to the most current version of the software, but now we have to wonder if we're getting our

Oracle, page 45

KNOWLEDGE CENTER SUPPLY CHAIN



RFID Reality Check



Eventually, RFID will be a boon for the supply chain. But right now, reliability problems and complexity are slowing adoption. Stories begin on page 31.

Data Points: Download the latest RFID survey results for your PowerPoint presentations

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Symantec, page 13

NOT THEIR CHOICE

Several Veritas users said they don't think it and Symantec are a good fit.

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The TradeWorks system

NYSE, page 14

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OUR TAKE

The two vendors have a lot to reconcile, starting with the basics of how they build their apps, Don Tennant says. PAGE 16

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SPECIAL REPORT

Eventually, RFID will be a boon for the supply chain. But right now, reliability problems and complexity are slowing adoption. Stories begin on page 31.

Data Points: Download the latest RFID survey results for your PowerPoint presentations. QuickLink 45240

PUT IT IN THE SERVER ROOM.

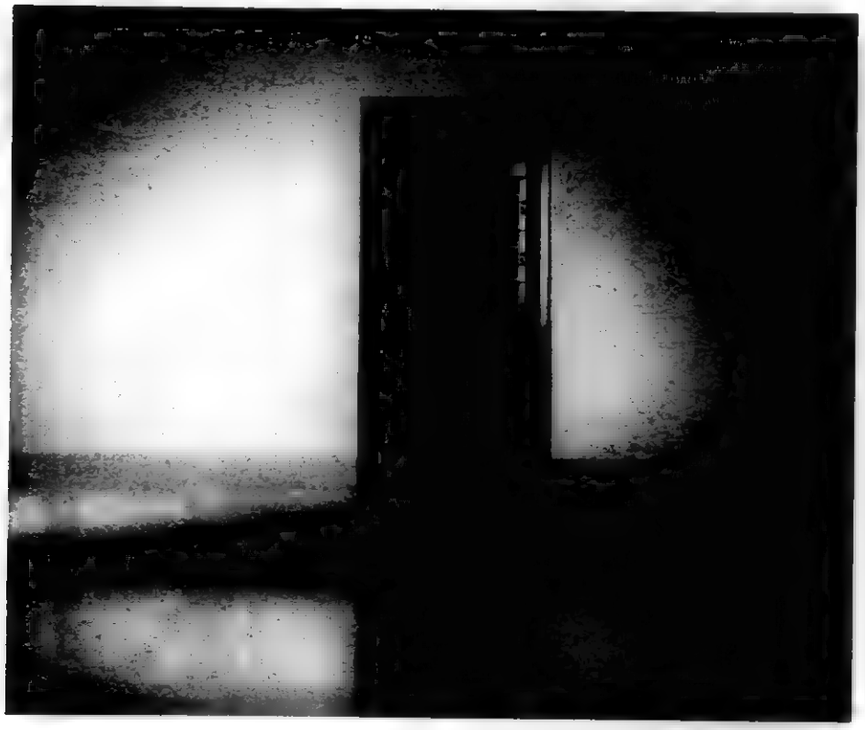
FEEL IT IN THE BOARDROOM.

[1]Based on two-tier SAP Sales and Distribution (SAP SD) Standard Application Benchmark result on the 8-way IBM eServer p5 570 (AIX 5L v5.3, DB2 UDB v8.1) of 2,600 benchmark users, 1.99 second average response time (certification number 2004041), as compared to the 8-way HP Integrity rx7620 (HP-UX 11i, Oracle 9i) result of 1,500 benchmark users, 1.95 second average response time (certification number 2003045). Current as of November 24, 2004. Source: http://www.sap.com/benchmark. [2]Operating systems sold separately. [3]Available on select models. IBM, eServer, the eServer

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General Admission



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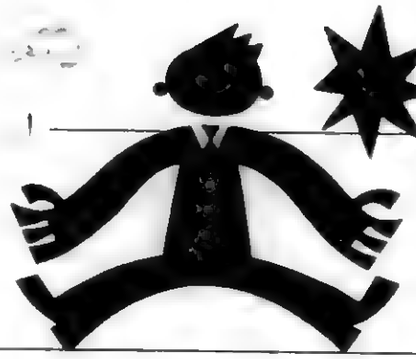
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Bridging the Gap

In the Management section: The relationship manager is a crucial liaison between business and IT, but the role is still evolving, and there are lots of ways to get it wrong. **Page 27**

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6 **Microsoft** buys a vendor of antispyware tools.

7 **Recent wireless industry** mergers like that of Sprint and Nextel get a thumbs-up from users.

7 **Users want links** between enterprise information integration technology and business intelligence tools.

9 **Cisco unveils** an appliance to manage file and print services at branch offices.

9 **Q&A: Cisco exec Mike Volpi** says the vendor is now more realistic about its strengths.

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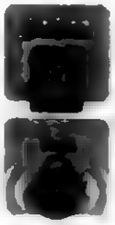
RFID Reality Check

EDITOR'S NOTE: This special report offers tips for dealing with RFID reliability problems, illustrates the complexity of the data flows and provides lessons learned about running RFID pilot programs.

SPECIAL REPORT

PACKAGE BEGINS ON PAGE 31.

RFID reliability pitfalls range from nonfunctioning tags to environmental conditions that render tags unreadable. But some say building an RFID-based supply chain is worth the trouble.



32 The Trouble with Tags. Users, such as Henkel Consumer Adhesives' Gene Obrock (below), say



34 The Long and Winding Road. RFID data has a long but clear-cut journey from the manufacturing floor to the retail supply chain. Here's a look at how pioneering Gillette steers its data.

36 RFID Pilot Tips. Most organizations are just getting their feet wet with RFID technology. Early users such as Buffy Dorpinghaus (right) of the El Paso County government in Colorado offer their advice for managing a pilot project.



38 Opinion: When it comes to RFID, everyone's talking about Wal-Mart. Columnist Mark Hall says that's a mistake.

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Editor's Picks. We've compiled *Computerworld*'s best articles about radio frequency identification technology, including pieces that address the issues of return on investment, privacy and security.
QuickLink 81120

Opinion: RFID data is vulnerable under certain circumstances, says consultant and *Computerworld* columnist Mark Willoughby, but tougher standards now prevent hackers from using sensitive data in malicious exploits.
QuickLink 40444

Data Points. Our newest collection of charts offers factoids about RFID technology that you can download for your PowerPoint presentations.
QuickLink a5240

AT DEADLINE

Siebel Buys eDocs To Extend CRM App

Siebel Systems Inc. last week agreed to acquire eDocs Inc. for $115 million in cash. Siebel said the move will extend its suite of CRM applications. EDocs makes e-billing and customer self-service applications to cut call center and billing costs. The deal is expected to close next year.

HP, Intel Terminate Their Itanium Pact

Hewlett-Packard Co. and Intel Corp. ended a 10-year pact to co-develop the Itanium chip for servers. Intel will continue work on the chips, and microprocessing development by HP will effectively end. HP's Itanium team will join Intel. HP also pledged to continue using the chips in its servers and to spend $3 billion over three years on Itanium-related product development.

New Standard Could Drive RFID

EPCglobal Inc. last week said its board has ratified the second generation of its Electronic Product Code (EPC) specification. The nonprofit industry group said the standard, supported by dozens of major companies, such as Wal-Mart Stores Inc., The Gillette Co. and Albertson's Inc., will drive commercial radio frequency identification and EPC use worldwide.

Two Sentenced In Hacking Case

Two 21-year-old Michigan men were sentenced – one to nine years and one to 28 months in federal prison – for conspiring to hack into the IT systems of national home center chain Lowe's Companies Inc. and stealing customer credit card information. A third defendant still awaits sentencing. Officials say the trio compromised a Lowe's store wireless network to gain access to the credit card data.

Sun Adds Linux Support To Sun Ray Thin Clients

Software reduces bandwidth needs for remote users

BY PATRICK THIBODEAU

SUN MICROSYSTEMS INC. last week said the server software that supports its Sun Ray thin-client devices can now run on x86-based Linux systems in addition to Sparc/Solaris machines.

Sun Ray Server Software 3.0 also includes new bandwidth adaptation and management technology that's designed to make it easier for IT managers to support remote use of the thin clients. Because of reduced bandwidth needs, the devices can now be linked to back-office systems via Digital Subscriber Line or cable modem connections, said Sun, which also introduced a thin client with a 17-in. screen.

Time Warner Cable is a large Sun Ray user, with about 750 of the terminals. Cesar Beltran, vice president of IT at the Time Warner Inc. division's data center facilities in New York, said he's interested in both of the major new features that Sun is adding to the Sun Ray server software.

Beltran plans to investigate the possibility of switching from the UltraSparc-based Solaris servers that currently support Time Warner Cable's Sun Ray users to x86 hardware running Linux. "We're exploring ways to eliminate some costs," he said.

In addition, using Linux would help employees who provide technical support to customers who access the Internet on Linux-based desktop systems equipped with cable modems, according to Beltran. The workers would be able to enter Linux commands at their terminals to help troubleshoot customer problems.

Telecommuting Niche

Time Warner Cable is also looking at allowing its customer service workers to telecommute in order to increase workforce flexibility and respond to the demands of handling some 40,000 customer calls daily, Beltran said. The telecommuting could start as early as next year, but a final decision hasn't been made.

Beltran said thin clients provide better data security than full PCs do and require little support from IT staffers. Indeed, he envisions end users taking the thin-client terminals home with instructions on how to hook them up to DSL or cable modems on their own.

Bob O'Donnell, an analyst at IDC in Framingham, Mass., said telecommuting via thin clients is a niche that could grow as part of an overall increase in corporate use of the devices. IDC expects shipments of 1.6 million thin clients worldwide this year, a 9.4% increase over last year's level, and it's forecasting a 19% jump in shipments next year.

"We think the awareness level is growing, the cost equation makes more sense, and obviously the [PC] security problem is going to get worse and worse," O'Donnell said. For now, thin clients continue to be deployed primarily in call centers and as part of point-of-sale systems, according to O'Donnell and other analysts.

Tyler Best, CIO at Vanguard Car Rental USA Inc., a Tulsa, Okla.-based company that owns the National and Alamo brands, said Vanguard is installing Windows-based thin clients from Hewlett-Packard Co. in its point-of-sale systems. The thin clients are about 72% less expensive than fully loaded PCs, Best said.

"I think the thin client has a place at the point of sale," Tyler said. "I'm not so sure I would put it in my corporate environment." He added that PCs aren't very expensive and that end users in finance and other corporate departments need more functionality than point-of-sale workers do. **51523**

PRODUCT DETAILS

Sun Ray Server Software 3.0

- Supports all existing Sun Ray devices.
- Includes expanded security features for controlling access to peripheral devices.
- Supports the PC/SC framework for smart card applications.

Price: Starts at $99 per seat.

Sun Ray Ultra-Thin Client 170

- New thin-client device with a 17-in. flat-panel display.
- Provides 56% higher resolution and 36% more viewing area than the 150 model.
- Includes a projector port for use with smart cards in meeting rooms.

Price: Starts at $1,049.

Microsoft Buys Tools For Fighting Spyware

BY JAIKUMAR VIJAYAN

Microsoft Corp.'s announcement last week that it has purchased a small vendor of anti-spyware tools serves to highlight the growing seriousness of the spyware problem for users, according to security analysts.

Microsoft said it acquired New York-based Giant Company Software Inc. for an undisclosed amount and plans to use the company's intellectual property and technology assets to provide Windows users with new tools for protecting their systems against spyware.

A beta version of a spyware protection tool based on Giant Company's technology is due to be released in January for Windows 2000 and subsequent versions of the operating system, said Amy Carroll, director of Microsoft's security business and technology unit. She said the tool will be able to scan for, detect and remove spyware and other malware.

Microsoft officials haven't decided yet whether the anti-spyware tool will be integrated into future Windows releases or sold as a stand-alone product, Carroll said. "Our immediate job right now is to get the beta out," she added.

The acquisition addresses growing concerns over the security threats that spyware poses to corporate and home users alike, said Jon Oltsik, an analyst at Enterprise Strategy Group Inc. in Milford, Mass. "Spyware has become the new scourge on PC users," Oltsik said.

Vendors such as McAfee Inc., Computer Associates International Inc., Webroot Software Inc. and Trend Micro Inc. have begun offering anti-spyware tools designed for corporate users. But, Oltsik said, "Microsoft is jumping into a new market where they have as good a chance as anyone else to make an impact."

Microsoft's purchase of Giant Company is its second significant acquisition in the IT security market. In June 2003, the company bought Romanian antivirus software developer GeCAD Software SRL for an undisclosed price. Microsoft is expected to make antivirus capabilities available in future versions of Windows as a result of that purchase. **51521**

Users Welcome Consolidation Of Major Wireless Carriers

Hope for pricing, tech benefits from Sprint/Nextel deal

BY MATT HAMBLEN

Last week's merger deal between Sprint Corp. and Nextel Communications Inc. continues a consolidation trend among wireless carriers that could help lower prices and bolster the development of technology for corporate applications, according to several IT managers and analysts.

The planned creation of Sprint Nextel, as the combined company will be called, follows the October acquisition of AT&T Wireless Services Inc. by Cingular Wireless LLC. Sprint and Nextel said they plan to spin off Sprint's local telephone business in order to focus on wireless and integrated communications services.

John Bolz, vice president of technology architecture at Wells Fargo Services Co. in Minneapolis, said the IT arm of Wells Fargo & Co. abandoned its initial wireless projects five years ago, "when the technology was premature." But Bolz predicted that Wells Fargo will take a renewed interest in wireless applications because of the two mergers.

"These industry consolidations definitely renew the potential we see in wireless," he said. "This is now the opportunity for people to go ahead and make wireless work right."

Bolz said Well Pargo's financial services and mortgage divisions could benefit greatly from wireless infrastructures instead of fixed networks, since their office locations often are moved. He added that he also would like to explore the use of secure data services on phones that combine Wi-Fi wireless and WAN cellular connectivity.



is hopeful the Sprint-Nextel merger will result in better pricing.

The 100 or so mortgage officers at Hawaii HomeLoans Inc. in Honolulu have been using Sprint's wireless data service for three years, and Hawaii HomeLoans has also relied on Sprint for integration help. Leonard Loventhal, the mortgage company's executive vice president, said that he's optimistic about the planned merger. "Sprint is very advanced in the 3G [wireless] data field, and that is where we're most interested," he said. "We're also hopeful that the larger company can bring better pricing to the table."

Bob Egan, an analyst at Mobile Competency Inc. in North Providence, R.I., said he thinks the formation of Sprint Nextel will push the two largest wireless carriers, Verizon Communications Inc. and Cingular, to make "preemptive strikes" on pricing. Egan predicted that the cost of wireless data services will soon "collapse" to about $35 for each gigabyte of data transmitted, down from the current average of $63 per gigabyte on corporate contracts.

Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., said he doesn't expect the mergers to lower prices in the wireless industry. But neither does he expect an increase in prices, despite the reduced number of competitors. The combined companies will be able to take advantage of greater operating efficiencies because they will need fewer capital assets — including cell towers — and fewer employees, Mathias said.

Sprint and Nextel expect to complete the acquisition during the second half of 2005. The deal is being billed as a merger of equals, although Sprint is officially buying Nextel in a cash and stock transaction valued at $35 billion.

The merger will bring together Nextel's iDEN wireless network, Sprint's CDMA network and a new network based on CDMA EV-DO technology that Sprint plans to roll out next year. Sprint and Nextel officials said they plan to migrate some of Nextel's services, including its push-to-talk phone capabilities, to the EV-DO network "over time."

Other migration plans will be unveiled when the merger is finalized, they added. **51526**

ON THE MOVE

Go to our Web site for more coverage of mobile and wireless technologies

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IT Calls for Enterprise Integration-BI Link

Users want access to real-time data

BY HEATHER HAVENSTEIN

Corporate users are increasingly pairing enterprise information integration (EII) technology with business intelligence tools to bolster their efforts to use real-time transaction data to make day-to-day operating decisions.

BI vendors are aligning their products with those of EII vendors to meet user demand to augment historical information in a data warehouse. The EII tools can be used to federate data by providing a single point of access across disparate systems.

For example, Composite Software Inc. in San Mateo, Calif., this week will unveil Version 3.0 of its Composite Information Server, adding intelligent querying technology for formulating an optimum aggregation plan in real time. New optimization features are designed to evaluate data shapes and the cost of running complex queries against more data sources in less time, said Jim Green, chairman and CEO.

BI vendor Cognos Corp. this month said it will embed Composite's server in its reporting tools. Ottawa-based Cognos also said this month that its reporting tools will interoperate with integration software from Ascential Software Corp.

San Jose-based Business Objects SA and EII vendor Attunity Inc. in Wakefield, Mass., this month signed a joint development and marketing agreement to allow users to update a data warehouse or data mart in real time. Business Objects has similar alliances with MetaMatrix Inc. and IBM.

BI vendors are responding to growing user interest in EII tools, particularly to access a variety of data stores, said Colin White, president of BI Research in Ashland, Ore.

Motorola Inc. recently finalized plans to standardize on technology from Boston-based MetaMatrix to build an EII layer into its enterprise architecture, said Toby Redshaw, corporate vice president of IT strategy at Motorola.

> **"Most large companies have a bucket of legacy spaghetti, [and] the promise of BI is diluted because of the difficulty of getting to the spaghetti."**
>
> **TOBY REDSHAW,** CORPORATE VICE PRESIDENT OF IT STRATEGY, MOTOROLA INC.

"Most large companies have a bucket of legacy spaghetti, [and] the promise of BI is diluted because of the difficulty of getting to the spaghetti," he said. "Without a tool that lets you quickly interrogate these things, normalize data and express it a layer above the spaghetti, you're doing a lot of heavy lifting."

Beachwood, Ohio-based Penske Logistics LLC uses technology from Attunity and Business Objects to offer its customers more real-time information on delivery or pickup times, said Thomas Nather, a senior systems analyst at Penske.

"It opens up another venue for BI," he said. "To keep inventory low, you have to know where the rolling inventory is."

Owens Corning, a Toledo, Ohio-based manufacturer of building materials, uses integration technology from Ascential combined with Kalido Ltd.'s BI software to generate daily gross margins from multiple ERP systems, said Klaus Mikkelsen, Owens Corning's global development leader.

Before using the joint solution, the company could only access margin information monthly. "Now, we have the ability to generate gross margin information every day, giving us 365 opportunities for course correction," he said.

NStar, a Boston-based electric and gas utility, uses Ascential's QualityStage integration software to transform real-time customer location data into reference data for dispatchers analyzing service outages.

That data can also be used in combination with BI tools for later analysis of maintenance work and improvements that are needed in the utility's distribution system, said Mannie Goldberg, NStar's director of data resource management. **51519**

3Com Acquires TippingPoint

3Com Corp. last week bought TippingPoint Technologies Inc., a developer of technology for preventing attacks on computer networks, for $430 million in cash. 3Com said it plans to add TippingPoint's UnityOne line of network-based intrusion-prevention system hardware and software to its stable of enterprise security products.

IBM, AMD Develop Chip Technology

IBM and Advanced Micro Devices Inc. last week unveiled plans to jointly develop a method for implementing strained silicon technology on positive and negative transistors. The new manufacturing technique, dubbed dual-stress liner, is designed to improve the performance of processors starting early next year. The technology will be integrated into AMD's Opteron and Athlon 64 processors and IBM's Power processors by mid-2005.

Microsoft Ships PC Search Tool

Microsoft Corp. joined the desktop search fray last week with the beta-test version of a suite designed to let users find information stored in PCs. The MSN Toolbar Suite also includes tool bars for searching hard disk drives. The suite can index and retrieve Microsoft Outlook, Word and PowerPoint files as well as Adobe PDF files.

Symantec Invests In Mazu Networks

Symantec Corp. was among the investors in a $12 million round of financing raised by Mazu Networks Inc., a maker of network intrusion-prevention technology. The investment comes a week after Symantec bought Platform Logic Inc., another maker of intrusion-detection software.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL

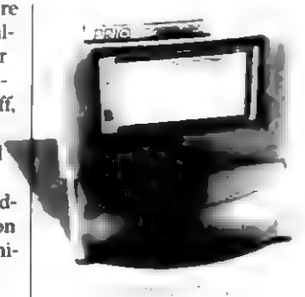


Tool Targets Web App Coders . . .

. . . who are juggling non-Java components in the pure Java world of Eclipse, the popular open-source development framework. The NitroX 2.0 plug-in from M7 Corp. in Cupertino, Calif., lets Eclipse users manage Java code as well as the non-Java components that are common in Web-based programs, such as HTML code. Carlos Chang, a senior product manager at M7, claims that the upgraded version of NitroX is better for debugging JavaServer Pages (JSP) than Eclipse is by itself. "Eclipse can't work with JSP pages because they're not pure Java," he says. Chang points out that Web applications are much more complex than pure J2EE programs, and he contends that managing dependencies among JSPs, configuration files, HTML code and many more Web-specific elements is a burden for software developers. NitroX 2.0 can scan all of a Web application's code, then map the dependencies of each component and point a developer to the exact lines of code that create the dependencies. In addition, the tool's WYSIWYG editor supports multiple languages; for example, you can see how localizing Web pages can affect their layout. Chang notes that converting text originally written in English to German can lengthen a page by 20%. The upgraded NitroX software starts at $299 and is due to ship next week.

Tiltable LCD monitor flips image. . .

. . . when it's turned over. That's the clever bit of technology in a pair of 17- and 19-in. LCD panels that LG Electronics U.S.A. Inc. will introduce next month at the Consumer Electronics Show in Las Vegas. The displays are attached to a pedestal that allows them to be flipped over to face in the opposite direction. According to Chris Neff, director of marketing at the Englewood Cliffs, N.J.-based division of LG Electronics Inc., a user can open a spreadsheet or a Word document on his PC and then flip the monitor to show the information to someone sitting on the other side of a conference-room table. The image on the screen will automatically right itself so it can be viewed properly, Neff says. However, LG doesn't expect the flipping capability to be the main attraction for users. "It's the razor sharpness of the display that wins folks over," Neff says. LG's proprietary graphics chip automatically adjusts color depth, reducing pixel image-adjustment response time to a speedy 12 milliseconds. Pricing will start at under $450, which is pricier than CRTs are, to be sure. But, Neff points out, "this is what you stare at all day. It should be the most important technology you get."



Estimated number of U.S. residents who use a computer at least four hours a day.
SOURCE: NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

On the other hand, John Torrey argues that you need to treat your eyes better than merely giving them a good display. Torrey, CEO of Prio Corp. in Beaverton, Ore., says users should test how their eyes work with specific computer monitors to avoid productivity-draining eyestrain. He wonders why so many companies send in ergonomic experts to adjust employees' workstation areas but seldom test how a person's eyes perform while viewing a computer display. That's probably because there are so many eyes to evaluate. The National Institute for Occupational Safety and Health estimates that 100 million pairs of them spend at least four hours a day in front of monitors. That results in some problems. The American Optometric Association says as many as 75% of end users suffer from computer vision syndrome, which can include classic eyestrain symptoms like blurred distance vision and burning eyes as well as neck and back pain from adjusting your sitting position to compensate for seeing the screen poorly. Torrey says the biggest problem is that no matter how high a monitor's resolution is, it doesn't deliver the edge detection necessary for the human eye to focus on objects within 10 feet. That means the eye is constantly readjusting itself to see the edge of the text on a computer display, he says. Torrey claims that his company's Prio Vision Tester, available at many eye clinics and optometrists' offices, can determine how your vision can be corrected for computer work. You should, um, look into it for your IT staffers.

51479



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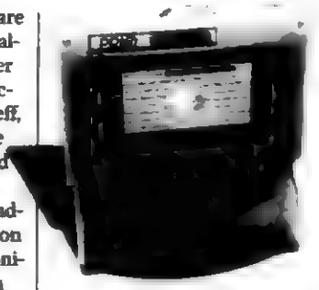
MATTHEW FAULKNER

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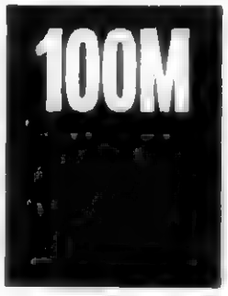
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LG's tilting LCD display

51479

New Cisco Appliance Consolidates Backup

Can move local backup function to data center

BY LUCAS MEARIAN

Cisco Systems Inc. last week unveiled a file-based data-sharing appliance that can consolidate management of distributed file and print services within branch offices and move the local backup function to a central data center.

The Cisco File Engine appliance uses the company's so-called wide-area file-services technology to create a single global namespace for file and print services over a WAN. The technology also uses caching algorithms to create LAN-like performance for data retrieval.

IT administrators can also use the 1U (1.75-in.-high) File Engine appliance to consolidate all branch-office data backup into central file servers in the main data centers, removing the need for local tape backup devices and administration at each remote location.

Vanasse Hangen Brustlin Inc. (VHB), a 700-person engineering firm in Watertown, Mass., purchased three File Engines and has submitted requests for 15 more in order to streamline file sharing among engineers in more than a dozen East Coast offices, said Greg Bosworth, manager of information technologies at the company.



THE CISCO FILE ENGINE comes in an edge or core appliance. It offers file and metadata caching, protocol-specific latency reduction, native end-to-end CIFS/NFS support and Web-based central management.

Currently, VHB uses Windows 2000 file servers and local folders to document changes to engineering projects. The changes must be kept in order throughout the life of a project, which can last years. Archiving changes after the completion of a project is a time-consuming operation, according to Bosworth.

"Trying to have people keep documents in sync between offices is just a manual process right now," he said.

Keeping ownership and access under control has also been a challenge, Bosworth said. "The files are 10MB to 15MB or larger, and working with those over a T1 line is not practical," he said.

The File Engine controls access and addresses performance problems normally found with standard file-access protocols, such as Common Internet File System for Microsoft Windows environments and Network File System for Unix environments, over the WAN.

Peter Gerr, a senior research analyst at Enterprise Strategy Group Inc. in Milford, Mass., said remote file and print data management is a huge concern today, because up to 70% of a company's data resides in distributed offices.

"As data protection has become more important because of compliance, corporate governance and security, it's only natural for users to focus on data protection investments where they're most needed, and they're most needed out on the edge," Gerr said.

Cisco is competing against start-ups such as Tacit Networks Inc., Riverbed Technology Inc., Disksites Inc. and Expand Networks Inc. in the WAN file-sharing business. Some of those companies are optimizing network bandwidth, while Cisco and Tacit products reduce the amount of data moving through that pipe by sharing a single copy of a file and thus eliminating duplication.

The File Engines are priced at $12,000 for up to 50 branch-office users and $4,500 for additional 50-user license packs. The product is now shipping. **51494**

BACKING UP THE EDGE

More on data center efforts to gain control over branch-office backups:

QuickLink 48547
www.computerworld.com

In Downturn's Aftermath, Cisco Sharpens Its Technology Focus

Executive says vendor has cut costs, become more realistic about strengths

BY MATT HAMBLEN

***Mike Volpi** is senior vice president and general manager of the routing technology group at Cisco Systems Inc. Following Cisco's annual analyst conference in San Jose this month, Volpi spoke with Computerworld about the changes the company has undergone since the bursting of the dot-com bubble. Excerpts follow.*



How many companies has Cisco acquired in all? About 100, with 75 [of them] between 1996 and 2000. We were growing like gangbusters. When I started [in 1994], Cisco had about 1,600 people, and in 2000, we had 55,000 employees. Our revenues had gone all the way to $23 billion. Some growth was acquisitions, and some was because of technology developed organically inside of Cisco. IT was just exploding.

And then the bubble burst. In 2001, things went south for the entire industry. Money disappeared, the bubble burst, people stopped spending, service providers went away. Our record quarter was $7.2 billion, and that dropped to $4 billion-plus.

We had layoffs, really tough — almost 9,000 at once.

So what happened next? For a while, we were searching for bottom because there was this feeling of, "How far will we actually fall?" I felt we had gotten to the bottom by the summer of 2001. Then it became [an issue of] transforming the company, because every aspect of the company had been geared towards growth, and we didn't have any great cost controls. Everything was very decentralized. Along with the layoffs, we did a restructuring where we recentralized a lot of functions. We decided to cut costs in marketing and engineering, exited several business areas and shut down product lines.

What are some of the technologies Cisco stopped offering? We exited a bunch of wireless areas, also DSL [and] long-haul optical. That was tough because all of those theoretically had promise. Looking back now, it might seem obvious why we exited areas. Why would anybody buy any more optical gear? you might say. But at that time, in 2001, we had no idea. You had to make these decisions amidst a lot of uncertainty.

There was a question in 2001 of whether we should even stay in the service provider business at all. Today, people will say, "What, are you insane?" But back then, it was a valid question. At the peak, before the downturn, close to 40% of our revenue was from service providers. And it had dropped down to 15%.

And it's about 25% of your revenue now? Yes, we've been clawing our way back to a good position, and we can do more.

Do you think service providers will ever become so effective that they'll be more trusted than internal IT is? If you talk about smaller businesses, they don't have an IT guy — and if they do, it's probably a kid out of college. In those circumstances, service providers do have an opportunity to create value. But big businesses will continue to do IT on their own and simply buy connectivity.

What was the process that brought Cisco back, from an overall standpoint? There were a lot of changes in 2001. From there, it was just tighten your belt really hard and wait for the market — weather the storm and see what's going to happen. That was through 2003, and we made virtually no acquisitions, didn't invest in new stuff hardly at all.

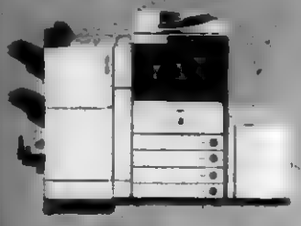
In 2003, we saw gradual improvements in the U.S. economy, and consumer confidence started going up, and so we started branching out a little more with a few acquisitions here and there, starting new product development, hiring a handful of people.

We have a better realization of what we can and cannot do as a company. Back in 2000, we all felt invincible. Now, we have the attitude that we know how to do certain things well and we don't do these other things well, so let's not do those things. We feel we still have to stay tight with belts because the climate's not great, but we feel like "not great" can continue for a while and we'll be OK. **51502**


7:02 am



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BRIEFS

CSC Sells DynCorp Unit for $850M

Computer Sciences Corp. last week agreed to sell its DynCorp International services unit to The Veritas Capital Fund LP, a private equity firm, for $850 million. CSC bought the business two years ago. CSC said it made the deal, which is expected to close next spring, so it can focus on the government IT market.

SAP Offers Remote Security Evaluation

SAP AG is offering its customers a new security service. As part of its Security Optimization Service, SAP performs remote evaluations of customers' systems, searching for vulnerabilities in SAP applications, middleware and Internet gateways, as well as interfaces to partners' systems and user authorizations. Following the evaluation, SAP will suggest fixes.

Time Warner, U.S. Settle AOL Charges

Time Warner Inc. will pay the U.S. government $210 million to settle charges that its America Online Inc. unit fraudulently inflated revenue figures, court documents showed. Time Warner is also expected to pay about $300 million to settle civil charges by the U.S. Securities and Exchange Commission related to its buyout of an AOL stake held by Bertelsmann AG, a source said. The charges will be dropped in 24 months if AOL follows the terms of the deal.

Neon Acquires Rival ClientSoft

Neon Systems Inc. last week acquired ClientSoft Inc., a maker of mainframe integration tools, for $10.5 million in cash and the right to acquire 1.125 million shares of Neon stock. Neon said the move increases its customer base by more than half, to almost 500 sites, and adds depth and mainframe Web services expertise to its services operation.

Longhorn Will Let Users Tune Windows for Different Servers

Microsoft executive sees role-based configuration as key feature of new OS

BY CAROL SLIWA

MICROSOFT CORP. officials last year highlighted three new subsystems as the key pillars for the next major release of Windows — WinFS for data storage, Avalon for 3-D graphics and Indigo for building advanced Web services. The company disclosed in August that WinFS won't be part of the next release, which is code-named Longhorn [QuickLink 49244]. But **Bob Muglia**, senior vice president of Microsoft's Windows Server division, told *Computerworld* during an interview this month that role-based configuration tools "were always the most important feature set that I thought was going into" the server version of Longhorn, which is due in 2007. Excerpts from the interview follow.



How do you respond to people who say you've gutted the heart and soul of Longhorn by removing WinFS? For me, the heart and soul of Longhorn in the server was always about how we really refocus on role-based configuration and provide that level of flexibility to our customers. WinFS will be a great feature in the operating system when we deliver it. This is a new thing nobody's ever done before, and when you build technology like that, being certain about the exact date you can deliver it is hard to do. So I feel great about WinFS. [But] I feel great about Longhorn without WinFS.

What will users be able to do in Longhorn that they can't already do in Windows Server 2003 with respect to role-based configuration? Let me give you an example. An enterprise can use the role-based configuration tools to build [system] images that have just the roles on it that they want, and then they can deploy those images to the appropriate servers. That's a key feature that our [corporate customers] have been asking for: being able to really build customized images that target a given server. With role-based configuration, you could build a server that was just a networking server that only had DHCP and DNS on it as well as the core operating system. And you can't do that today.

The other thing we're doing is all sorts of enhancements around the roles in terms of improving task management and managing overall, which is really appropriate to all segments of the marketplace.

So a customer could configure an application server, a rights management server or an Active Directory federation server? Right.

Will you develop different versions of Longhorn geared toward different roles, or will users just gain the ability to customize the software? This is an enterprise discussion, just to be clear. This is not a medium business and certainly not a small business discussion. But in the enterprise space, customers want the flexibility to buy one version of the operating system and acquire the number of licenses they need for it. And then they want the flexibility to deploy that with just the services on it that they need, and they'll configure those images. And those large customers are very, very comfortable with image-based deployment.

The other trend to note is the increase of blades. Blades are the fastest-growing segment of the server marketplace, and this level of flexibility around role-based configuration is quite consistent with that trend.

Will you still offer standard and enterprise editions? Yes. We haven't finalized our packaging yet, but we still will have a couple of editions, and you'll be able to do some new roles. For example, you'll be able to build a clustered image on an enterprise [server] that you can't do with standard [ones].

Beyond WinFS, have any other features been dropped from Longhorn? The truth of the matter is that I'm sure there's lots that I don't know of. There's so much functionality that we'll be coming out with. It's a little early for us to talk about all the specifics that are there or aren't there. We'll figure out some of these specifics over time. 51537

Microsoft Pushes Back Longhorn Server Beta

WINDOWS users who are anxious to get their hands on the first beta release of the Longhorn server will have to wait a bit longer than expected.

Earlier this year, Microsoft projected that the initial beta of the server version of Longhorn would emerge in the first half of next year. But now the company is saying that the beta code is due in the second half of 2005.

"We feel good about that date, and we'll drive forward to that beta process," Bob Muglia, senior vice president of the Windows Server division, said this month. "We clearly have more clarity on Longhorn beta dates [now]."

In the meantime, Microsoft this month made available "release candidate" versions of Windows Server 2003 Service Pack 1 and a companion release of SP1 targeted specifically at systems based on Intel Corp.'s 64-bit Itanium processors. Commercial shipments of the SP1 releases are officially scheduled to start in the first half of next year, but Muglia said he expects the updates to be ready by March.

Also this month, Microsoft put out the first beta of an interim Windows Server 2003 release, code-named R2, that bundles together various feature packs it has made available for the operating system. A second beta of R2 is due in the first half of 2005, and the commercial release is expected in the second half, according to Muglia.

R2 will replace the initial version of Windows Server 2003, but Muglia said existing Windows Server 2003 users should move to R2 only if they need the new features that it incorporates. "We're not asking people to upgrade," he said.

Muglia said users will still be able to purchase existing products such as the Visual Studio 2005 runtime and SharePoint Services separately from R2. "But in general, our goal moving forward is to incorporate those things into these update releases," he said.

Microsoft also plans to ship R2 editions of Windows Storage Server and Windows Small Business Server in the second half of next year, as well as the Windows Server 2003 Compute Cluster Edition, Muglia said.

– *Carol Sliwa*

Banks Moving to Change Out Core Systems

Web-enabled apps supplant aging Cobol platforms

BY LUCAS MEARIAN

After coddling aging core systems for decades, many top-tier banks are planning or implementing change-outs of old Cobol-based platforms with open, Web-enabled applications. The core systems support the most basic bank functions, such as savings and checking accounts and lending systems.

The upgrades are being driven by an improving economy, growing regulatory requirements and recent moves to unbundle packaged applications, allowing for piecemeal, and thus cheaper, replacement of older platforms, said Gartner Inc. in Stamford, Conn.

Updating back-office systems can cut banks' IT operating budgets by 5% to 8% through improved efficiency, said research firm Celent Communications LLC in Boston.

About 23% of all U.S. banks are planning major initiatives related to core banking systems, according to Gartner. U.S. banks lag behind financial institutions in other parts of the world such as Europe, where banks are pressed to change by new European Union rules, Gartner said.

Fifth Third Bancorp, a $6.4 billion bank with 950 branches and more than 20,000 employees, replaced its mortgage-origination and leasing systems with packaged software from from Fiserv Inc. in Brookfield, Wis., over the past two years. Fifth Third used Fiserv's UniFi Pro Mortgage software to replace a green-screen application that was no longer supported because the supplier went out of business.

The success of the new software prompted the Cincinnati-based bank to look closely at replacing more core systems.

Gary Porter, vice president of IT mortgage servicing at Fifth Third, said developers couldn't keep up with required product-development cycles on the older systems. "Today, we can bring a new product to market in weeks," he said. "With our old legacy system, it would take months."

Fifth Third officials also cited increasing regulatory oversight of the financial services industry in the form of the Sarbanes-Oxley Act and the USA Patriot Act as a reason for choosing a third-party provider.

New York-based Citibank is in the midst of a project to migrate its core mainframe-based banking application, called Cosmos, to a common system built with hardware from Hewlett-Packard Co. and running the packaged Flexcube banking application from i-Flex Solutions Ltd. in Bangalore, India.

Citibank officials, who couldn't be reached last week, previously told *Computerworld* that the project was undertaken to replace a decades-old set of back office systems in overseas offices with a single platform and a cross-border set of standard user interfaces and business processes [QuickLink 26921].

The 4-year-old project, estimated by Celent to have cost about $100 million so far, is now live in 50 of the 90 countries where Citibank has offices. Citibank is spending about $35 million per year on the project, Celent said.

Developing Partnerships

Some recent partnerships have led to changes in the traditional one-size-fits-all approach for banking applications that forced large banks to spend hundreds of millions of dollars or more to upgrade back offices over the past six to eight years.

Several major service providers and makers of core banking systems have joined to create bundled software/services products for operations such as customer account management, lending or billing. For example, IBM last month brought out a J2EE version of Flexcube.

That IBM/i-Flex partnership caught the interest of Ken Casey, senior vice president of retail banking delivery at ATB Financial, an Edmonton, Alberta-based bank. Casey has started to look at options for replacing a 25-year-old IBM mainframe-based core banking system.

ATB, which manages over $14 billion in assets, has already taken on a $17 million rewrite of its teller system, which included replacing 1,000 terminals with PCs. The Java-based systems are gradually replacing Cobol systems, said Casey. ATB, a midsize bank, has 4,500 employees. **51513**

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Symantec

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With the acquisition, "it's time to stop thinking of Symantec as a security vendor and [view it] more as the Wal-Mart of the cyber industry," said Dave Jordan, chief information security officer for the Arlington County government in Virginia. "They're flush with cash, they have top-of-the-line products, and they are at the top of their game."

The county currently uses storage hardware and software from EMC Corp. But Jordan said the addition of Veritas may enable Symantec to bundle storage software with its security tools at a more competitive price than what EMC charges.

However, Symantec's challenge will be to find a way to bring together all of its products under a common management interface and architecture, said Lloyd Hession, chief security officer at Radianz, a New York-based company that provides network services to financial services firms.

"Symantec hasn't effectively integrated the portfolio of security products it already has," Hession said. "Adding the Veritas products won't address this problem and arguably will make it worse."

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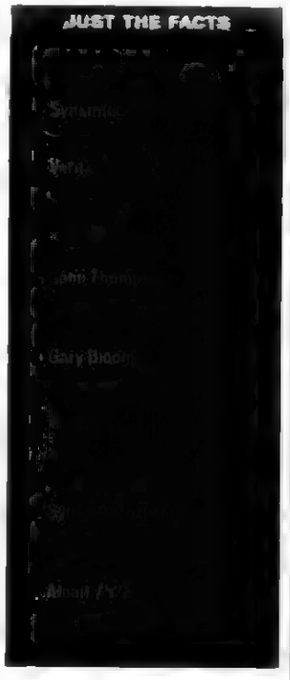
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Symantec CEO John Thompson said during a teleconference on Thursday that the Cupertino, Calif.-based company plans to release a product integration road map after the deal is completed in next year's second quarter. "We have an enormous opportunity to leverage each other's technology strengths," he said. "There's no overlap in strategic product lines or R&D."

'Mixed' Merger Record

But Gartner Inc. analyst John Pescatore said Symantec has "a very mixed record" on integrating previous acquisitions into a cohesive product line.

For instance, its purchases



of Axent Technologies Inc. in 2000 and RipTech Inc. two years ago haven't panned out, according to Pescatore. "If I was a Symantec customer, I would be looking at those acquisitions," he said.

Steve Hunt, an analyst at Forrester Research Inc., said the move to acquire Mountain View, Calif.-based Veritas is consistent with Symantec's new information integrity strategy, which focuses on software that can give IT managers a more holistic view of the operational and security risks that their systems face [QuickLink 50416]. "Symantec is reinventing itself as an enterprise risk management company," Hunt said.

The company needs to grow in other areas because of increased competition in the IT security market, said Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa.

For instance, Microsoft is working to integrate antivirus functionality into Windows. And just last week, it announced the acquisition of Giant Company Software Inc., a vendor of antispyware tools (see story, page 6).

In addition, Cisco and other networking vendors are building expanded security functions into their routers and switches, which are expected to further dilute the demand for stand-alone security software.

The merger of Symantec and Veritas is "an acknowledgment that there's just too much ambiguity in the security space to grow a huge company," Lindstrom said. "You need something a little more solid and foundational. Backup software is recession-proof." **51524**

Reporter Lucas Mearian contributed to this story.

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GLOBAL DISPATCHES

An International IT News Digest

India to Build Center For Bio-IT Industry

BANGALORE, INDIA

Already successful in IT outsourcing, India is now targeting the market for bioinformatics, which uses technology to discover new drugs and analyze genetic markers. The Indian government plans to set up a $22 million bio-IT business park that's envisioned as a global hub for companies in the life sciences industry, according to Dayanidhi Maran, the country's minister for communications and information technology.

Some Indian software and services companies, including Bangalore-based Wipro Ltd., have diversified into services that are related to bio-IT, although that business still constitutes only a small percentage of their revenues. India is also home to bio-IT companies such as Strand Genomics Pvt., a vendor of software for use in drug discovery and development work.

The first phase of Bio-IT Park is scheduled to be completed by 2006, and the second phase will follow by 2009. Possible locations for the 100-acre campus include Bangalore, Hyderabad, Chennai, Delhi, Kolkata and Pune.

■ JOHN RIBEIRO, IDG NEWS SERVICE



IBM Buys Online Procurement Market

IBM last week said it will acquire KeyMRO, a company based outside Paris that operates an e-procurement marketplace. The deal is aimed at boosting IBM's ability to provide outsourced procurement services to customers in Europe and North America. Financial terms weren't disclosed.

KeyMRO, which has a U.S. subsidiary in Florence, Ky., is a joint venture among three industrial companies in France: Schneider Electric SA, Rhodia and Thomson. IBM said it will provide procurement services to the founding companies for seven years after the acquisition is completed.

The purchase of KeyMRO is part of IBM's expansion into business process outsourcing, said Dominique Raviart, an analyst at Ovum Ltd. in London. KeyMRO buys nonmanufacturing goods such as IT hardware and office supplies, as well as travel, maintenance and professional services.

The procurement operation will be integrated with IBM's Business Consulting Services unit.

New Indian Bank Taps Wipro for All IT

Wipro Infotech, the Wipro unit that provides outsourcing services to companies based in India, last week announced a seven-year contract to handle all IT operations for Yes Bank Ltd., a new private bank in Mumbai. The value of the contract wasn't disclosed.

The outsourcing deal covers all of the bank's hardware, branch-office systems, networks, data center operations and backup procedures with "stringent service-level guarantees" and round-the-clock technical support, Wipro said in a statement.

The contract is based on a pay-per-use model, so IT capacity and expenditures can grow on a predictable path as the bank's business grows, according to Wipro officials. **51480**

Compiled by Mitch Betts.

Briefly Noted

will launch a parliamentary inquiry next year into the feasibility of electronic voting and electronic voter registration. The Constitutional Affairs Committee in the House of Commons is requesting that public testimony be submitted by Jan. 14.

■ LAURA ROHDE, IDG NEWS SERVICE

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NYSE

will ultimately include 3,000 handheld devices custom-designed by IBM and linked over a wireless network to Linux workstations and HP-UX servers and to a mainframe-based back-end system running IBM's WebSphere middleware, DB2 databases and Tivoli management software.

IBM beat out bids by BEA Systems Inc. and Microsoft Corp. for the contract, said Willy Chiu, vice president of IBM's On-Demand Solutions Lab. Terms of the deal weren't disclosed, though Chiu said it was worth many millions of dollars and can be counted among the three most valuable IT contracts ever awarded by the exchange. Analysts estimated its worth at between $100 million and $200 million.

The IBM contract represents the first time the NYSE has used a third-party developer to build a trading system. Roger Burkhardt, the NYSE's chief technology officer, said he's "very happy to be out of the business of writing middleware." The IBM work won't result in IT layoffs, he said.

Work on the back-end system has been completed, and 650 of the handheld devices have been distributed so far, Chiu said.

Response to Pressure

The NYSE has been under pressure from all-electronic exchanges such as the Nasdaq Stock Market, which can perform trades faster. With this move, the venerable stock exchange is moving to become a hybrid that allows electronic trading and traditional floor trading to take place side by side.

"Part of the role of technology at New York Stock Exchange is to handle increasing volume with the same number of people," Burkhardt said. He said the NYSE and IBM put the new system through the most exhaustive tests ever undertaken at the exchange for any technology, spending more than a year testing before going live last month.

The NYSE's TradeWorks order management system replaces the Broker Booth Support System, which was based on C++ and built internally to connect floor traders to the brokerage back offices that executed the trades. The old system allowed brokers to send only one message at a time and didn't allow links to more than one system. TradeWorks can send three messages per second to telemarketers, broker-dealers and customers.

The older handhelds were consumer-grade products that required hourly battery changes and weren't tightly integrated with the back-office systems. The new handhelds offer more-powerful batteries, larger screens and 40 times more throughput than the earlier devices, Chiu said.

Under the new system, floor traders send data to traders, brokers and clerks using floor-based workstations to relay real-time market data from the exchange floor to trading desks upstairs. Data backup is managed by IBM's Tivoli software. A record of trades and customer information is captured in a DB2 database on an IBM zSeries mainframe on the back end, Chiu said.



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DON TENNANT

Inconsiderate Considerations

I WAS TALKING the other day with Damien Bean, former vice president of corporate systems at Hilton Hotels, about last week's $10.3 billion Oracle/PeopleSoft merger. Bean, a poster-child PeopleSoft user while at Hilton,

summed up his thoughts on the deal in the form of an analogy: "It's Sperry buying Burroughs all over again," he said. "You've now got two fundamentally competing approaches to design and architecture and everything else. Size was a goal in and of itself, and the amalgamation of product lines was a secondary consideration."



DON TENNANT is editor in chief of *Computerworld*. You can contact him at don_tennant@computerworld.com.

I love the analogy, because I think it's spot on. Except in this case, I doubt seriously that integrating the product lines ranks as high as No. 2 on the considerations list. In fact, I'd venture that Oracle's top-five list looks something like this:

No. 1: Boost Larry Ellison's ego.

No. 2: Boost Larry Ellison's stature.

No. 3: Boost Larry Ellison's bank account (and those of his co-execs).

No. 4: Diminish SAP's dominance in the business applications market.

No. 5: Further marginalize already marginal Unix databases. (If you're running PeopleSoft on Sybase or Informix, don't expect your PeopleSoft reps to be quite as chummy as they were before.)

Of course, what's important isn't what it means for Ellison, but what it means for the merged companies' users. The best thing about last week's deal, from a user perspective, is that at least some of the uncertainty is over. We knew when PeopleSoft CEO Craig Conway got the boot in October [QuickLink 49819] that the deal was going to happen — no one could possibly have thought that the grandfatherly Dave Duffield, the company co-founder who took back the CEO title after having held it for the first 12 years of PeopleSoft's history, was equipped to battle Ellison. Yet, there was still no telling when it would happen — the acrimonious merger "discussions" could easily have dragged on interminably. At the same time, there's surely just as much uncertainty now as there was before about whether Oracle will live up to its promises to properly support PeopleSoft customers, and about exactly how the two product lines will be positioned and ultimately integrated.

Or *whether* they'll be integrated, for that matter. As Bean noted during our discussion, the approaches that Oracle and PeopleSoft take to systems design are fundamentally different. While Oracle builds applications very close to its core database technology with stored procedures and triggers, PeopleSoft relies on a lot more code to enable its apps to run on multiple platforms. Reconciling that in the near term would be awfully tough, so PeopleSoft users will have to hope that Oracle is serious about supporting their apps as a separate product line.

That's why a lot of smart PeopleSoft shops have already upgraded to the most recent version of the application suite. They have the luxury now of sitting back and waiting for the dust to settle, which could take a while because the dust storm will probably be pretty intense. For one thing, it's unlikely that an efficiently functioning joint management team — a prerequisite for any real hope of successfully integrating the companies — is going to be formed anytime soon. Users can expect to see an exodus of PeopleSoft execs who have made no secret of their distaste for working with Conway and who will find that Conway was just a Larry Ellison Mini Me when it comes to obstinacy and egoism.

Unfortunately, users don't appear to have gotten a whole lot of consideration through any of this. And that's a considerable concern if ever there was one. **51488**

Don Tennant



DAVID MOSCHELLA

In-house IT Still Jacks of All Trades

DURING THE 1960s and '70s, vendors such as IBM, Burroughs, Sperry and NCR were largely vertically integrated companies. They built hardware, wrote software, and sold and serviced their own systems. This go-it-alone model enabled the IT industry to prosper and grow into a giant global business.

But during the 1980s, a more specialized approach took hold, with suppliers focusing on particular layers of a newly emerging IT industry value chain — Intel in microprocessors, Compaq in PCs, Microsoft in software, Cisco in networking, Seagate in storage. This new, horizontal model came to dominate the IT business, and the old, vertically integrated systems companies largely faded away.



DAVID MOSCHELLA is global research director at CSC Research and Advisory Services, a Computer Sciences Corp. company. Contact him at [redacted]

During the 1990s, the horizontal model spread to the telecommunications segment of the IT industry. Most notably, the massive, vertically integrated company that was once AT&T began to break apart, as each piece of the telecom business — equipment and local, long-distance and wireless services — emerged as a distinct entity, and once again a layered value-chain model took hold. Today's AT&T is but a shadow of its once great self, and eventually it could vanish altogether.

In both computers and telecommunications, the resulting horizontal industry structures proved to be both more efficient and more innovative, as intense competition and powerful scale economies generally took hold. It's highly unlikely that the marvels of today's PC, Web and mobile industries would ever have emerged so quickly if the older, vertically integrated structures had stayed in place.

This history remains relevant because there's one big part of the IT industry that still has many characteristics of the vertically integrated era, and

DON TENNANT

Inconsiderate Considerations

I WAS TALKING the other day with Damien Bean, former vice president of corporate systems at Hilton Hotels, about last week's $10.3 billion Oracle/PeopleSoft merger. Bean, a poster-child PeopleSoft user while at Hilton,



summed up his thoughts on the deal in the form of an analogy: "It's Sperry buying Burroughs all over again," he said. "You've now got two fundamentally competing approaches to design and architecture and everything else. Size was a goal in and of itself, and the amalgamation of product lines was a secondary consideration."

I love the analogy, because I think it's spot on. Except in this case, I doubt seriously that integrating the product lines ranks as high as No. 2 on the considerations list. In fact, I'd venture that Oracle's top-five list looks something like this:

No. 1: Boost Larry Ellison's ego.

No. 2: Boost Larry Ellison's stature.

No. 3: Boost Larry Ellison's bank account (and those of his co-execs).

No. 4: Diminish SAP's dominance in the business applications market.

No. 5: Further marginalize already marginal Unix databases. (If you're running PeopleSoft on Sybase or Informix, don't expect your PeopleSoft reps to be quite as chummy as they were before.)

Of course, what's important isn't what it means for Ellison, but what it means for the merged companies' users. The best thing about last week's deal, from a user perspective, is that at least some of the uncertainty is over. We knew when PeopleSoft CEO Craig Conway got the boot in October [QuickLink 49819] that the deal was going to happen — no one could possibly have thought that the grandfatherly Dave Duffield, the company co-founder who took back the CEO title after having held it for the first 12 years of PeopleSoft's history, was equipped to battle Ellison. Yet, there was still no telling when it would happen — the acrimonious merger "discussions" could easily have dragged on interminably. At the same time, there's surely just as much uncertainty now as there was before about whether Oracle will live up to its promises to properly support PeopleSoft customers, and about exactly how the two product lines will be positioned and ultimately integrated.

Or *whether* they'll be integrated, for that matter. As Bean noted during our discussion, the approaches that Oracle and PeopleSoft take to systems design are fundamentally different. While Oracle builds applications very close to its core database technology with stored procedures and triggers, PeopleSoft relies on a lot more code to enable its apps to run on multiple platforms. Reconciling that in the near term would be awfully tough, so PeopleSoft users will have to hope that Oracle is serious about supporting their apps as a separate product line.

That's why a lot of smart PeopleSoft shops have already upgraded to the most recent version of the application suite. They have the luxury now of sitting back and waiting for the dust to settle, which could take a while because the dust storm will probably be pretty intense. For one thing, it's unlikely that an efficiently functioning joint management team — a prerequisite for any real hope of successfully integrating the companies — is going to be formed anytime soon. Users can expect to see an exodus of PeopleSoft execs who have made no secret of their distaste for working with Conway and who will find that Conway was just a Larry Ellison Mini Me when it comes to obstinacy and egoism.

Unfortunately, users don't appear to have gotten a whole lot of consideration through any of this. And that's a considerable concern if ever there was one. **51488**

Don Tennant



DAVID MOSCHELLA

In-house IT Still Jacks of All Trades

DURING THE 1960s and '70s, vendors such as IBM, Burroughs, Sperry and NCR were largely vertically integrated companies. They built hardware, wrote software, and sold and serviced their own systems. This go-it-alone model enabled the IT industry to prosper and grow into a giant global business.

But during the 1980s, a more specialized approach took hold, with suppliers focusing on particular layers of a newly emerging IT industry value chain — Intel in microprocessors, Compaq in PCs, Microsoft in software, Cisco in networking, Seagate in storage. This new, horizontal model came to dominate the IT business, and the old, vertically integrated systems companies largely faded away.



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This history remains relevant because there's one big part of the IT industry that still has many characteristics of the vertically integrated era, and

that, of course, is the corporate IT organization itself. In-house IT organizations are still largely in the business of building systems, writing software, installing networks and providing the necessary support services.

Indeed, in many ways, customers have inherited the downside of today's horizontal supply-side model. There are now plenty of good products and services to buy, but the burden of integration has fallen mostly to the user. Unfortunately, the combination of legacy code and overwhelming complexity in most IT environments has made the modern IT organization the least-efficient IT industry sector. Many organizations are drowning in necessary but low-value work.

Today, there are few more important IT industry questions than if and when the power of the horizontal model will come to define the customer side of the IT business. Clearly, some movement in this direction is now occurring. ASPs, utility computing, software as a service, contract services, Web services, outsourcing and the use of the public Internet are all examples of how specialized providers can take over work that otherwise would have been done in-house.

But compared with the supply side of our business, the rate of change has been much less dramatic. There haven't been any landscape-altering equivalents to the launch of the IBM PC or the deregulation of the telecom industry. It's hard to imagine what such an equivalent might actually look like.

Recently, there's even been a bit of a backlash, with some companies promoting the virtues of keeping all IT work in-house. That says a lot about the state of today's overly complicated IT industry. But until customers can acquire, use and integrate information technologies as efficiently as suppliers can build them, the user community will continue to bear the bulk of IT industry frustration. There's no bigger IT industry challenge. **51412**

PIMM FOX

Microsoft Plays the Ethics Card

LONDON

I'M NOT A BIG FAN of people who use pirated software, and I have managed in the course of my online life never to have shared or downloaded a song or movie.



But does this make me more ethical than the 43% of the British public who admitted that they own counterfeit goods, or the 23% who said they willingly have bought pirated software?

I don't know. It just seems to make me confused, because I find myself on the side of a mega-multinational software vendor in its defense of intellectual property rights, even as I find myself doubting its claims that pirated software means lost revenue for the U.K. government. According to Microsoft, when those Britons buy pirated software, it's not just the company that suffers; no, the British government and all that it supports are hurt, too, because no taxes are paid. This seems reasonable enough, but there's more to it than that, as I'll explain.

Believe it or not, Microsoft is likening itself to small-scale coffee growers in Third World countries.

What's behind this? A Microsoft-sponsored survey by YouGov that basically proves that people are a bundle of contradictions.

On the one hand, 89% of the sample group said they perceive themselves to be ethical consumers, defined in the survey as people who try to buy free-trade coffee and non-genetically-modified food. But a lot of people in this group still don't seem to mind using the odd bit of pirated software. Microsoft is trying to make the connection between itself and coffee growers, claiming that there is a double standard when it comes to software and free trade.

Ah, contradictions and double standards — two topics that Microsoft happens to be an expert on.

About those taxes. Microsoft makes software in the Republic of Ireland, where taxes on profits are lower than those in the U.K. The U.K. operations are really just a marketing vehicle for Microsoft software.

So would buying genuine Microsoft software boost the tax revenues of the U.K. government? Would paying full price for authentic versions of Windows and Excel help Britain build new hospitals?

Not likely, because most business users get to claim back the 17.5% value-added tax that is tagged onto each software purchase.

As for Microsoft, it ships most of the software that's destined for Europe directly from Ireland. If the company is so dedicated to paying taxes, it could sell its goods from the U.K. That would help the government here.

Microsoft tries to make the point that intellectual property is the same as coffee but strangely doesn't seem to recognize that pushing IT property rights isn't the same thing as trying to ensure that small-scale farmers earn a living wage. "People who pay a little more for free-trade coffee hope that at least part of the premium will end up in the pocket of the grower," says Robin Littau, general manager of Don Pedro Coffee in Houston. Microsoft knows it can't persuade people that they should make sure part of the price of the software they buy ends up in the pocket of Bill Gates, so it sets up the U.K. tax man as the injured party.

As I said, I'm no fan of the movement that believes software, music and video are free for the sharing without in some way compensating the author, musician or artist.

But what I don't like even more is a corporate hypocrite. **51427**

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READERS' LETTERS

Sun's Java Stance

SUN HAS POSTED the source code for the next big version of Java, code-named Mustang, on the Internet under the Java Research License ("Open-Source Java?" QuickLink 50897). It is free for noncommercial use and provides developers a chance to look before they leap. Sun recognizes the need to simplify its myriad license policies and constraints, which have been confusing. It's just that Sun, as a for-profit organization, is trying to figure out how to make money for its stakeholders, notwithstanding a desire to gain political points.

Relatively speaking, Sun remains the biggest contributor of code to the open-source movement through its work on GNOME, StarOffice and other open-source software and its association with Collab.net and various open-source resources. The company is also moving elements of its Solaris Unix operating system there, convincing many of the third-party owners of the 250-odd intellectual property elements to go along. Sun has invested upwards of $1 billion, 10 years and about 10,000 man-years in the creation of Java. Should it expect any returns on the resulting intellectual property, or should it convert Java into a pure open-source project, giving up all its control? Owners of the 3 billion Sun shares would prefer the former.

Protecting the intellectual property is important for Sun's future. Brand protection through licensing is important for American interests in the international context. Ensuring compatibility control and coordinated development of the Java platform is in the interest of all humans. The licensing structure is intended to accomplish all of the above. The instructional books that Sun and others have authored on the Java programming language and platform and the training programs leading to "certified" Java developers all feed a coordinated development of the Java trajectory. Sun's Java licensing policy is intended to effectively foster compatibility, innovation and profitability, all at the same time. Research-use licenses are free and are less restrictive in order to foster rapid innovation. Commercial licenses have fees and more restrictions. By applying an elaborate control system, Sun has attempted and largely succeeded in preventing market fragmentation.

Nishat Khan
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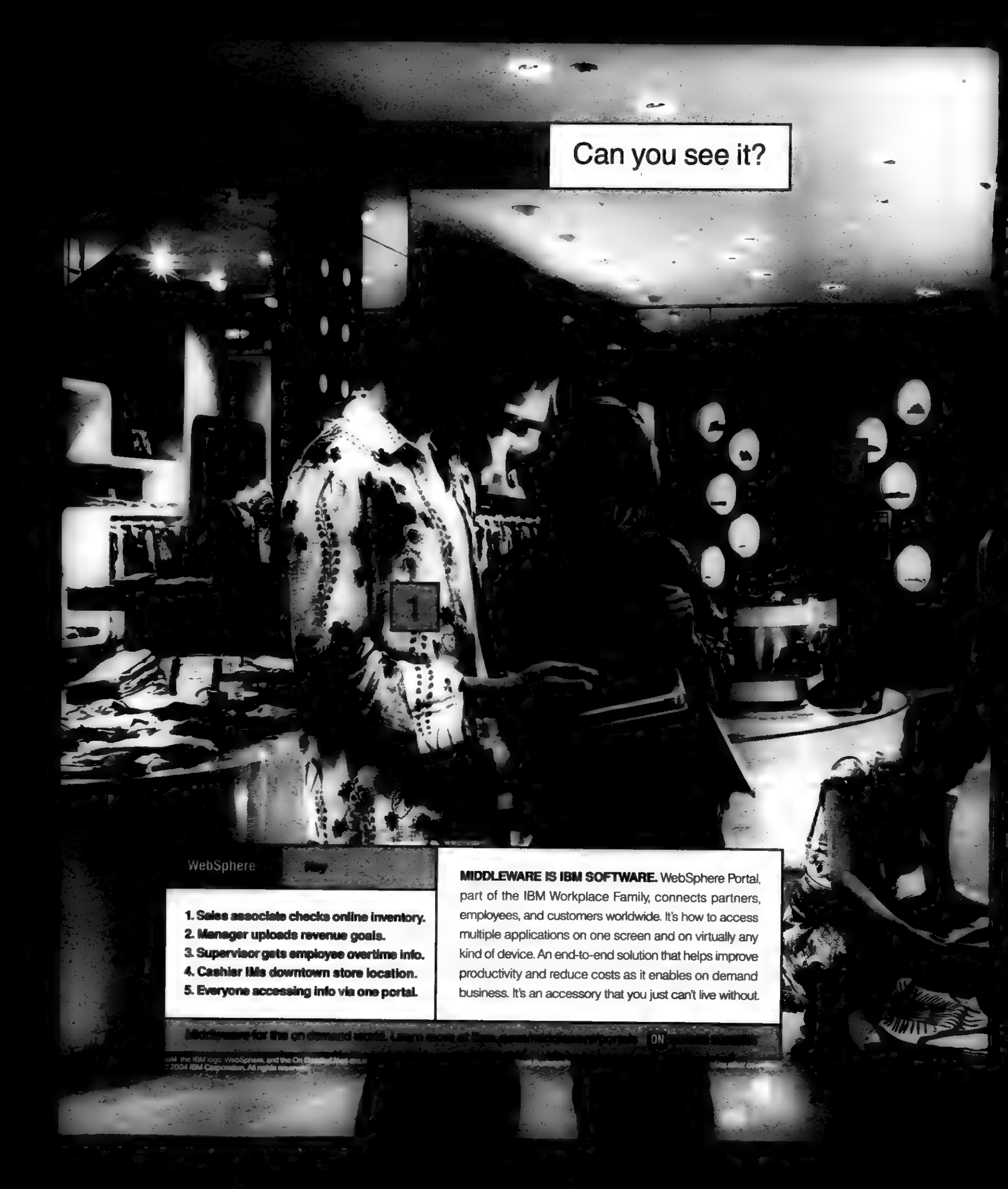
An E-voting Future

TECHNICAL professionals and grass-roots political activists are highly skeptical of Pimm Fox's view that Internet voting is in our future ("Next Time, an Internet Electorate," QuickLink 50462). Before the Internet can be an acceptable alternative to citizens trudging off to polling locations, significant changes must occur. First, the onslaught of self-propagating, malicious programming must be neutralized. Otherwise, elections may be manipulated. Second is the question of extending Internet voting to the technologically illiterate, the computerless and the homeless. Unless these issues are dealt with, reliance on the Internet would make the current state of vote fraud look like child's play.

Ray Babecki
Scientist, Fords, N.J.

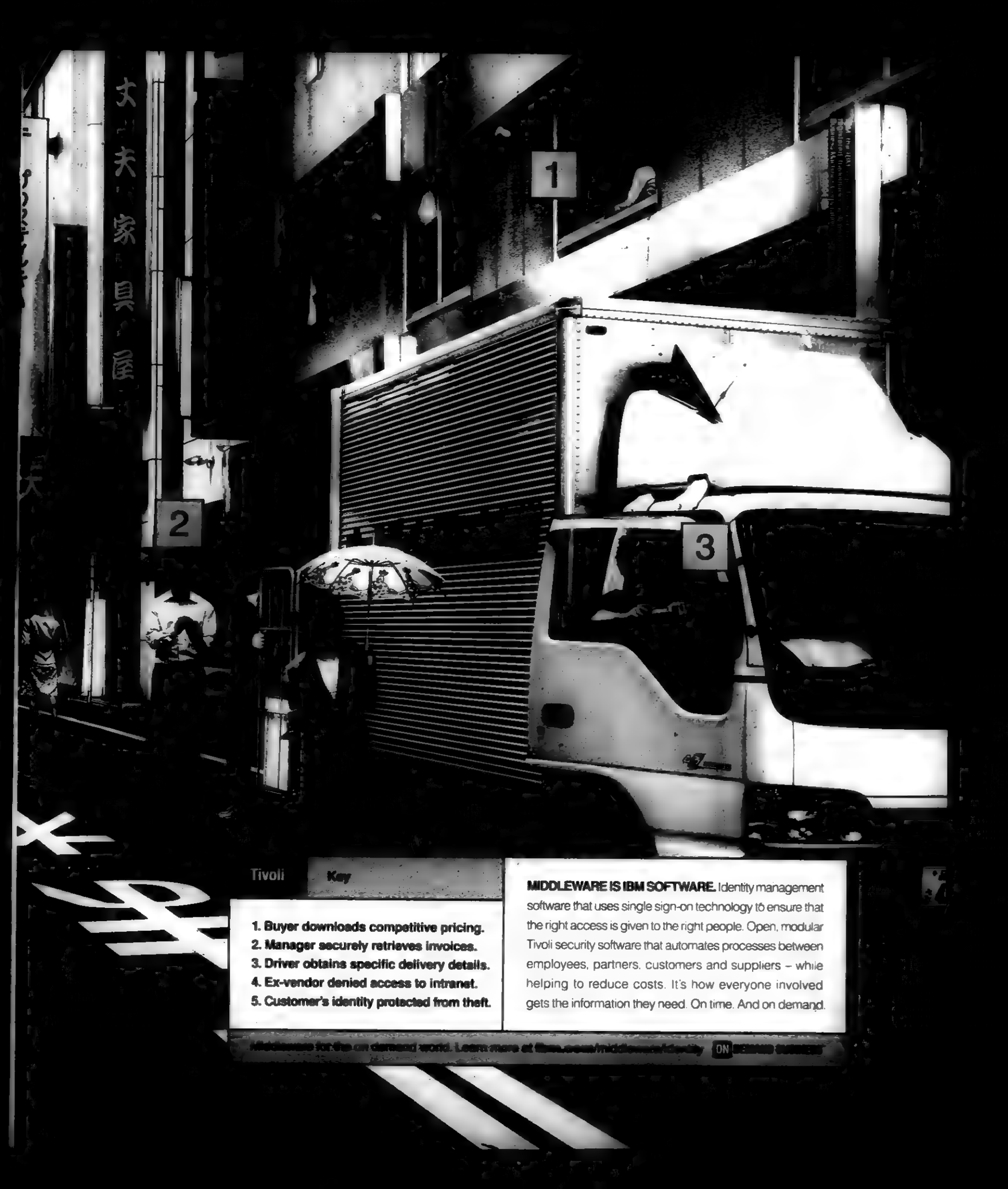
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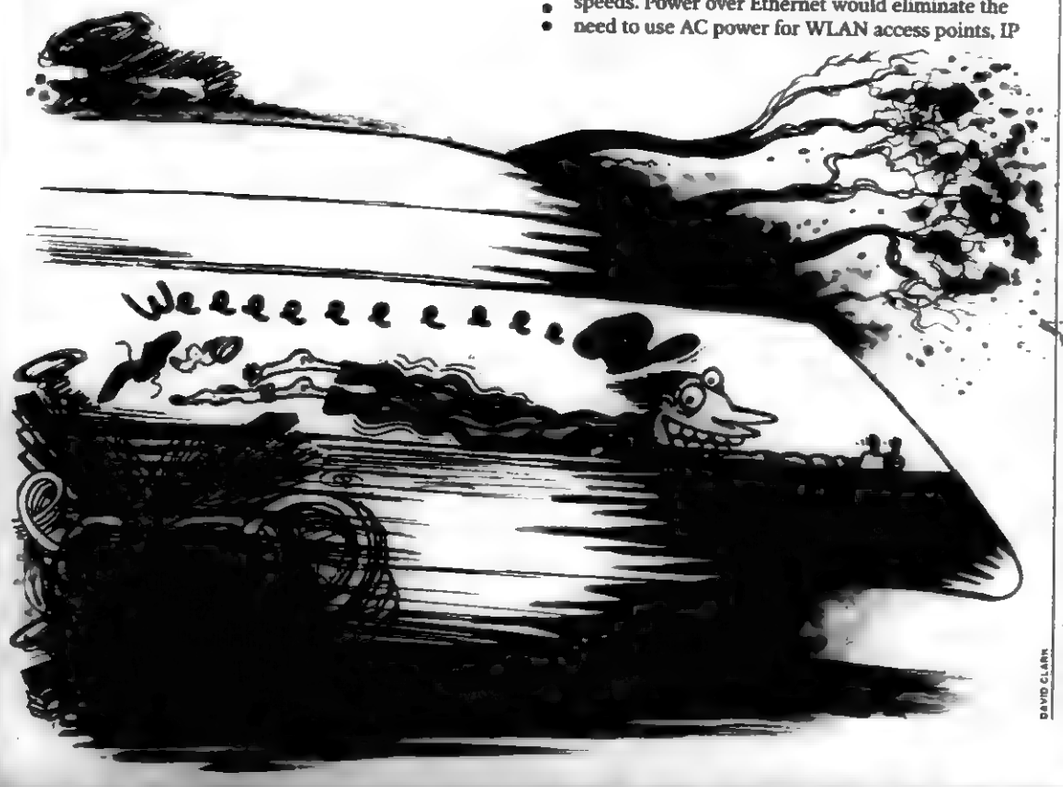

Designed to work the way business
Samsung's 193P display

EMERGING TECHNOLOGIES Update

PCI Express and 802.11g appear to be speeding toward success in the enterprise, while power over Ethernet is making steady progress in selected situations. But it's been slow going for Bluetooth. By Robert L. Mitchell

PCI EXPRESS was designed to eliminate I/O bottlenecks for everything from video graphics to 10Gbit/sec. Ethernet adapters. 802.11g offered a backward-compatible way for enterprises to upgrade their 802.11b wireless LANs to higher speeds. Power over Ethernet would eliminate the need to use AC power for WLAN access points, IP phones and other equipment. Bluetooth promised to end cabling clutter on the desktop.

Computerworld has covered the introduction of each of these emerging technologies over the past two years. In that time, some have gained ground; others have fallen short. Here's a report card on where each stands.



DAVID CLARK

PCI Express: Adding Fast Lanes

After more than a year of slow, steady progress, PCI Express, a new I/O technology designed to replace the Peripheral Component Interconnect expansion bus used in PCs and servers, is ready to roll. Intel Corp. released the first PCI Express motherboard and chip sets this past summer, systems began shipping in August, and a few adapters are now available.

Developed through the PCI Special Interest Group, PCI Express (also called PCIe) replaces the PCI bus with a serial architecture that uses up to 16 sets of wires, or "lanes," to support bandwidth ranging from 500MB/sec. to 16GB/sec. For the most part, PCI Express is designed to solve I/O bottlenecks that most users have yet to experience, but IBM, Hewlett-Packard Co. and Dell Inc. have all rolled out servers that include both traditional PCI and two or more "4x" (four-lane) PCI Express slots to stay ahead of user demand.

On commodity servers, PCI Express appears to have won a battle with PCI-X 2.0, a competing 2GB/sec. standard once supported by HP. "Ethernet and storage-controller vendors started flipping from PCI-X 2.0 over to PCI Express, so we're moving with the market," says Colin Lacey, director of market strategy for the ProLiant server line at HP.

But PCI-X 2.0 will arrive on high-end servers next year, both because PCI Express isn't fully mature and PCI-X 2.0 is likely to be available sooner than comparable 8x implementations of PCI Express, says Tom Bradicich, chief technology officer for IBM's xSeries and BladeCenter servers. Eventually, even these systems will migrate to PCI Express, he says.

PCI Express is already replacing the accelerated graphics port for high-end graphics on PCs. For most other I/O needs, however, PCI Express is overkill. On servers, early PCI Express adapters focus on technologies likely to max out current 1GB/sec. PCI-X bus, including 10 Gigabit Ethernet, RAID con-



THE SAME BUT DIFFERENT: HP's ML 350 series servers combine four traditional PCI-X slots (white slots in photo) and two 4x PCI Express slots (top, in black). While the slots look similar, the 4x PCIe slots, at 2GB/sec., deliver about twice the bandwidth. HP's DL series servers support PCIe by way of an optional PCIe "riser card" adapter. Other server vendors offer similar configurations.

trollers and Fibre Channel. But server buyers should be cautious, says Nathan Brookwood, an analyst at Insight 64 in Saratoga, Calif. "As long as they are not finding PCI-X to be a bottleneck, it's still a preferred solution because it's tried and proven," he says.

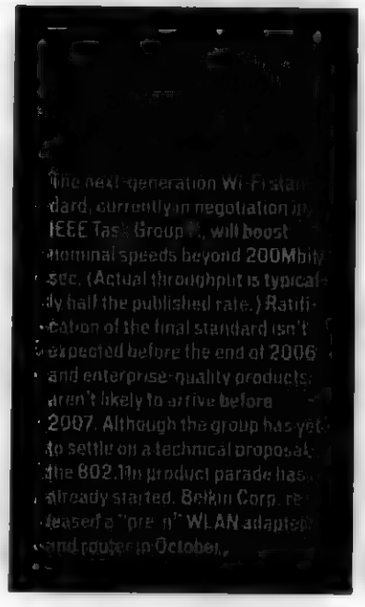
PCI-SIG is also working on a server I/O module specification that Tony Pierce, the group's chairman, describes as "an external, hot-pluggable form factor designed specifically for servers." And a revised specification, due to be published in 2005, will double the current data rate. For now, however, PCI Express slots are likely to creep into servers in increments. "The transition has begun," Brookwood says. But he doesn't see it taking off in a big way until at least 2007.

802.11g: One Step Ahead

The 802.11g 54Mbit/sec. WLAN specification was designed to provide an upgrade path for 11Mbit/sec. 802.11b networks. While it has sold well in the consumer market, businesses have largely stayed with the slower but more established 802.11b.

802.11g delivered what the 54Mbit/sec. 802.11a standard couldn't: backward compatibility for 802.11b users. But many business simply haven't needed the extra bandwidth, says Ken Dulaney, an analyst at Gartner Inc.

As the technology has matured, however, vendors of enterprise-class WLAN products have replaced b-mode-only access points (AP) with g-mode units, and some businesses are taking advantage of the faster operating mode. Embarcadero Systems Corp. is installing 802.11g in all new sites, says John Montgomery, vice president and chief technology officer. And new applications at the Alameda, Calif.-based company's container shipping terminals require more bandwidth, so he's investigating upgrades for b-mode APs as well. While 802.11a's shorter range would have required adding more APs for the same coverage area, with 802.11g, Montgomery says, he should be able to upgrade just the existing b units. "We are trying to do a one-to-one swap," he says.



As bandwidth needs climb, the long-ignored 802.11a is starting to garner interest as well, says Graham Melville, director of product marketing at Symbol Technologies Inc. It runs in the less-crowded 5-GHz spectrum, and with 11 channels to 802.11g's three, 802.11a APs can be placed closer together without interference. That means 802.11a can support more users at a higher aggregate bandwidth. Melville says the technology is ideal for crowded offices, where power users rely on wireless as their primary connection into the company network.

An even faster variant is on the way: 802.11n is expected to quadruple current WLAN speeds. But the specification is in the early stages of development, and mature products are unlikely to arrive before 2007. Says Dulaney, "If you want higher speeds, go to 802.11a, since there is a lot more capacity at 5 GHz."

PoE: Ethernet Powers Up

Who needs an outlet? Driven by the need to cost-effectively power IP phones and WLAN APs, power over Ethernet (PoE) has quietly moved into the mainstream since the IEEE 802.3af standard was ratified in 2003. PoE is now a global standard for supplying low-voltage power to networked devices by way of Ethernet cabling. "Almost every enterprise I talk to is looking at putting PoE in their wiring closet," says Zeus Kerravala, an analyst at The Yankee Group in Boston.

But that doesn't mean PoE is going in across the board. While virtually all wireless APs and IP phones now can support Ethernet power, PoE is offered only in high-end switches — about 20% of those on the market — and they sell at a 15% to 40% premium, says Rachna Ahlawat, a Gartner analyst. But she expects the premium to disappear over the next few quarters as PoE becomes a "checklist item" for all switches.

Only 14% of all 10/100Mbit/sec. Ethernet ports shipped with PoE in the first half of 2004, says Ahlawat. And with businesses now keeping existing switches longer — up to seven years — many companies may hold off on adding PoE for a few years or choose to add midspan devices that can send power to selected ports without replacing the switch. Nonetheless, IDC predicts that about 41% of all Ethernet port shipments will be PoE-enabled by 2008.

Embarcadero uses PoE switches to support IP phones. "We're still using traditional methods to power our network switches and WLAN access points," says Montgomery. But he's considering PoE to support new AP and closed-circuit television camera deployments.

PoE is slowly gathering momentum, says IDC analyst Maximilian Flisi. "It will be a gradual, steady phase-in," he says.

Worldwide LAN and PoE Switch Ports



NOTES: Ports counted include both 802.3af and proprietary standards; data considers only embedded (end-span) PoE, not midspan devices.

Bluetooth: Peripheral Player

Bluetooth promised to eliminate cable clutter by connecting devices ranging from handhelds to printers over a low-power, 1Mbit/sec. wireless personal-area network (PAN). While Bluetooth has made inroads with consumers, it has failed to catch on in the enterprise.

Shipments of Bluetooth-enabled products have passed 3 million units per week, according to Bluetooth SIG Inc., but many of them are cell phones that are sold in Europe. Bluetooth is used in handheld computers, in some cordless headsets and hands-free cell phone kits, and for some specialized purposes. For example, United Parcel Service Inc.'s truck drivers use the technology to allow handheld computers that are environmentally sealed against moisture and have no physical external connection to connect wirelessly to printers. But overall, it has faltered as a cable replacement technology.

Acceptance of Bluetooth has also been slowed because of concerns about interoperability and security. Bluetooth SIG offers interoperability testing, but users still must rely on its product matrices to ensure that different devices have profiles that will work together. "I call Bluetooth a failure because it doesn't deliver ease of use," says Gartner's Dulaney.

Mike Foley, executive and technical director of Bluetooth SIG, says improvements are on the way. The specification will support 3Mbit/sec. by the end of the year, and it will include security features to close some well-publicized vulnerabilities, enhance interoperability and improve power management. It will also support quality of service and multicasting to improve communications with multiple Bluetooth devices (QuickLink 50590).

WHY PCI WON'T DIE
Find out why the legacy PCI expansion bus standard is here to stay for a while.
QuickLink 51201
www.computerworld.com

Today, however, Bluetooth remains essentially a consumer technology. It also faces competition from the emerging ultrawideband 100Mbit/sec. PAN specification. Ultimately, UWB could replace Bluetooth, says Roger Kay, an IDC analyst. "If UWB is capable of sending large amounts of data rapidly over short distances, there is no reason why it can't send small amounts of data as well." QuickLink 51286

BRIEFS

Vintela Expands VMX Capabilities

■ Vintela Inc. in Lindon, Utah, has unveiled Version 1.1 of its Vintela Management Extensions (VMX) application. The upgrade improves and expands the use of Microsoft Systems Management Server 2003 with non-Windows operating systems, including Unix, Linux and Mac OS X, says Vintela. VMX is an administration console that snaps into SMS, allowing the management of non-Windows clients natively from within SMS, according to the vendor. VMX starts at $1,995, with non-Windows server pricing at $125 each and non-Windows workstation pricing at $75 each.

Observer to Provide Additional Metrics

■ Network Instruments LLC announced the release of Observer 10.1 for network management, analysis and troubleshooting. The upgrade adds metrics for reporting network performance, capabilities for automatic report delivery and packet scheduling, enhancements for remote network analysis, and additional monitors for 802.11a, b and g networks, the Minneapolis-based company said. Pricing starts at $995.

Cognos and Acorn Partner on CPM

■ Last week, Cognos Corp. and Acorn Systems Inc. announced an alliance to deliver activity-based costing and corporate performance management (CPM) technology. The alliance will pair Houston-based Acorn's Profit Analyzer product, which is designed to provide enterprise cost and profit metrics, with the business intelligence components of Cognos' CPM suite. Burlington, Mass.-based Cognos will jointly market its business intelligence, planning and forecasting software and scorecarding technology with Acorn to the financial services, distribution, consumer packaged goods and retail markets.

CURT A. MONASH

Make a Technology Plan for 2005

THE END OF THE YEAR is a traditional time for re-evaluation of, well, just about everything. But one area in particular that gets re-evaluated in most organizations is technology strategy.



Many of the technology strategy issues you need to address in 2005 fall into five overlapping areas: server platform architecture, e-mail architecture, security architecture, enterprise analytics, and customer interaction technology. Here's a quick planning checklist of the top issues in four of the areas. (I'll discuss enterprise analytics in a future column.)

Server platform architecture. As usual, the most interesting issues in server platform architecture relate to database management systems. Included among those is this huge question: Is the row-based relational model approaching the end of its useful life? The evidence in favor of nonrelational and/or column-based DBMS architecture keeps mounting — especially for XML-based applications. And while top-of-the-line DBMSs are still clearly superior for data warehousing, complex queries or nontabular data management, often that's exactly because they're getting increasingly far from simple third-normal-form data structures. Yet conceptually, there's little reason to see any limit to relational systems' continued evolution and, hence, continued market domination.

Meanwhile, at the other end of the DBMS spectrum, what about commodity database management systems? They do a good job for many smaller online transaction processing applications. Indeed, between MySQL and the once-excellent Ingres, even open-source DBMS offerings may warrant consideration.

But there's a yet bigger set of concerns: Just which kinds of platforms are "strategic" in your enterprise? Viable candidates include traditional hardware, storage hardware and software, DBMS, operating systems, application servers, enterprise information integrators and several kinds of management superstructures. And are the choices different for the idealized grid/blade future and the big-central-server present?

One good choice of strategic center is fourfold: DBMS + analytics engine + operating system(s) + network management infrastructure. But there are many viable alternatives.

E-mail architecture. Now here's a depressing subject. At most companies, e-mail represents a huge cost. Employees each spend hours per day on e-mail, grumbling all the way. E-mail administration is a huge nightmare. And vendors aren't helping much — Microsoft promised key fixes over a decade ago that it isn't even close to delivering.

So how about a radical gambit? E-mail is a constant processing stream with serious security vulnerabilities and regrettably little in the way of DBMS underpinnings at this time. That's exactly the kind of processing that does well on dedicated appliances, rather than general-purpose computers. And you shouldn't just consider e-mail appliances; e-mail outsourcing is also worth a serious look.

It's also time for serious planning in the area of e-mail archiving. Regulators want you to keep huge amounts of e-mail; lawyers, for very similar reasons, want you to throw it all away. Meanwhile, a tremendous fraction of an organization's knowledge is buried in all that e-mail, and archiving technology offers better potential access to it all the time.

Security architecture. At most organizations, security architecture is a nightmare. Dedicated security appliances (which work well), centralized security management (which doesn't) and general network operations management systems don't play together nearly as well as they should. Meanwhile, wireless networking and employees' personal Internet use punch ever more holes in the security perimeter.

You can't fix the whole shebang, but you can and should do at least this: Break your network into conceptual pieces, then move quickly to secure the most critical pieces as tightly as you can. Dedicated intrusion-prevention systems, network segmentation firewalls, newfangled application-level security appliances and so on — you can't protect your whole network with those technologies, but your key databases can be protected very well.

Another area in which your planning should probably rev up (it's OK for implementation to be slower) is authentication and identity management. LDAP integration will eventually be a necessity and, despite the inherent hassle, many enterprises will eventually adopt smart-card/badge-based two-factor authentication as well.

There are other large, troubling challenges that I could mention — especially issues relating to outsourcing. But since this is the holiday season, I'll end on a happy note instead.

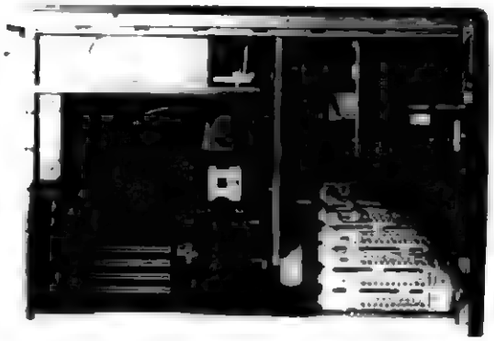
Customer interaction technology. This area should be on your list for re-examination every year, and you should be happy about it. Technology for managing customer interactions keeps getting better — on the Web, in call centers and even in hoary old direct mail — and the impact on profits is almost immediate. So run, don't walk, to your marketing executives, and ask them to dream up a technological wish list. Chances are, you'll be able to give them a lot of what they want.

But this can all wait until the new year. Until then, have a great holiday season.

51424

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THE SAME BUT DIFFERENT HP's ML 350 series servers combine four traditional PCI-X slots (white slots in photo) and two 4x PCI Express slots (top, in black). While the slots look similar, the 4x PCIe slots, at 2GB/sec., deliver about twice the bandwidth. HP's DL series servers support PCIe by way of an optional PCIe "riser card" adapter. Other server vendors offer similar configurations.

trollers and Fibre Channel. But server buyers should be cautious, says Nathan Brookwood, an analyst at Insight 64 in Saratoga, Calif. "As long as they are not finding PCI-X to be a bottleneck, it's still a preferred solution because it's tried and proven," he says.

PCI-SIG is also working on a server I/O module specification that Tony Pierce, the group's chairman, describes as "an external, hot-pluggable form factor designed specifically for servers." And a revised specification, due to be published in 2005, will double the current data rate. For now, however, PCI Express slots are likely to creep into servers in increments. "The transition has begun," Brookwood says. But he doesn't see it taking off in a big way until at least 2007.

802.11g: One Step Ahead

The 802.11g 54Mbit/sec. WLAN specification was designed to provide an upgrade path for 11Mbit/sec. 802.11b networks. While it has sold well in the consumer market, businesses have largely stayed with the slower but more established 802.11b.

802.11g delivered what the 54Mbit/sec. 802.11a standard couldn't: backward compatibility for 802.11b users. But many business simply haven't needed the extra bandwidth, says Ken Dulaney, an analyst at Gartner Inc.

As the technology has matured, however, vendors of enterprise-class WLAN products have replaced b-mode-only access points (AP) with g-mode units, and some businesses are taking advantage of the faster operating mode. Embarcadero Systems Corp. is installing 802.11g in all new sites, says John Montgomery, vice president and chief technology officer. And new applications at the Alameda, Calif.-based company's container shipping terminals require more bandwidth, so he's investigating upgrades for b-mode APs as well. While 802.11a's shorter range would have required adding more APs for the same coverage area, with 802.11g, Montgomery says, he should be able to upgrade just the existing b units. "We are trying to do a one-to-one swap," he says.

As bandwidth needs climb, the long-ignored 802.11a is starting to garner interest as well, says Graham Melville, director of product marketing at Symbol Technologies Inc. It runs in the less-crowded 5-GHz spectrum, and with 11 channels to 802.11g's three, 802.11a APs can be placed closer together without interference. That means 802.11a can support more users at a higher aggregate bandwidth. Melville says the technology is ideal for crowded offices, where power users rely on wireless as their primary connection into the company network.

An even faster variant is on the way: 802.11n is expected to quadruple current WLAN speeds. But the specification is in the early stages of development, and mature products are unlikely to arrive before 2007. Says Dulaney, "If you want higher speeds, go to 802.11a, since there is a lot more capacity at 5 GHz."

PoE: Ethernet Powers Up

Who needs an outlet? Driven by the need to cost-effectively power IP phones and WLAN APs, power over Ethernet (PoE) has quietly moved into the mainstream since the IEEE 802.3af standard was ratified in 2003. PoE is now a global standard for supplying low-voltage power to networked devices by way of Ethernet cabling. "Almost every enterprise I talk to is looking at putting PoE in their wiring closet," says Zeus Kerravala, an analyst at The Yankee Group in Boston.

But that doesn't mean PoE is going in across the board. While virtually all wireless APs and IP phones now can support Ethernet power, PoE is offered only in high-end switches — about 20% of those on the market — and they sell at a 15% to 40% premium, says Rachna Ahlawat, a Gartner analyst. But she expects the premium to disappear over the next few quarters as PoE becomes a "checklist item" for all switches.

Only 14% of all 10/100Mbit/sec. Ethernet ports shipped with PoE in the first half of 2004, says Ahlawat. And with businesses now keeping existing switches longer — up to seven years — many companies may hold off on adding PoE for a few years or choose to add midspan devices that can send power to selected ports without replacing the switch. Nonetheless, IDC predicts that about 41% of all Ethernet port shipments will be PoE-enabled by 2008.

Embarcadero uses PoE switches to support IP phones. "We're still using traditional methods to power our network switches and WLAN access points," says Montgomery. But he's considering PoE to support new AP and closed-circuit television camera deployments.

PoE is slowly gathering momentum, says IDC analyst Maximilian Flisi. "It will be a gradual, steady phase-in," he says.

Worldwide LAN and PoE Switch Ports



NOTES: Ports counted include both 802.3af and proprietary standards; data considers only embedded (end-span) PoE, not midspan devices.

Bluetooth: Peripheral Player

Bluetooth promised to eliminate cable clutter by connecting devices ranging from handhelds to printers over a low-power, 1Mbit/sec. wireless personal-area network (PAN). While Bluetooth has made inroads with consumers, it has failed to catch on in the enterprise.

Shipments of Bluetooth-enabled products have passed 3 million units per week, according to Bluetooth SIG Inc., but many of them are cell phones that are sold in Europe. Bluetooth is used in handheld computers, in some cordless headsets and hands-free cell phone kits, and for some specialized purposes. For example, United Parcel Service Inc.'s truck drivers use the technology to allow handheld computers that are environmentally sealed against moisture and have no physical external connection to connect wirelessly to printers. But overall, it has faltered as a cable replacement technology.

Acceptance of Bluetooth has also been slowed because of concerns about interoperability and security. Bluetooth SIG offers interoperability testing, but users still must rely on its product matrices to ensure that different devices have profiles that will work together. "I call Bluetooth a failure because it doesn't deliver ease of use," says Gartner's Dulaney.

Mike Foley, executive and technical director of Bluetooth SIG, says improvements are on the way. The specification will support 3Mbit/sec. by the end of the year, and it will include security features to close some well-publicized vulnerabilities, enhance interoperability and improve power management. It will also support quality of service and multicasting to improve communications with multiple Bluetooth devices [QuickLink 50590].

Today, however, Bluetooth remains essentially a consumer technology. It also faces competition from the emerging ultrawideband 100Mbit/sec. PAN specification. Ultimately, UWB could replace Bluetooth, says Roger Kay, an IDC analyst. "If UWB is capable of sending large amounts of data rapidly over short distances, there is no reason why it can't send small amounts of data as well." QuickLink 51286



WHY PCI WON'T DIE

Find out why the legacy PCI expansion bus standard is here to stay for a while

QuickLink 51291
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BRIEFS

Vintela Expands VMX Capabilities

■ Vintela Inc. in Lindon, Utah, has unveiled Version 1.1 of its Vintela Management Extensions (VMX) application. The upgrade improves and expands the use of Microsoft Systems Management Server 2003 with non-Windows operating systems, including Unix, Linux and Mac OS X, says Vintela. VMX is an administration console that snaps into SMS, allowing the management of non-Windows clients natively from within SMS, according to the vendor. VMX starts at $1,995, with non-Windows server pricing at $125 each and non-Windows workstation pricing at $75 each.

Observer to Provide Additional Metrics

■ Network Instruments LLC announced the release of Observer 10.1 for network management, analysis and troubleshooting. The upgrade adds metrics for reporting network performance, capabilities for automatic report delivery and packet scheduling, enhancements for remote network analysis, and additional monitors for 802.11a, b and g networks, the Minneapolis-based company said. Pricing starts at $995.

Cognos and Acorn Partner on CPM

■ Last week, Cognos Corp. and Acorn Systems Inc. announced an alliance to deliver activity-based costing and corporate performance management (CPM) technology. The alliance will pair Houston-based Acorn's Profit Analyzer product, which is designed to provide enterprise cost and profit metrics, with the business intelligence components of Cognos' CPM suite. Burlington, Mass.-based Cognos will jointly market its business intelligence, planning and forecasting software and scorecarding technology with Acorn to the financial services, distribution, consumer packaged goods and retail markets.

CURT A. MONASH

Make a Technology Plan for 2005

THE END OF THE YEAR is a traditional time for re-evaluation of, well, just about everything. But one area in particular that gets re-evaluated in most organizations is technology strategy.



CURT A. MONASH is a consultant in Acton, Mass. You can reach him at [redacted]

Many of the technology strategy issues you need to address in 2005 fall into five overlapping areas: server platform architecture, e-mail architecture, security architecture, enterprise analytics, and customer interaction technology. Here's a quick planning checklist of the top issues in four of the areas. (I'll discuss enterprise analytics in a future column.)

Server platform architecture. As usual, the most interesting issues in server platform architecture relate to database management systems. Included among those is this huge question: Is the row-based relational model approaching the end of its useful life? The evidence in favor of nonrelational and/or column-based DBMS architecture keeps mounting — especially for XML-based applications. And while top-of-the-line DBMSs are still clearly superior for data warehousing, complex queries or nontabular data management, often that's exactly because they're getting increasingly far from simple third-normal-form data structures. Yet conceptually, there's little reason to see any limit to relational systems' continued evolution and, hence, continued market domination.

Meanwhile, at the other end of the DBMS spectrum, what about commodity database management systems? They do a good job for many smaller online transaction processing applications. Indeed, between MySQL and the once-excellent Ingres, even open-source DBMS offerings may warrant consideration.

But there's a yet bigger set of concerns: Just which kinds of platforms are "strategic" in your enterprise? Viable candidates include traditional hardware, storage hardware and software, DBMS, operating systems, application servers, enterprise information integrators and several kinds of management superstructures. And are the choices different for the idealized grid/blade future and the big-central-server present?

One good choice of strategic center is fourfold: DBMS + analytics engine + operating system(s) + network management infrastructure. But there are many viable alternatives.

E-mail architecture. Now here's a depressing subject. At most companies, e-mail represents a huge cost. Employees each spend hours per day on e-mail, grumbling all the way. E-mail administration is a huge nightmare. And vendors aren't helping much — Microsoft promised key fixes over a decade ago that it isn't even close to delivering.

So how about a radical gambit? E-mail is a constant processing stream with serious security vulnerabilities and regrettably little in the way of DBMS underpinnings at this time. That's exactly the kind of processing that does well on dedicated appliances, rather than general-purpose computers. And you shouldn't just consider e-mail appliances; e-mail outsourcing is also worth a serious look.

It's also time for serious planning in the area of e-mail archiving. Regulators want you to keep huge amounts of e-mail; lawyers, for very similar reasons, want you to throw it all away. Meanwhile, a tremendous fraction of an organization's knowledge is buried in all that e-mail, and archiving technology offers better potential access to it all the time.

Security architecture. At most organizations, security architecture is a nightmare. Dedicated security appliances (which work well), centralized security management (which doesn't) and general network operations management systems don't play together nearly as well as they should. Meanwhile, wireless networking and employees' personal Internet use punch ever more holes in the security perimeter.

You can't fix the whole shebang, but you can and should do at least this: Break your network into conceptual pieces, then move quickly to secure the most critical pieces as tightly as you can. Dedicated intrusion-prevention systems, network segmentation firewalls, newfangled application-level security appliances and so on — you can't protect your whole network with those technologies, but your key databases can be protected very well.

Another area in which your planning should probably rev up (it's OK for implementation to be slower) is authentication and identity management. LDAP integration will eventually be a necessity and, despite the inherent hassle, many enterprises will eventually adopt smart-card/badge-based two-factor authentication as well.

There are other large, troubling challenges that I could mention — especially issues relating to outsourcing. But since this is the holiday season, I'll end on a happy note instead.

Customer interaction technology. This area should be on your list for re-examination every year, and you should be happy about it. Technology for managing customer interactions keeps getting better — on the Web, in call centers and even in hoary old direct mail — and the impact on profits is almost immediate. Scrrun, don't walk, to your marketing executives, and ask them to dream up a technological wish list. Chances are, you'll be able to give them a lot of what they want.

But this can all wait until the new year. Until then, have a great holiday season.

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RELATIONSHIP MANAGERS ARE CRUCIAL LIAISONS BETWEEN TECHNOLOGY AND BUSINESS, BUT WITHOUT PROPER SUPPORT, THEY CAN END UP BEING DISTRUSTED BY BOTH. BY MARY BRANDEL

PHILIP ANDERSON

BRIDGING THE GAP

SOME JOBS should come with small print attached, just like the drug advertisements you see on TV. Take the job title "relationship manager," whose warning label might read: "Requires great sense of humor and high tolerance for ambiguity. Only true diplomats should apply. Do not attempt unless fully supported by the organizational structure."

The path of the relationship manager is a tricky one, fraught with political potholes and organizational obstacles. Companies create this position — also called account manager, client manager, customer liaison and business information manager — to help close gaps between IT and the business, whether they be gaps in communication, image, credibility, trust or all of the above and more.

Relationship managers are called upon to coordinate IT activities across a given business unit and drive initiatives that position the unit for competitive success, according to Marc Cecere, an analyst at Forrester Research Inc. in Cambridge, Mass.

Some people hired into this role have spent their careers in IT but also have solid business acumen and deep knowledge of business processes. Others are senior-level, technology-literate business people willing to learn the inner workings of IT.

But when well-meaning companies slap a relationship manager on a rift between two warring parties like a Band-Aid and hope for the best, things can go wrong. "Where there's a deep-seated lack of IT/business alignment and the relationship between the client and IT is strained, trying to bring in a relationship manager to paper over some of these problems is not going to be successful," says Jim Hightower, a fellow at Cutter Consortium in Arlington, Mass., who had a relationship manager role as an IT manager at a small utility.

"If the relationship between IT and the business is already unstable, the relationship manager is just someone who's putting out fires and smoothing out problems," agrees Craig Symons, a Forrester analyst. "That's not going to get you very far."

Indeed, while 40 out of 100 companies surveyed by Forrester in August said they have a relationship manager function, there are many ways to get it wrong, Cecere says (see sidebar below).

Hiring the right person is the first challenge. It's a rare bird who can hobnob with techies and business wonks alike and also has the people skills to resolve conflict between the groups, earn credibility throughout the organization and forge a productive alignment that enables IT to meet business objectives.

Take Nan Simon, a relationship manager with the title of business information manager at Novartis Pharmaceuticals Corp. in East Hanover, N.J. She came from IT but had a lot of background in financial systems. "My first love was systems analysis and working with business partners to understand their requirements," she says.

Or look at Andrew Sheppard, director of relationship management at Allegis Group Inc., a contract services provider in Hanover, Md. He has been in IT for 18 years, but he also holds an undergraduate degree in business management and psychology and a master's degree in IT management.

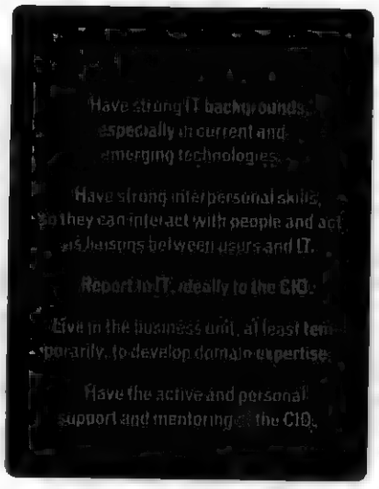
Negotiation Skills

Relationship managers must be crack negotiators. "There can be competing objectives, and you have to defuse emotion to help make a fact-based decision," says Gina Piscopo, who has a relationship manager role as a director in the marketing technology area of Allstate Protection Technology at Allstate Insurance Co. in Northbrook, Ill. For instance, when IT was struggling with a tight deadline for a business project, Piscopo stepped in to ask people on the business side if they could scale back the functionality of what they wanted delivered by that deadline.

That kind of active negotiating can lead to some sticky situations. "You have to have thick skin," says Joan Mann, associate professor of IT at Old Dominion University in Norfolk, Va. "You have to be able to roll with the punches and be very comfortable in the face of uncertainty."

Mediator, translator, persuader, facilitator, expeditor — these are roles Mann says relationship managers need to play. Not to mention the languages they need to speak. "To earn the respect of IS, you have to speak at the router, T1 and application code level," says Sheppard. "With the business people, it's important to talk at the profit/loss and deliverables level."

But the relationship manager can't play all these roles on his own. Most companies find that they need to tweak organizational charts to provide the support they need to straddle the space between IT and the business; otherwise, the relationship manager can easily fall into thin air. "I have not seen the role be successful when it's a standalone liaison role," says Mike Roche, vice president of Allstate Protection Technology.



Allstate began hiring relationship managers two years ago. At the time, IT was retooled from a shared-services organization with an admitted "arm's-length relationship with the business," Roche says, to a group with a CIO and dedicated IT staff for each of the two major arms of the company.

Relationship managers were installed to serve as liaisons between IT and the business functions, but the setup was only somewhat successful, Roche says. The problem, he determined, was that the individuals in these roles had no accountability for delivering on projects. "It's easy to be an order taker and create demand without having any indication of what's reasonable from a delivery standpoint," he explains.

Now, the relationship managers have teams of developers and project managers assigned to them, and — most important — they are responsible for achieving measurable results. "We expect these lead people to be innovative in terms of process improvements," Roche says.

Without that kind of accountability, he says, the relationship manager stands no chance of earning credibility and may even create a layer of redundancy. "If they're pushing through requirements but don't understand the technology that supports it, someone has to rework everything they do," Roche says.

The evolution of the role at Allstate is not unusual. "It's not like you can put in a magical solution on Day 1," says Rob James, CIO at Novartis. "You have to build support processes and fine-tune things as you move forward."

Novartis decided three years ago to move away from its centralized IT organization to one whose initiatives are driven and funded by the business units. Each business function was assigned a relationship manager, called a business information manager, or BIM. Several centralized IT groups remained to support cross-enterprise needs.

At first, the BIMs worked alone or in small teams, but as demand grew, BIM groups expanded to include dedicated project managers, developers and support staffers. The new structure frees them to focus on strategic issues. "I'm not a lone ranger out there," says Simon, who is a BIM for three groups at Novartis. "If I get a request, I have control over how quickly I can respond because I have resources at my disposal."

"Not all these things were in place from the start," James says. "The opportunities will continue to be driven by what the business wants us to do."

At Allegis, the relationship manager function has undergone a major transformation. Today, the role is solidly positioned in IT, but it wasn't always that way. Until 2002, Sheppard was one of five "business information officers" the company had embedded within its operating units. Sheppard and the others had no direct reports, and they reported to IT but were seen as extensions of the business.

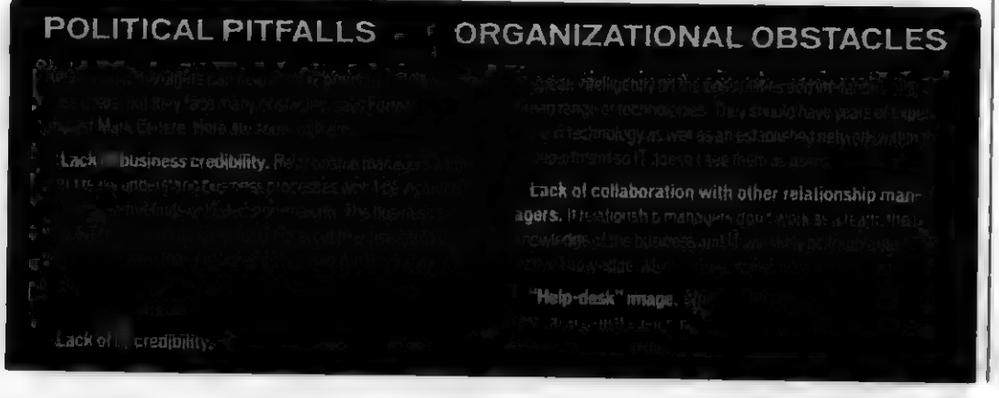
While the overall setup worked well, the group had an unfortunate image. IT tended to view each of its requests as just another problem to solve, and the business people didn't like hearing why some of their IT requests weren't feasible. "Either way, we were seen as the bad guys all too often," Sheppard says.

With no support staff, Sheppard and his cohorts were also focusing too often on tactical issues, he says. "I wasn't doing the job that adds value to the whole organization, which is looking for the strategies and initiatives for the next year," he says.

Two years ago, during the economic downturn, Allegis dissolved all of its business information officer positions except for Sheppard's. Now, as the only relationship manager left, he supports the IT needs of all the operating companies and reports to the CIO. But he has three groups to support him with service-level agreements, day-to-day deliverables, new-process development and internal public relations. That support "allows me not to get stuck in the weeds," he says. "I can deal with the business side at a higher level."

These days, Sheppard feels he's seen as less of a bad guy, although as a relationship manager, you never really take off the black hat, he says. "When they don't hear what they want to hear, they're still unhappy about that," Sheppard says.

Like other companies with relationship managers, Allegis will continue to evolve the role as business requirements dictate. And having business support is the top priority for making the position work. Says Novartis' James, "You have to do this in total partnership with the business." 51068



Brandel is a Computerworld contributing writer in Grand Rapids, Mich. You can contact her at mary.brandel@comcast.net.

EXEC TRACK

Kobayashi Named CIO at Ross Stores

Ross Stores Inc. in Pleasanton, Calif., has appointed MICHAEL K. KOBAYASHI senior vice president and CIO. Kobayashi had spent the past 18 years at Accenture Ltd. He has been serving in an interim leadership role in Ross Stores' IT department since July.

PPG Industries Taps Trainham

JAMES A. TRAINHAM has been appointed vice president of science and technology at PPG Industries Inc., a Pittsburgh-based maker of paint, stains and sealants. He previously worked at Invista, formerly DuPont Textiles and Interiors, for nearly 25 years. He was chief technology officer at Invista from 2002 until the company's divestiture from DuPont Co. earlier this year.

Lewis Takes CTO Post at LiquidXS

LiquidXS.com Inc., a business-to-business marketplace for brand-name excess inventory in New York, appointed ALVIN LEWIS as CTO. He started at LiquidXS.com in March 2003 as vice president of IT. Previously, Lewis was vice president of technology at Atlantic Records Group (now part of Warner Music Group). Lewis has also created technologies for Citibank, Motorola Inc., Lucent Technologies Inc. and Salomon Brothers Inc.

Itemfield Appoints Ukelson as CTO

Itemfield Inc., a provider of data transformation software in San Mateo, Calif., appointed JACOB UKELSON as CTO. Ukelson joins Itemfield from IBM Israel's Global Technology Unit, where he was CTO and business development manager. Previously, he was a department general manager at IBM's Thomas J. Watson Research Center.

BARBARA GOMOLSKI

Cleaning House

HOUSEKEEPING has never been my strongest suit, but I've learned a few things along the way that have helped me stay somewhat organized. For instance, if I buy something new (whether it's a book or a shirt), I try to shed a similar item from my current collection. This helps me avoid clutter and keep the number of things in my house to a *somewhat* manageable level. Before I implemented this plan, I found myself acquiring too much stuff that I didn't use often enough to justify keeping.



Many IT organizations are in the same position when it comes to their application portfolios.

After years of acquiring software systems and not getting rid of anything, companies have severe application clutter. As a result, given their limited financial resources, they can't meet the current demand for IT unless they "turn off" some applications.

Put another way, they need to take something off their plates in order to make room for the next course.

This makes a lot of sense, actually. The practice of continually adding to the IT burden while holding IT budgets and head counts relatively flat is obviously problematic. Yet that's exactly what many companies have done since the early 2000s. And this practice is one of the reasons why many CIOs feel that they simply don't have enough resources to meet internal demand for IT.

Since most organizations add applications but rarely get rid of any, it's not uncommon to find that a large organization supports several hundred applications, including packaged and custom-developed systems. (I'm not counting shelfware.)

Clearly, most CIOs could argue that an inventory and housecleaning of the application portfolio may be in order.

Turning off some existing systems sounds like a pretty straightforward solution, but it's not. When CIOs embark on a housecleaning project, they often find that it's fraught with challenges.

The following are some of the key problems that arise:

- Human nature is such that nobody wants to give up any application or service once they've had it. This is especially true for line-of-business managers and their software systems.
- Some systems are so old that nobody remembers who ordered them.
- IT lacks the political clout to make business managers participate in this exercise.

But there are ways to make this housecleaning less painful:

- Incorporate existing systems into the current application portfolio management framework. Many companies use portfolio management as a way to prioritize new IT initiatives.

Adding older systems to the portfolio allows IT to leverage its investment in portfolio management and tackle questions about existing applications with the same audience that participates in prioritization discussions.

- Provide business leaders with good information to make decisions about the future of applications.

For instance, if you were to ask a marketing director if he could live without a current order-tracking system, he would probably say no. But if you ask that same manager whether it's worth the $1 million a year that it costs to maintain the system for the 14 business people who use it, that becomes a different story.

In other words, give business people the information they need to weigh the costs and benefits of the decision.

- Sell the housecleaning initiative internally so that there is high-level buy-in. A chief financial officer or other executive champion can lend credibility to the effort. Such acceptance also gets IT out of the unenviable position of trying to take systems away from the business leaders and users.
- Try to have the consumers of IT bear the cost of IT. If business units don't directly pay for what they consume, it's very hard to get them to give up anything. If getting rid of older or underused systems is in your future, you may have to look at your IT cost recovery (chargeback) plan.

Ultimately, the solution to this problem is to get the business to assume ownership of the systems they have IT build. Ownership, of course, extends for the entire life cycle of the system, including retirement.

Unfortunately, many companies haven't reached the point where business units truly own the IT software assets. Until they get to this point, IT organizations should be prepared to offer some help with the cleanup of application portfolios. 51067

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But the relationship manager can't play all these roles on his own. Most companies find that they need to tweak organizational charts to provide the support they need to straddle the space between IT and the business; otherwise, the relationship manager can easily fall into thin air. "I have not seen the role be successful when it's a standalone liaison role," says Mike Roche, vice president of Allstate Protection Technology.

Allstate began hiring relationship managers two years ago. At the time, IT was retooled from a shared-services organization with an admitted "arm's-length relationship with the business," Roche says, to a group with a CIO and dedicated IT staff for each of the two major arms of the company.

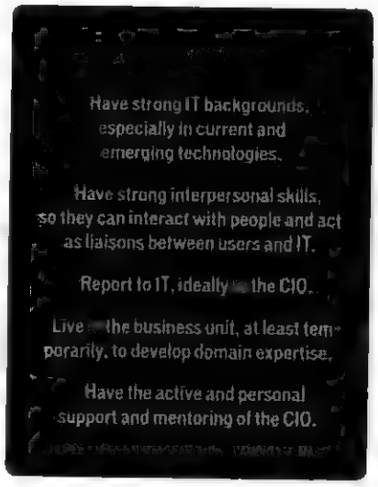
Relationship managers were installed to serve as liaisons between IT and the business functions, but the setup was only somewhat successful, Roche says. The problem, he determined, was that the individuals in these roles had no accountability for delivering on projects. "It's easy to be an order taker and create demand without having any indication of what's reasonable from a delivery standpoint," he explains.

Now, the relationship managers have teams of developers and project managers assigned to them, and — most important — they are responsible for achieving measurable results. "We expect these lead people to be innovative in terms of process improvements," Roche says.

Without that kind of accountability, he says, the relationship manager stands no chance of earning credibility and may even create a layer of redundancy. "If they're pushing through requirements but don't understand the technology that supports it, someone has to rework everything they do," Roche says.

The evolution of the role at Allstate is not unusual. "It's not like you can put in a magical solution on Day 1," says Rob James, CIO at Novartis. "You have to build support processes and fine-tune things as you move forward."

Novartis decided three years ago to move away from its centralized IT organization to one whose initiatives are driven and funded by the business units. Each business function was assigned a relationship manager, called a business information manager, or BIM. Several centralized IT groups remained to support cross-enterprise needs.



At first, the BIMs worked alone or in small teams, but as demand grew, BIM groups expanded to include dedicated project managers, developers and support staffers. The new structure frees them to focus on strategic issues. "I'm not a lone ranger out there," says Simon, who is a BIM for three groups at Novartis. "If I get a request, I have control over how quickly I can respond because I have resources at my disposal."

"Not all these things were in place from the start," James says. "The opportunities will continue to be driven by what the business wants us to do."

At Allegis, the relationship manager function has undergone a major transformation. Today, the role is solidly positioned in IT, but it wasn't always that way. Until 2002, Sheppard was one of five "business information officers" the company had embedded within its operating units. Sheppard and the others had no direct reports, and they reported to IT but were seen as extensions of the business.

While the overall setup worked well, the group had an unfortunate image. IT tended to view each of its requests as just another problem to solve, and the business people didn't like hearing why some of their IT requests weren't feasible. "Either way, we were seen as the bad guys all too often," Sheppard says.

With no support staff, Sheppard and his cohorts were also focusing too often on tactical issues, he says. "I wasn't doing the job that adds value to the whole organization, which is looking for the strategies and initiatives for the next year," he says.

Two years ago, during the economic downturn, Allegis dissolved all of its business information officer positions except for Sheppard's. Now, as the only relationship manager left, he supports the IT needs of all the operating companies and reports to the CIO. But he has three groups to support him with service-level agreements, day-to-day deliverables, new-process development and internal public relations. That support "allows me not to get stuck in the weeds," he says. "I can deal with the business side at a higher level."

These days, Sheppard feels he's seen as less of a bad guy, although as a relationship manager, you never really take off the black hat, he says. "When they don't hear what they want to hear, they're still unhappy about that," Sheppard says.

Like other companies with relationship managers, Allegis will continue to evolve the role as business requirements dictate. And having business support is the top priority for making the position work. Says Novartis' James, "You have to do this in total partnership with the business." 51088

Brandel is a Computerworld *contributing writer in Grand Rapids, Mich. You can contact her at mary.brandel@comcast.net.*

POLITICAL PITFALLS AND ORGANIZATIONAL OBSTACLES

Relationship managers can help align IT projects with business goals, but they face many obstacles, says Forrester analyst Mark Cecere. Here are some of them:

Lack of business credibility. Relationship managers who don't really understand business processes won't be included in planning meetings or IT decision-making. The business side may even see them as spies for IT. To avoid this, use senior IT people who have been assigned to business units for several years and embed them in their business units to enable extensive knowledge transfer.

Lack of IT credibility. Relationship managers must be able to speak intelligently on the possibilities and limitations of a broad range of technologies. They should have years of experience in technology as well as an established network within the IT department so IT doesn't see them as users.

Lack of collaboration with other relationship managers. If relationship managers don't work as a team, their knowledge of the business and IT will likely be fragmented. Collective knowledge, which can be shared in meetings, is valuable.

"Help-desk" image. While one of their roles is to help with tactical and relationship-building tasks, such as fixing printers, they must focus on the strategic component of their work.

EXEC TRACK

Kobayashi Named CIO at Ross Stores

Ross Stores Inc. in Pleasanton, Calif., has appointed MICHAEL K. KOBAYASHI senior vice president and CIO. Kobayashi had spent the past 18 years at Accenture Ltd. He has been serving in an interim leadership role in Ross Stores' IT department since July.

PPG Industries Taps Trainham

JAMES A. TRAINHAM has been appointed vice president of science and technology at PPG Industries Inc., a Pittsburgh-based maker of paint, stains and sealants. He previously worked at Invista, formerly DuPont Textiles and Interiors, for nearly 25 years. He was chief technology officer at Invista from 2002 until the company's divestiture from DuPont Co. earlier this year.

Lewis Takes CTO Post at LiquidXS

LiquidXS.com Inc., a business-to-business marketplace for brand-name excess inventory in New York, appointed ALVIN LEWIS as CTO. He started at LiquidXS.com in March 2003 as vice president of IT. Previously, Lewis was vice president of technology at Atlantic Records Group (now part of Warner Music Group). Lewis has also created technologies for Citibank, Motorola Inc., Lucent Technologies Inc. and Solomon Brothers Inc.

Itemfield Appoints Ukelson as CTO

Itemfield Inc., a provider of data transformation software in San Mateo, Calif., appointed JACOB UKELSON as CTO. Ukelson joins Itemfield from IBM Israel's Global Technology Unit, where he was CTO and business development manager. Previously, he was a department general manager at IBM's Thomas J. Watson Research Center.

BARBARA GOMOLSKI

Cleaning House

HOUSEKEEPING has never been my strongest suit, but I've learned a few things along the way that have helped me stay somewhat organized. For instance, if I buy something new (whether it's a book or a shirt), I try to shed a similar item from my current collection. This helps me avoid clutter and keep the number of things in my house to a *somewhat* manageable level. Before I implemented this plan, I found myself acquiring too much stuff that I didn't use often enough to justify keeping.

Many IT organizations are in the same position when it comes to their application portfolios.

After years of acquiring software systems and not getting rid of anything, companies have severe application clutter. As a result, given their limited financial resources, they can't meet the current demand for IT unless they "turn off" some applications.



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Put another way, they need to take something off their plates in order to make room for the next course.

This makes a lot of sense, actually. The practice of continually adding to the IT burden while holding IT budgets and head counts relatively flat is obviously problematic. Yet that's exactly what many companies have done since the early 2000s. And this practice is one of the reasons why many CIOs feel that they simply don't have enough resources to meet internal demand for IT.

Since most organizations add applications but rarely get rid of any, it's not uncommon to find that a large organization supports several hundred applications, including packaged and custom-developed systems. (I'm not counting shelfware.)

Clearly, most CIOs could argue that an inventory and housecleaning of the application portfolio may be in order.

Turning off some existing systems sounds like a pretty straightforward solution, but it's not. When CIOs embark on a housecleaning project, they often find that it's fraught with challenges.

The following are some of the key problems that arise:

- Human nature is such that nobody wants to give up any application or service once they've had it. This is especially true for line-of-business managers and their software systems.
- Some systems are so old that nobody remembers who ordered them.
- IT lacks the political clout to make business managers participate in this exercise.

But there are ways to make this housecleaning less painful:

- Incorporate existing systems into the current application portfolio management framework. Many companies use portfolio management as a way to prioritize new IT initiatives.

Adding older systems to the portfolio allows IT to leverage its investment in portfolio management and tackle questions about existing applications with the same audience that participates in prioritization discussions.

- Provide business leaders with good information to make decisions about the future of applications.

For instance, if you were to ask a marketing director if he could live without a current order-tracking system, he would probably say no. But if you ask that same manager whether it's worth the $1 million a year that it costs to maintain the system for the 14 business people who use it, that becomes a different story.

In other words, give business people the information they need to weigh the costs and benefits of the decision.

- Sell the housecleaning initiative internally so that there is high-level buy-in. A chief financial officer or other executive champion can lend credibility to the effort. Such acceptance also gets IT out of the unenviable position of trying to take systems away from the business leaders and users.
- Try to have the consumers of IT bear the cost of IT. If business units don't directly pay for what they consume, it's very hard to get them to give up anything. If getting rid of older or underused systems is in your future, you may have to look at your IT cost recovery (chargeback) plan.

Ultimately, the solution to this problem is to get the business to assume ownership of the systems they have IT build. Ownership, of course, extends for the entire life cycle of the system, including retirement.

Unfortunately, many companies haven't reached the point where business units truly own the IT software assets. Until they get to this point, IT organizations should be prepared to offer some help with the cleanup of application portfolios. 51087

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Spotty read rates make it clear that the "R" in RFID doesn't stand for reliability. PAGE 32

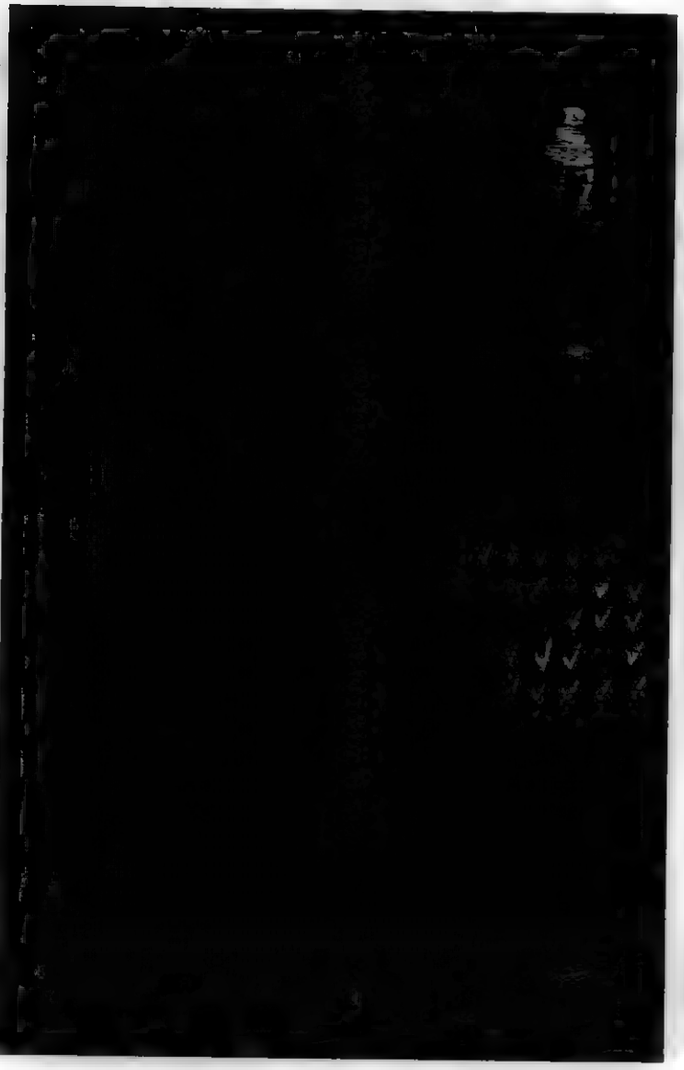


The Long and Winding Road
See how RFID data makes its way from the manufacturing floor to the retail supply chain at pioneering Gillette. PAGE 34



OPINION
Forget Wal-Mart
When it comes to RFID, everyone's talking about Wal-Mart. Columnist Mark Hall says that's a mistake. PAGE 38

RFID will eventually be a winner, but reliability is a vexing issue.



RAKEFET KENAAN

EDITOR'S NOTE



Radio frequency identification technology, or RFID, will eventually help prevent inventory snafus and provide more visibility into the supply chain. But so far, the road to RFID nirvana has been paved with potholes. There has been a shortage of chips plus continuing problems with reliability, systems integration and immature technology. Analysts say that even the mighty Wal-Mart has had to relax its widely publicized January RFID deadline and grant some suppliers deferments to mid-2005 because of "extenuating circumstances."

Right now, RFID is all about extenuating circumstances. Consider the case of Goodyear Tire & Rubber, which is trying to figure out how to use RFID in the tire business. Goodyear executive Jonathan Rich points out that attaching an RFID tag to a box or pallet is relatively easy, but tires aren't shipped that way, so the tag has to be attached directly to a round, nubby product. "This is complex," Rich says, with some understatement, "because tires are flexible, the material properties can interrupt or distort the radio signal, they are shipped individually, and they are stored in arbitrary positions." And you think you've got problems!

We recognize that RFID isn't as simple as the airline magazines suggest, so this special report provides tips for dealing with RFID reliability problems and illustrates the complexity of the data flows at bellwether user Gillette. As IDC analyst Frank Gens put it, "We remain bullish on the long-term impact and value of RFID . . . [but] adoption is a more complicated and slower process than boosters often suggest." **QuickLink 51091**

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RFID Reality Check

THE Trouble With Tags

Spotty read rates make it clear that the 'R' in RFID doesn't stand for reliability. By Mary Brandel



vice president of operations at Henkel Consumer Adhesives, says. "It may take five or six years, but eventually [RFID tags] will grow into the fabric of our organization, like UPC bar codes."

WHEN YOU HEAR the litany of reliability and readability woes that plague radio frequency identification (RFID) pilot projects in the supply chain arena, you may wonder how anyone is making any progress with this technology at all.

Problems range from nonfunctioning tags to environmental conditions, such as temperature, humidity and radio frequency interference, that can render tags unreadable. The challenges continue as containers move through the warehouse and onto trucks — a process in which tags can be damaged or thrown out of alignment so they can't receive reader signals. And the list goes on: Forklifts cut cables, tag printers can't keep up with conveyor belt speeds, or adhesives that bond tags to containers fail at low temperatures.

"There's still a lot of immaturity in the technology," says Kara Romanow, research director at AMR Research Inc. She points to the 10% to 12% of tags that are "dead on arrival" — meaning they arrive at the user site in nonworking condition. Even when you weed out the bum tags, average read rates are still just 80% to 90%, she says. Some of this is the result of tag failure, but other common problems are incompatible tag/reader combinations and products that aren't suited for RFID. "Companies are trying to tag RF-unfriendly products, like soup cans and baby wipes," she says. "It really varies by product."

And yet, if you talk to RFID users like Gene Obrock, vice president of operations at Henkel Consumer Adhesives Inc. in Avon, Ohio, or David Adams, senior vice president of corporate strategy at TrenStar Inc. in Greenwood Village, Colo., you find that they are more optimistic. Yes, they agree, RFID systems are fraught with reliability pitfalls, some of which never go away. But the potential payback is so great, they say, that building an RFID-based supply chain that takes these issues into consideration is worth the trouble — even if the benefits are five to 10 years away.

"The equipment is becoming more durable, the technology more reliable, the tags are improving, and at the same time, we're more knowledgeable about the relationship between the technology and the packages we sell to our retail customers," says Obrock, whose company is testing RFID with Wal-Mart Stores Inc.

Obrock is clear that reliability will play a major role in determining Henkel's eventual return on investment, which will be achieved in part by obtaining more accurate and timely inventory data from retailers. But valuable data can be collected only when the volume of Henkel's RFID-tagged packages increases. "It may take five or six years, but eventually it will grow into the fabric of our organization, like UPC bar codes," Obrock says.

Obrock and other experienced users advise companies to learn as much as they can about the relationship between RFID and their own products and processes and then build a system that anticipates and resolves reliability problems that arise.

DOA tags are common enough that experienced users have found ways to work around them. They arrange with tag manufacturers, for instance, to ship extra tags to compensate for those that don't work. Many printers today also include a readability tester that rejects bum tags, minimizing the chances that one will ever be applied to a container.

Of course, that doesn't resolve the issue of tags that test fine but fail later. That's why users that require the highest reliability guarantees must work directly with tag manufacturers on quality assurance — and pay a premium to certify that the tags will work.

This extra cost is acceptable to Atul Salgaonkar, founder of Cupertino, Calif.-based RFID Solutions LLC, which develops RFID systems for clients in the pharmaceutical and health care industries, where accuracy is paramount. "If I have 10 samples and only eight are read, I don't want to have to do a song and dance in front of my client," he says.

Salgaonkar proposes that manufacturers sell different flavors of tags with prices reflecting variances in reliability. The first step down that path would be for the tag vendors to publicize bit-failure-over-time rates, which they currently don't do. In the meantime, Salgaonkar advises clients to attach not one but two tags to pallets — which is fine for his clients,

whose high-end products warrant the extra cost.

Some observers see tag reliability becoming less of a factor as bigger-name companies such as Texas Instruments Inc. and Hitachi Data Systems Corp. enter the business. "There's a good chance the reliable-tag issue will be resolved by the end of the second quarter next year," predicts Steve Banker, service director of supply chain management at ARC Advisory Group Inc. in Dedham, Mass.

For their part, retailers seem willing to accept some level of inaccuracy. "We're receiving rules that say, 'If every week you send me a pallet with 80 cases, and this week I only read 79, I will understand it as 100%,' " Obrock says. Indeed, Banker expresses doubt that the technology will ever reach 100% accuracy at the pallet level, where tightly packed goods and other causes of interference can lead to readability problems. Retailers "will have to make a leap of faith that if they can read 19 out of 20 SKUs on the pallet, that the 20th one is there," he says.

Package Problems

What will continue to suck up lots of R&D dollars, however, is studying the nature of the products being tagged. "In the dry-goods space, people are getting close to 100% reads, some at a rate of 600 feet per minute," says Eric Peters, CEO of True Demand Software, an RFID start-up in Menlo Park, Calif. But with metal containers and anything containing liquids, read rates are a much lower 60% to 75%, or even 15% on some metal containers, he says.

Companies need to get creative to overcome these problems. When the Department of Defense had trouble tagging 55-gallon metal drums, Peters says, it finally succeeded by placing weatherstripping behind the tags, which minimized interference.

With Henkel's metal tape products, tags have to be placed in a very specific position on the box, or readers will pick up reflections from the tape. Meanwhile, a completely different type of tag works better with the company's shelf-liner products. That's where the cost really comes in: Companies are spending research dollars trying different tags and tag placements with all of their products — and they're documenting the results and making sure workers abide by the explicit instructions. They might end up requiring a variety of tags, with different form factors or different antennas, to accommodate all of the variables in their product lines.

"If you have 10 different SKUs and 10 different tags that you're trying to test, without fail there won't be one tag type suitable for all 10," says Brian Higgins, director of global RFID solutions at BearingPoint Inc. in McLean, Va.

That, of course, increases costs. "You can't get volume discounts if you're spreading out tag procurement purchasing power over 10 different tag types," Higgins says. And in addition to increasing costs, using different tags disrupts and adds complexity to your operations. Custom tags are also more expensive than the 30-cent variety, Romanow points out. "Whatever business case you have really goes negative when you start getting into custom tags," she says.

The challenge is to find the lowest common denominator, or the tag that works best on the widest swath of SKUs. For all these reasons, Higgins says, there's a gap between working through readability concerns and true deployment.

All in all, users have to walk carefully on the cost/performance balance beam when they engage in all this experimentation. "There are ways to enhance reliability, certainly. But the challenge is keeping it on a cost/performance curve so it's useful," Higgins says.

What Happens Next

So, you've worked through all the experimentation, and you've gotten an RFID pilot up and running. Don't celebrate yet — there's room for more trouble down the road. "Pilots are neat, where you get 100% read rates and give each other high-fives," says TrenStar's Adams. "But when you turn on the conveyor belt, and you're reading 1,800 containers an hour, it's a whole different ballgame."

Adams knows what he's talking about — TrenStar, a mobile asset management firm, tracks tens of thousands of RFID-tagged containers. The company is so comfortable with the reliability rate of its RFID system that it builds a key performance metric into customer contracts, promising 98% to 99% read rates. But the only way it can do this is by building intelligence into its network to pick up deviations and degradations quickly enough that someone can respond to them.

"Reliability is so much about the quality assurance process you have in place so that when things start to not work, you can pick up on that before it turns into a train wreck," Adams says.

TrenStar's RFID system includes a series of checkpoints that containers move through, each of which signals whether the container was read accurately. If a checkpoint is missed, the system alerts someone who can physically investigate whether the problem was a one-time anomaly or something systemic like a cut cable or burned-out battery. "We've put in business logic that says, 'If this occurs, take this action or e-mail this person, and if it happens 100 times, escalate the problem,' " Adams says.

Warehouse to Worker

Following the RFID reliability trail of tears eventually leads to the most important point of all: ensuring the integrity of the data collected by this technology. Few companies have progressed to the point of integrating the RFID data into their warehouse and ERP systems, so it's too soon to tell whether the data will be accurate.

But companies like Henkel are preparing for the problems that will arise. "If I ship a pallet with 80 cases, and the number that gets read is 76, and if every pallet is read that way, what do I do with that data?" Obrock says. You can round up to 80, assuming a misread, but what if a large number of pallets were truly four containers short?

The fact is, all the assumptions that you build into your business rules need to be reviewed before using this new data — and they need to continue to be reviewed as the technology improves. "You can't tell your data folks to assume data is off by 10%, and eight months later, it's actually only off by 3%," says Obrock. "You have to go back every so often to validate the difference between the real situation and modify the conventions around how they use that data."

While reliability and readability may not top the list of factors that will affect RFID adoption, they will, in the end, affect how meaningful the resulting data will be. One reason is that a large volume of data is needed in order for it to be useful.

"In a lot of these pilots, people are tagging 5%, 10%, 20% of their overall SKUs," Higgins says. "It's difficult to do any planning when you're only capturing that small of a fraction."

Still, experienced users are enthusiastic about the advances being made in RFID reliability, and they point out that the more users experiment and learn — particularly in these early days when implementers are most likely to be open about their experiences — the better off they'll be.

"Those who started three years ago will stay three years ahead. Others will catch up, but they'll be learning it on their own dime," Obrock says. "Once some of the retailers and manufacturers get good at it, I probably won't share all my insights because it will be hard-core knowledge." **50750**

Brandel is a Computerworld contributing writer in Grand Rapids, Mich. Contact her at mary.brandel@comcast.net.

Squishy Returns

ARC Advisory Group recently conducted a survey of 24 manufacturers and distributors engaged in RFID implementations. Here are some findings from the study:

- **Twenty-three of the respondents said they didn't believe they would achieve ROI within two years.**
- **Respondents said that, through experimentation, they were able to achieve 100% accurate reads at the individual case level. However, at the pallet level, "experience was all over the map,"** says Steve Banker, service director of supply chain management at ARC. Some respondents with hard-to-read materials were achieving just 50% accuracy, while users with large items and pallets with no interior cases fared better. "Most folks were able to read every case on a pallet only 70% of the time," Banker says. Respondents said they'd need 95% to 99% accuracy at the pallet level to see benefits of RFID such as reduced inventory levels.
- **Respondents attempting to automate tag application found that printer/encoders couldn't keep up with their conveyor belts.** Successful alternatives, such as robotic applicators, were difficult to find. "Hardware suppliers think they're two generations away from resolving the speed issue," Banker says.
- **Automated tag application is also complicated by nonfunctioning tags.** Many printers reject burn tags and generate voided-out ones, but if there are two of these in a row, it disrupts automated operations.
- **None of the respondents said they were willing to make a high-volume tag purchase commitment.** "They're waiting for Gen 2 standards to be approved, and there's a new raft of hardware providers," Banker says. "The wait is partially in hope that they can negotiate a better price, but it's more about quality and reliability."

– *Mary Brandel*

THE Long AND Winding Road

How RFID data makes its way from manufacturing floor to retail supply chain at pioneering Gillette.

By Carol Sliwa

ON A ROAD MAP, the data encoded in an RFID tag will endure a long but clear-cut journey, traveling thousands of miles from a manufacturer's warehouse to a retailer's distribution center in a chip no bigger than the head of a pin. But the data's path gets more complicated as it wends its way through the various middleware and back-office applications that will ultimately make it useful in the retail supply chain.

Standards are still being worked out, and the software is still evolving. By the time everything is settled, the ways in which the data travels may change. That's what *Computerworld* learned as it traced the path of RFID data at trailblazing user The Gillette Co., one of Wal-Mart Stores Inc.'s top suppliers.

The Boston-based manufacturer has one of the most sophisticated global IT architecture designs among the 100 suppliers facing Wal-Mart's January deadline. Leo Burstein, distributed technology architect at Gillette, is confident that the bumps will be smoothed out. Burstein sits on the architecture review committee of EPCglobal Inc., the standards body working to resolve some of the prickliest issues.

In the meantime, with so much in development, Gillette has faced a balancing act to establish "a framework that is flexible enough to sustain the long-term project but at the same time develop some tactical benefits that can be used to support our customers in the short term," Burstein says.

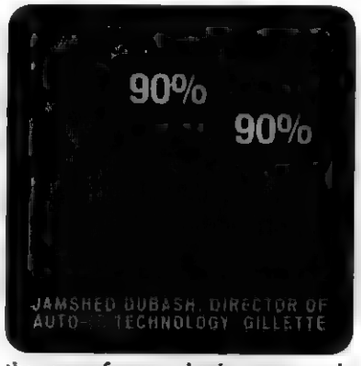
At Gillette, the data begins its journey in the software systems that assign a unique Electronic Product Code to each case and pallet. The EPC is transfused onto a chip embedded in a tag that has a flat, razor-thin coil on its underside. When the tag hits the RF field of a reader, it responds with a signal containing its code, and the data is sent to EPC middleware for processing.

Once Wal-Mart expands its RFID efforts and other retailers follow suit, data will be gushing through those companies' IT systems like a waterfall. But the volume of data is currently more akin to the trickle of a stream.

Thus far, only a handful of retailers have asked their suppliers to ship cases and pallets with RFID tags to selected distribution centers, so technology vendors aren't able to get the critical mass necessary to drive down costs.

Because RFID tags and related systems are expensive and the near-term payoff isn't clear, there's little point in tagging all products at the point they're manufactured. Retailers merely need to know when the cases and pallets are shipped and what's in them. As a result, most suppliers tag goods as late in the process as possible.

Gillette is no exception. The company was one of eight suppliers to participate in a pilot with Wal-Mart. Most of the cases of razors, shaving cream and toothpaste it ships to Wal-Mart are tagged at its distribution center in Romeoville, Ill. But because Gillette thinks the benefits will be greater the earlier in the process it can tag goods, the company has also launched a pilot to "tag at source" at its packaging facility in Fort Devens, Mass., where it puts EPC tags on cases of Venus razors.



JAMSHED DUBASH, DIRECTOR OF AUTO-ID TECHNOLOGY, GILLETTE

Like a license plate on a car, the EPC uniquely identifies a case or pallet. It uses five key pieces of information: the company code; product code; serial number that uniquely identifies the item; a header that defines different types of tags, such as those in the consumer products industry; and a filter value that allows a company to read only pallet-level tags, ignoring case-level tags or vice versa.

By tagging at the point of packaging, Gillette can reduce the labor costs associated with manually scanning each case and curb errors. Workers currently key five entries onto a keyboard and do three bar code scans for each pallet, according to Jamshed Dubash, director of Auto-ID technology at Gillette. He says a business process analysis showed that the company will annually save 25% in operational costs once all cases are being tagged at the packaging point rather than at the distribution center.

But, Dubash is quick to add, "even though you can get significant benefits from operational savings, it's the collaborative benefits that are the real drivers and motivators for us to work so closely with our retail partners. Our analysis shows that 90% of our benefits and 90% of the retailer's benefits come in the collaboration process."

Moving Through the System

Gillette's EPC data travels thousands of miles on a tiny chip to Wal-Mart's Texas distribution centers in Sanger and DeSoto, as well as to some stores, Burstein says. If all goes well, its arrival is automatically logged when the tags on the cases and pallets are read at strategic positions in the retailer's distribution centers and stores.

Gillette is already getting access to data from Wal-Mart and is working with the retailer to understand the optimal use of the data, Burstein says.

A spokesman for Wal-Mart says it provides options for suppliers through its Retail Link extranet site. With Retail Link, suppliers have to "pull" data; a dashboard provides customization options. That system was used during the pilot, and many suppliers will continue using it, the spokesman says. He adds that Wal-Mart has rolled out specifications for an Electronic Data Interchange document that will allow suppliers to receive "all of their read data" on a machine-to-machine basis in that form — daily, if they wish.

Gartner Inc. analyst Jeff Woods says suppliers will be able to see data indicating not only when a product arrives at Wal-Mart's distribution centers and stores, but also when it moves from a store's back room to the sales floor, because readers in trash compactors will note when cases are crushed.

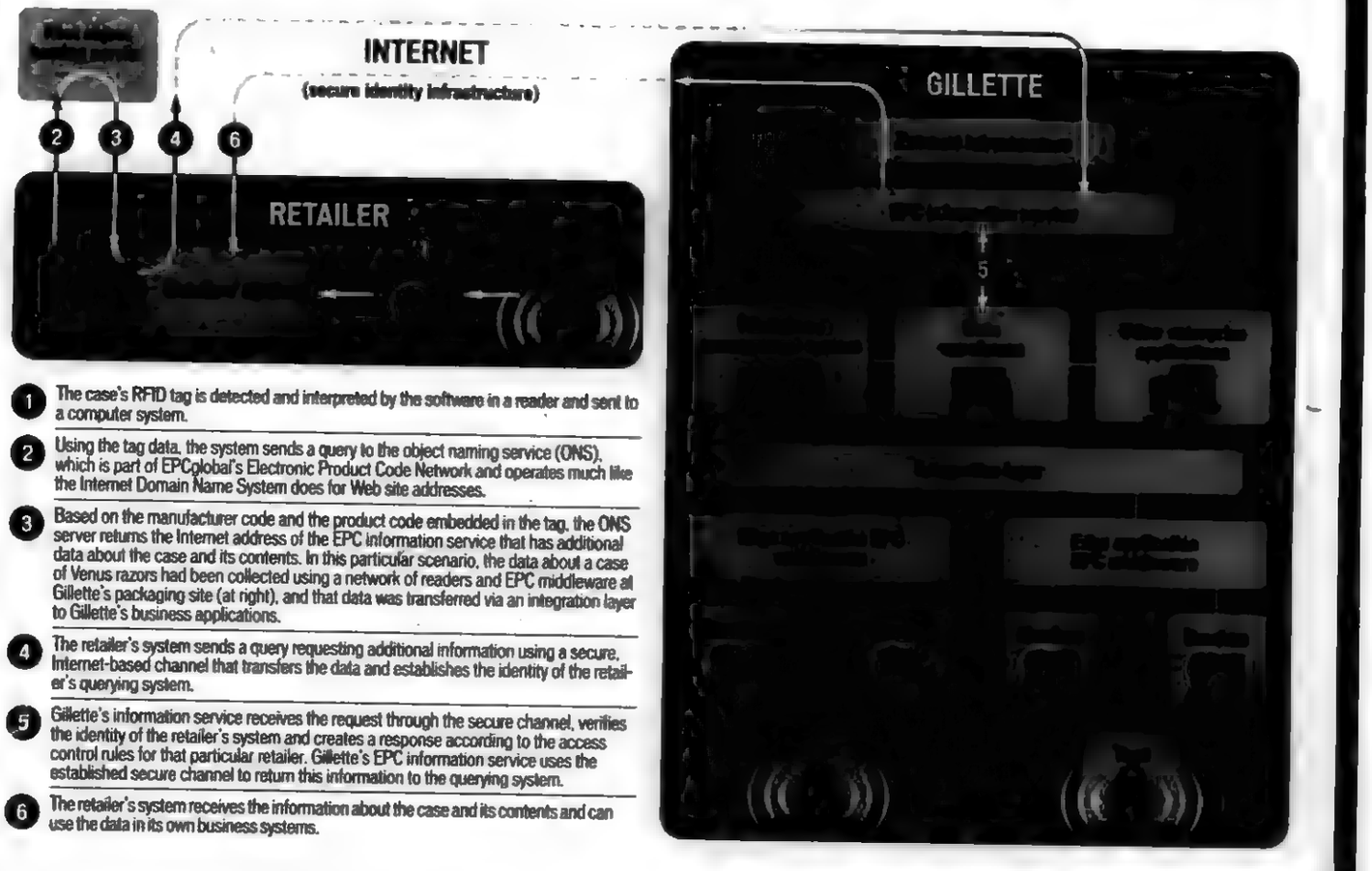
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But, Woods maintains, even if suppliers can get the RFID data, the majority won't know what to do with it. "Most aren't even ready to use the point-of-sale data that's there today," he says.

When Gillette began designing its

What's in that case?

SCENARIO: An RFID-tagged case with no label has been found in a retailer's distribution center. Here's how the retailer might find the data associated with that case in the future.



1. The case's RFID tag is detected and interpreted by the software in a reader and sent to a computer system.
2. Using the tag data, the system sends a query to the object naming service (ONS), which is part of EPCglobal's Electronic Product Code Network and operates much like the Internet Domain Name System does for Web site addresses.
3. Based on the manufacturer code and the product code embedded in the tag, the ONS server returns the Internet address of the EPC information service that has additional data about the case and its contents. In this particular scenario, the data about a case of Venus razors had been collected using a network of readers and EPC middleware at Gillette's packaging site (at right), and that data was transferred via an integration layer to Gillette's business applications.
4. The retailer's system sends a query requesting additional information using a secure, Internet-based channel that transfers the data and establishes the identity of the retailer's querying system.
5. Gillette's information service receives the request through the secure channel, verifies the identity of the retailer's system and creates a response according to the access control rules for that particular retailer. Gillette's EPC information service uses the established secure channel to return this information to the querying system.
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architecture, the starting points were the business requirements and back-office applications. From there, it worked its way back through an integration layer, the EPC-enabled middleware and finally to the readers and the tags containing the data. The idea was to minimize changes to existing business applications, protect the company from shifts in RFID technology and create layers of abstraction, connected by a series of sophisticated interfaces.

Taking a service-oriented approach, each application would be similar to a Lego block, and the interfaces would be the pegs connecting them. Any one of the building blocks could be removed, and another could be plugged in. "You can use the best building blocks that meet your requirements, and if you need to replace one of them, you do not have to change the rest of the puzzle," says Burstein.

The current edition of Gillette's architecture has a business application layer consisting of its data warehouse, a warehouse management system from Provia Software Inc. and other applications that will process the data.

Integration and Middleware

An integration layer sits between the enterprise application layer and its EPC-enabled middleware from OatSystems Inc. The integration layer, based on technology from Sun Microsystems Inc., handles the routing of data between the middleware and enterprise systems, guarantees message delivery and performs any needed protocol or data-format transformations.

The OatSystems middleware collects the EPC data from the readers, each of which has read a tag potentially hundreds of times per second, and filters the data into separate messages that have a distinguishable meaning from the business process perspective.

Gillette is also testing an appliance concept that will combine the reader, some functions of the middleware and the physical infrastructure to simplify its systems, Burstein says.

At the same time, Gillette is working hard through EPCglobal to standardize interfaces, the most important being those between the middleware and enterprise applications, Burstein says. The only needed interface close to being finalized is the one between tags and readers, he adds. "It's easier said than done," Burstein acknowledges.

"We as end users are encouraging technology providers to keep their systems open so we don't create stovepipes with no ability to exchange information between them," Burstein says.

But Woods says one of the greatest hurdles to overcome is how to determine the context of the data that's being collected. For instance, a reader at a shipping dock door needs to discern which tagged pallets are heading onto trucks and which are merely passing by on their way to storage, he says.

Scores of suppliers will merely slap tags onto the cases and pallets they ship to Wal-Mart and not worry about adapting their systems and business processes to take advantage of the data, at least in the near term. Even Gillette, which has what Woods terms a "sophisticated, very sleek architecture," still has a long way to go in figuring out meaningful uses for the data.

But, Woods adds, "if any supplier can figure out a way to use the data, it will be Gillette." **51069**

THE Long AND Winding Road

How RFID data makes its way from manufacturing floor to retail supply chain at pioneering Gillette.

By Carol Sliwa

ON A ROAD MAP, the data encoded in an RFID tag will endure a long but clear-cut journey, traveling thousands of miles from a manufacturer's warehouse to a retailer's distribution center in a chip no bigger than the head of a pin. But the data's path gets more complicated as it wends its way through the various middleware and back-office applications that will ultimately make it useful in the retail supply chain.

Standards are still being worked out, and the software is still evolving. By the time everything is settled, the ways in which the data travels may change. That's what *Computerworld* learned as it traced the path of RFID data at trailblazing user The Gillette Co., one of Wal-Mart Stores Inc.'s top suppliers.

The Boston-based manufacturer has one of the most sophisticated global IT architecture designs among the 100 suppliers facing Wal-Mart's January deadline. Leo Burstein, distributed technology architect at Gillette, is confident that the bumps will be smoothed out. Burstein sits on the architecture review committee of EPCglobal Inc., the standards body working to resolve some of the prickliest issues.

In the meantime, with so much in development, Gillette has faced a balancing act to establish "a framework that is flexible enough to sustain the long-term project but at the same time develop some tactical benefits that can be used to support our customers in the short term," Burstein says.

At Gillette, the data begins its journey in the software systems that assign a unique Electronic Product Code to each case and pallet. The EPC is transfused onto a chip embedded in a tag that has a flat, razor-thin coil on its underside. When the tag hits the RF field of a reader, it responds with a signal containing its code, and the data is sent to EPC middleware for processing.

Once Wal-Mart expands its RFID efforts and other retailers follow suit, data will be gushing through those companies' IT systems like a waterfall. But the volume of data is currently more akin to the trickle of a stream.

Thus far, only a handful of retailers have asked their suppliers to ship cases and pallets with RFID tags to selected distribution centers, so technology vendors aren't able to get the critical mass necessary to drive down costs.

Because RFID tags and related systems are expensive and the near-term payoff isn't clear, there's little point in tagging all products at the point they're manufactured. Retailers merely need to know when the cases and pallets are shipped and what's in them. As a result, most suppliers tag goods as late in the process as possible.

Gillette is no exception. The company was one of eight suppliers to participate in a pilot with Wal-Mart. Most of the cases of razors, shaving cream and toothpaste it ships to Wal-Mart are tagged at its distribution center in Romeoville, Ill. But because Gillette thinks the benefits will be greater the earlier in the process it can tag goods, the company has also launched a pilot to "tag at source" at its packaging facility in Fort Devens, Mass., where it puts EPC tags on cases of Venus razors.

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Like a license plate on a car, the EPC uniquely identifies a case or pallet. It uses five key pieces of information: the company code; product code; serial number that uniquely identifies the item; a header that defines different types of tags, such as those in the consumer products industry; and a filter value that allows a company to read only pallet-level tags, ignoring case-level tags or vice versa.

By tagging at the point of packaging, Gillette can reduce the labor costs associated with manually scanning each case and curb errors. Workers currently key five entries onto a keyboard and do three bar code scans for each pallet, according to Jamshed Dubash, director of Auto-ID technology at Gillette. He says a business process analysis showed that the company will annually save 25% in operational costs once all cases are being tagged at the packaging point rather than at the distribution center.

But, Dubash is quick to add, "even though you can get significant benefits from operational savings, it's the collaborative benefits that are the real drivers and motivators for us to work so closely with our retail partners. Our analysis shows that 90% of our benefits and 90% of the retailer's benefits come in the collaboration process."

Moving Through the System

Gillette's EPC data travels thousands of miles on a tiny chip to Wal-Mart's Texas distribution centers in Sanger and DeSoto, as well as to some stores, Burstein says. If all goes well, its arrival is automatically logged when the tags on the cases and pallets are read at strategic positions in the retailer's distribution centers and stores.

Gillette is already getting access to data from Wal-Mart and is working with the retailer to understand the optimal use of the data, Burstein says.

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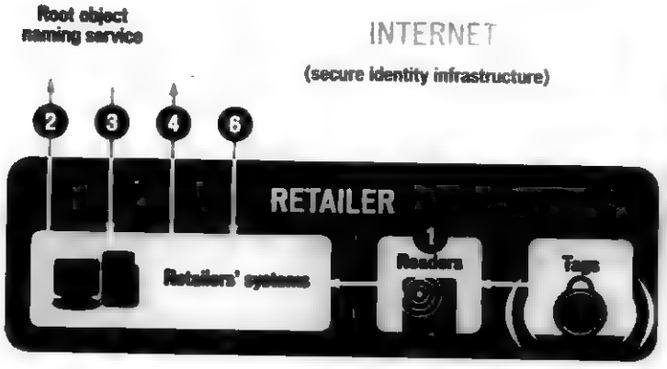
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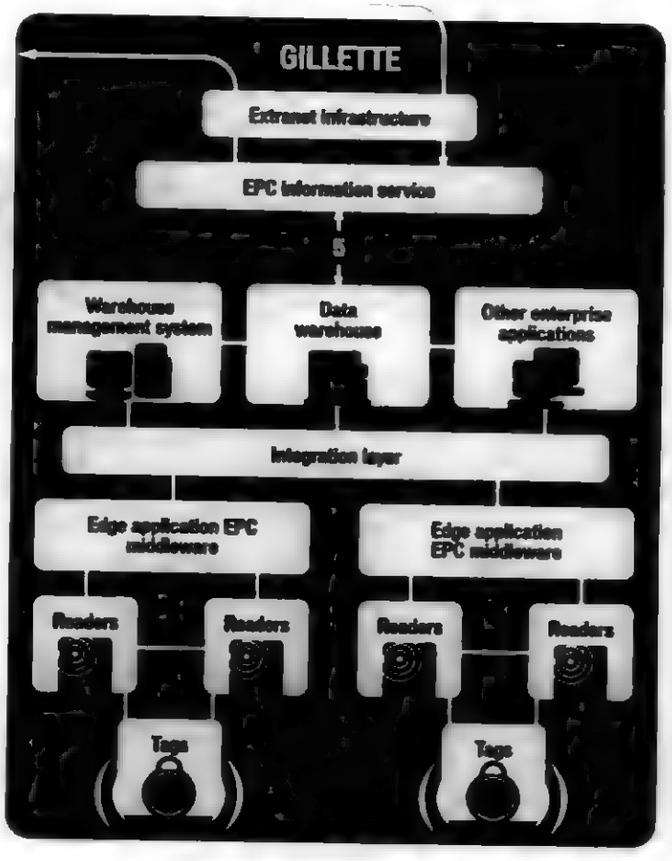
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Just getting your feet wet with RFID? These early users offer advice for managing a pilot project. By Marc L. Songini



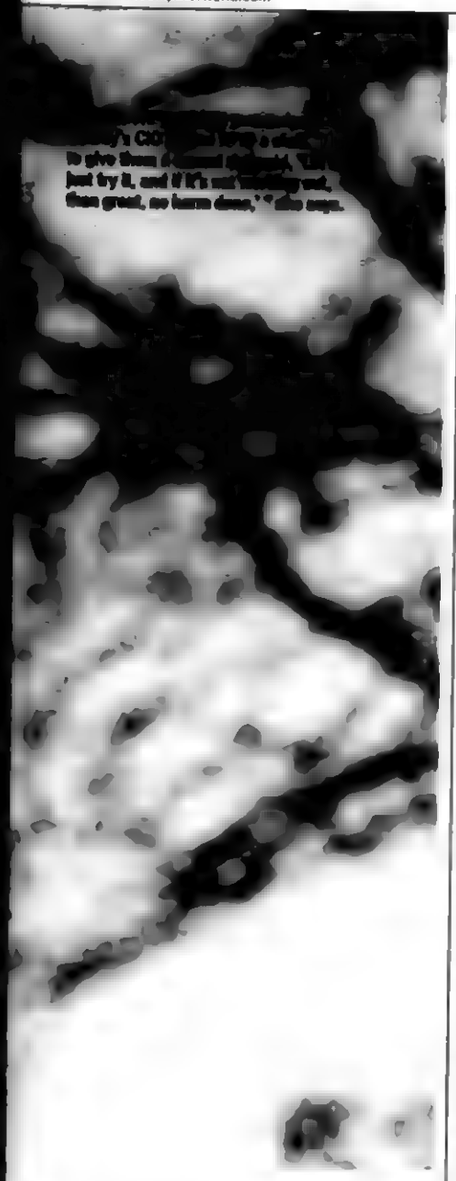
RAY NG

RFID PILOT TIPS

EARLY ADOPTERS say the trick to navigating the relatively untested waters of radio frequency identification is to assemble a savvy team that can set the project scope, win over business users and make up for the technology's limitations.

Take, for example, the El Paso County government office in Colorado Springs. A six-week RFID pilot project launched this fall to track IT assets involved tagging 265 PCs, 10 printers and 10 tablet PCs. The first step in the project, which would eventually pour retrieved RFID data into PeopleSoft Inc.'s Asset Manager, was to create a business case.

Buffy Dorpinghaus, manager of the Colorado county's PeopleSoft group, met with CIO Bill Miller and desktop and network managers. To sell them



on the project, Dorpinghaus explained that the new system would use existing bar-code scripts to cut the time needed to track PCs from 10 minutes to one minute without adding hardware or software or requiring a staff member to visit each desktop.

"I had to give them a caveat and said, 'Let's just try it, and if it's not working out, then great, no harm done,' " she says. The pilot would also be cheap, at under $100,000, Dorpinghaus says. That one-time pilot expense, which also paid for the production license, was a big plus. Had the project been bigger, she says, there probably would have been resistance.

Miller says that although RFID is a relatively new technology for government agencies, the pilot was seen as an opportunity to streamline processes and verify that new software and hardware would work the way El Paso County needed them to.

Next, the nine-person project team was put together. Dorpinghaus was chosen to head the team because of her PeopleSoft applications expertise and ability to map the technology to business processes. Also on board was a non-IT manager, who handled project administration, meeting planning and status reporting, and three IT staffers who would eventually use the system, including one person assigned to transfer the scripts used with the bar codes so they would work with the RFID technology as well.

Jamie Hintlian, a consultant at Accenture Ltd., says this upfront work of building the RFID team with the right skills and creating a solid business case is key. "Make sure the pilot is focused on a common set of objectives and imperatives," he advises. By managing the scope, companies can more easily manage the infrastructure and technology, Hintlian says.

For its RFID pilot, Madison, Wis.-based bicycle manufacturer Pacific Cycle Inc. created a four-person team: two IT workers with RFID technical skills and two business users who would be using the system once it was up and running, says CIO Ed Matthews. The pilot involved tagging 3,500 bikes and the packaging material inside and outside the boxes they're shipped in.

Since the pilot went live in September, the manufacturer has shipped 15,000 tagged bikes to Wal-Mart Stores Inc. But because RFID technology has been changing so fast, Matthews says that in retrospect, he would have waited another year. "In terms of technology, the immaturity has and continues to be a nuisance," he says. "We tried several tags and antenna designs but didn't get the results we wanted. I can't tell you the number of times that we were told a product is just a couple of weeks or a month away only to find out that it is still coming."

Winning Over Stakeholders

Another critical part of managing an RFID project is gaining business users' trust. The El Paso team held regular meetings with end users in the help desk and networking departments as well as those in the purchasing and supply group to create a clear, standardized process. The team used Microsoft Corp.'s Visio software to map the workflows.

Creating a structured workflow plan is time well spent, says Hintlian. "The results will be more significant, and the expectations for the pilot will be agreed upon from the start," he says.

Dorpinghaus says the idea was to fully train the workers who would be using the RFID system and ensure that they would benefit from it. Because the end users in this case were IT workers and savvy about the technology, they proved especially demanding, requesting special interfaces to access relevant data, she says.

But the RFID team learned early on that that kind of continued user feedback can only improve the system. "Keep encouraging them to be open," advises Dorpinghaus. Most problems can be easily resolved, and quick fixes can nip any growing dissatisfaction with the system, she says.

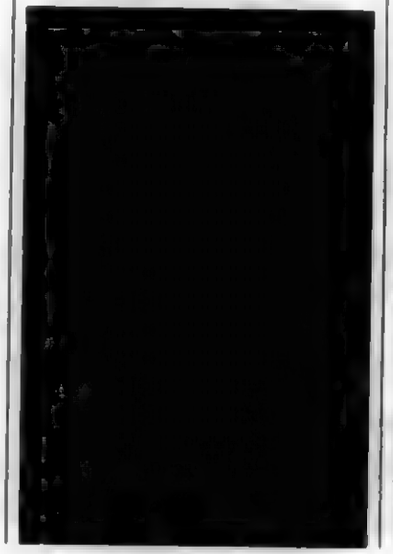
"Make sure you have good resource commitments from the pilot participants," adds Hintlian. "Each participant must be able to dedicate enough time to plan and execute well."

In addition, "working together face-to-face is important for the success of these pilots," he says.

Learning Along the Way

Even though RFID technology has been around for some time, launching a successful pilot requires trial and error, says Sean Clark, director of RFID at DC Logistics, a Dallas-based third-party logistics services provider. His company is launching an RFID pilot project in January for one of its customers, with other tests planned for clients that need to satisfy the requirements of the U.S. Department of Defense and retailers like Wal-Mart.

For example, DC Logistics learned to place a plastic tag under the RFID tag if the container is made of metal so that the signal is read accurately.



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At Pacific Cycle, several dry runs uncovered the best places on the bicycles to place the tags and whether the tags could be successfully stored and retrieved, says Matthews.

An important skill for RFID team members is the ability to improvise, he says. "If you looked at our warehouse and the antenna setup around the portals, you would think it was a mad scientist gone bad," says Matthews. "To get better read rates and to protect the antennas from being hit from a forklift, we have tried everything except attaching an old TV tray."

In fact, Matthews says bicycle welders were called on by the project team to manufacture mounts to attach RFID equipment to dock doors.

"I do believe that all of this will be a no-brainer in a couple of years," says Matthews. "But for now, they don't call it the bleeding edge for nothing."

That ability to roll with the punches is an important attribute in team leaders as well as team members. "Of course there were mistakes," acknowledges El Paso's Dorpinghaus. For instance, she says she forgot to change the license for the RFID system from development to production when the pilot went live, a problem that was quickly resolved.

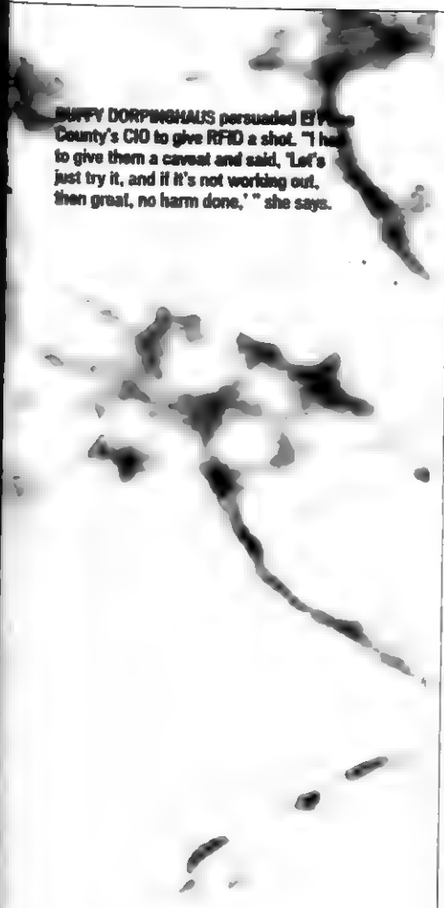
She also soon discovered that there aren't a wide variety of readers or tags to choose from. The county had hoped to get more "active" tags — tags with ranges exceeding 8 feet — but eventually had to settle on passive tags with shorter ranges. "Be patient, be positive," advises Dorpinghaus.

"Just because it doesn't work the first time, try again," adds Clark. Some tweaking might get the system up and running in the pilot. "You need to tinker at this stage," he says. **50978**

FUN WITH RFID

Don't look at your RFID project as a death march, despite the technology's problems. Make it an adventure, says columnist Frank Hayes.

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DUFFY DORPINGHAUS persuaded El Paso County's CIO to give RFID a shot. "I had to give them a caveat and said, 'Let's just try it, and if it's not working out, then great, no harm done,' " she says.

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GOLDEN RULES

MANAGE PROJECT SCOPE If the pilot is focused on a common set of objectives, the infrastructure and technology will be easier to manage.

CREATE A WORK PLAN A well-structured plan will deliver outcomes that meet user expectations.

GET STAKEHOLDER BUY-IN Each pilot participant must be able to dedicate enough time to plan and execute well.

GET THE TEAM TOGETHER All project teams should work [illegible]

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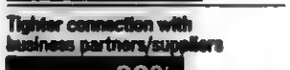
SNAPSHOTS

RFID Benefits

Top three BUSINESS benefits expected from RFID:



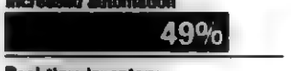




Top three TECHNOLOGY benefits expected from RFID:



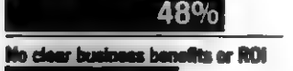




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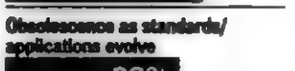






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Base: Survey of 351 senior IT executives, directors and managers. Multiple responses allowed.

SOURCE: BEARINGPOINT INC., IRVING, TEXAS, OFFICE, APRIL 2004

MARK HALL

Forget Wal-Mart

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So, while I'm grateful that Wal-Mart has an RFID FAQ page on its Web site, it will be a long, long time before we need to know that people can either keep or discard the harmless RFID tags they find on goods purchased at a Sam's Club or Wal-Mart Supercenter.

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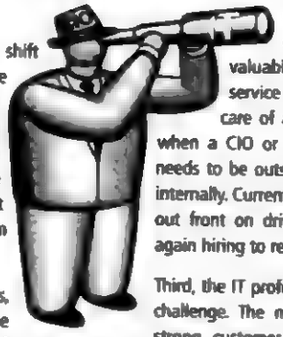
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"It's all about ROI," Ezequelle says. "No one's going to invest in it without money coming out the other end." 51257

Advertising Supplement

IT Careers: CIOs Identify Trends for 2005

Normally workforce experts look to the CIOs of the largest IT firms to establish what the future will bring. However, the trends facing non-IT CIOs – who represent better than 79 % of the jobs, according to ITAA's annual workforce study – are the ones that will affect the vast majority of IT professionals. And their list of trends to watch in 2005 is short.



First, industry sectors will continue to shift focus on information technology as core business competencies. Steve Agnoli, CIO for Kirkpatrick Lockhart LLP law firm in Pittsburgh, says, "IT competence is key in our ability to provide client service. The large firms and corporations we represent expect us to be able to hang with them from a technical standpoint."

That situation faces all business sectors, according to Ray Barnard, CIO for the world's largest engineering construction firm, Fluor Corp. "We're projects-based with projects in 48 different countries. Each project has an IT element to it." For the World Wildlife Foundation, based in Washington DC, the need is the same. WWF's CIO, Greg Smith, says advancing and evolving use of technologies is required to maintain the non-profit's mission and goals.

Second, the cost of IT services will continue to be the name of the game for all industry sectors. The result, according to all three CIOs, will be continued levels of outsourcing for commodity functions. Barnard, who recently outsourced better than 35% of his IT operation, says the challenge is to identify *accurately* what IT capabilities are core to the business or organization and to the smooth transition of employees to outsource service providers. "I think we'll see a shift of some jobs to service providers," says Barnard, pointing to increased opportunity for IT professionals with the valuable commodity skills. "Right now, the service providers have multiple clients to take care of and need people." The risk, of course, is when a CIO or IT team doesn't correctly identify what needs to be outsourced and what needs to be preserved internally. Currently the financial services sector, which was out front on driving down cost through outsourcing, is again hiring to regain its core technical capabilities.

Third, the IT profession continues to offer opportunity and challenge. The most critical skills IT pros need include strong customer service understanding, communication skills and management of outsourced capabilities. For Fluor Corp., the need is for staff members who, understanding the business of engineering, can develop and upgrade infrastructure architecture; programming in support of CAD, three-dimensional CAD and CATIA; programming in support of the ERP systems, particularly financial; and development of security protocols and programming. Mobility is another critical factor in Barnard's world, where systems must be developed and put in place on a worldwide basis. For Agnoli in a legal setting, customer focus "must be at an unbelievable level", and he looks for those who can communicate about and apply technology to the benefit of the firm. And for Greg Smith at WWF, the critical skills for non-profit IT professionals are for-profit thinking and practices to achieve extraordinary results. He lists analytics and business intelligence specialization as critical.

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Produced by Carole R. Hedden

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Must have a Master Degree or foreign degree equivalent in Information Systems, Computer Science, or related field AND 1 year of experience in the job offered or 1 year of experience in a position involving application development OR will accept a Bachelor Degree or foreign degree equivalent in Information Systems, Computer Science, or related field AND 3 years of experience in the job offered or 3 years of experience in a position involving application development. Experience mentioned may have been gained concurrently and must include: (i) 1 yr of experience in developing user interface applications, (ii) 1 yr of experience in report development in a client server environment utilizing reusable code modules in an application development lifecycle, (iii) 1 yr of experience in applying design and analysis of relational theory in a complex database environment using SQL over multiple hardware platforms; and (iv) 1 yr of experience in business requirements elicitation and documentation of information systems in regulated environment. Must have legal authority to work in U.S. Send resume to S. Hopson (REF CAE), Medtronic Solamor Danek USA, Inc., 1800 Pyramid Place, Memphis, TN 38132.

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Send resume & ltr of application, identifying position by Job# & detailing relevant exp, to Robin Hughes, HR Bus. Partner, BBN Technologies, 10 Moulton St., Cambridge, MA 02138.

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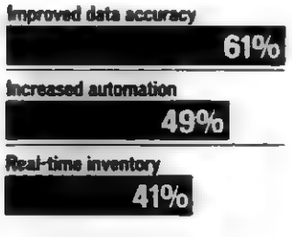
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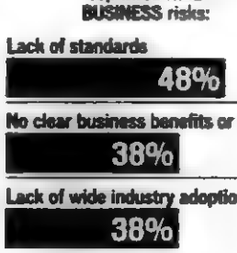


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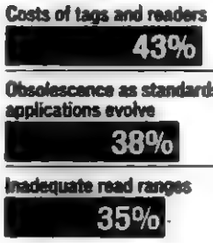


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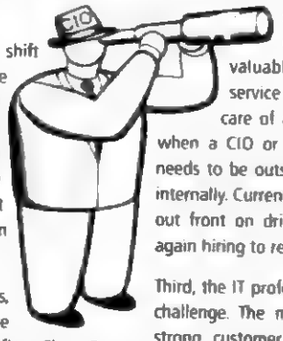
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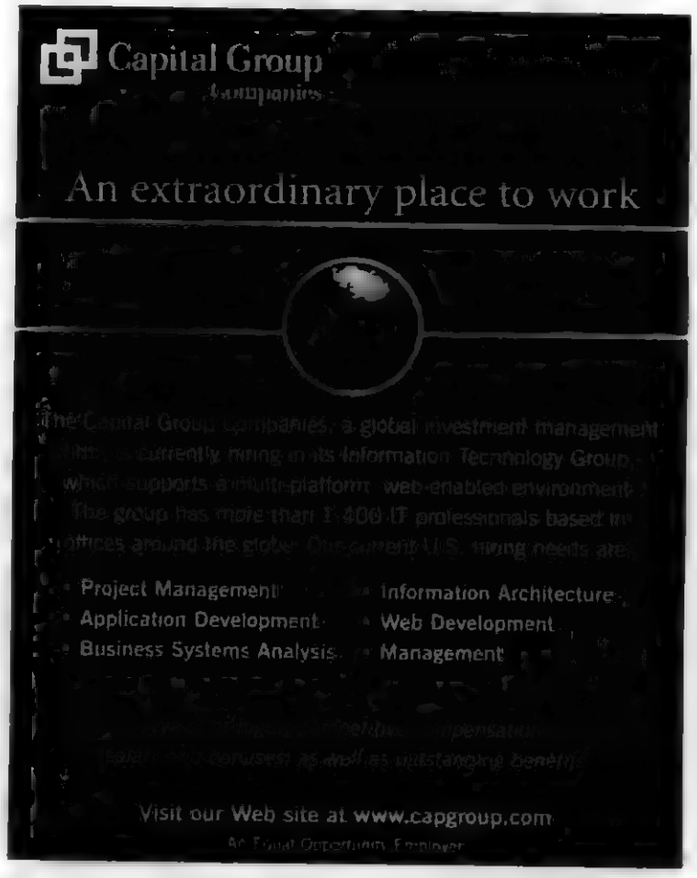
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Send resume & ltr of application, identifying position by Job# & detailing relevant exp. to Robin Hughes, HR Bus. Partner, BBN Technologies, 10 Moulton St., Cambridge, MA 02138.



Lead Analyst

Multiple Openings (NC & PA Client: Smithkline). Develop and support prescription systems business processes. Maintain and enhance existing production data loads. Work within a team environment to support analytics and ad-hoc user community. Provide technical user support and maintenance for CRx data, including dimension delivery, tuning, and training on SAS/Teradata/Unix environment. Maintain front-end PAS support of Visual Basic/SAS/Oracle applications and provide additional assistance on EVAL Informatica ETL. PRx Call Activity, Supplemental, Growth Track and SAS as required. Req: Bachelor's or foreign equivalent in Computer Information Systems (in lieu of degree, will accept equivalent education and experience). 4 years of experience in job offered or in IT Analysis. Following experience, which may have been obtained concurrently: 4 yrs SAS Apps dvpmt in large-dataset Unix/PC environ (biz reqmts, funct specs, timelines & implementation); 3 yrs supporting analytics user community of 50+ users, (issue resolution, change mgmt, statistics & process improvmt); 2 yrs DB prgrmg in SAS Access to remotely-hosted large Teradata & Oracle DBs. Data Warehousing datamarts in SAS/Unix & Informatica & web app dvpmt for SAS. 2 yrs in pharma promotional channels analysis & longitudinal data analysis.

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Technical Consultant. Analyze, design and program client/server applications and Tandem green frame servers using tools such as Test Director Win Runner, Astra Quick test/Rational suite and silk Test. Responsible for QA testing of the entire software development life cycle of the applications. Will design Java and Web applications using Oracle and SQL technologies for Database Integrity Testing. Demonstrated ability to work with multiple platforms such as Windows 2000, NT and Unix environments. Demonstrated knowledge of JAVA, HTML, JavaScript, shell script, CORBA, RMI and EJB. B.S in Comp Science/Engin or Equivalent and 2 years experience in Software Development. 40hrs/wk (8:00 a.m. to 5:00 pm) $88,154.00/yr.Please send two (2) copies of resume/letters to Job Order #2004-612 P.O. Box 989, Concord, NH 03302-0989

Information Systems Manager (West Caldwell, NJ location): Bachelor's Degree. Knowledge in C++, Java, Scheme, Q-basic, Macromedia, Dreamweaver and Flash. 2 yrs. exp req. 40 hrs/wk 9AM-5PM. Bilingual: Korean/English. Fax resume to 973-618-2478.

Software Engineer sought by consulting services company in Denver, CO to work in Dublin, OH and other unanticipated job sites in the U.S. to, under close supervision engage in moderately complex tasks including engaging in full life-cycle software application development and enterprise wide integration of diverse software applications. Analyze requirements. Create designs and design documentation. Code, test, and de-bug the software applications. Use object oriented design techniques, CORBA, J2EE, J Builder, J Unit automated test tools and SQL in the development process. Work is closely monitored. Requires bachelor's or foreign equivalent in computer science or related field, including mechanical engineering, working knowledge of development of integration software applications utilizing object oriented design techniques, CORBA, J2EE, J Builder, J Unit automated test tools and SQL (Working knowledge may be gained through employment experience or in an academic program). M-F, 8am-5pm, $59,750/yr. Respond by resume to Workforce Development Programs, PO Box 46547, Denver, CO 80202 and respond to JOB COS099634

PROGRAMMER/ANALYST - Overland Park, KS. Analyze, design, program, implement & support advanced computer applications utilizing Java, JFC, Servlet, JSP, Java Script, XML, XSL, CSS, Oracle, SQL Server, SQL & PL/SQL under UNIX &/or Windows operating environment for client/server &/or internet-related applications. Analyze & synthesize business requirements reviewing client's existing systems. Define system requirements & interfaces, test systems for compliance. Responsible for system installation. Manage software development projects generating resource requirements & implement schedules. Req: Bachelors degree in Computer Sci, MIS or Engineering (any field) & one (1) year exp in job offered. Contact: International Systems Technologies Inc., 1812 Front Street, Scotch Plains, NJ 07076.

B'Ham, AL. VOIP apps engineers to configure test & document VoIP protocols re interoperability b/t vendors & conform w/ITU0T & IETF stds. Environ includes SS7-net & PSTN arch, Cisco routers & Linux/Unix. Req: MSEE & exp on Cisco routers & Linux/Unix operating systems, VoIP, routing protocols, ATM techn. Resumes to: S. Wooten, Competent Staffing Resources, 3555 Koger Blvd, Ste 120, Duluth, GA 30096.

Eclaro International, an IT staffing provider (MBE certified), has numerous openings for IT professionals to fit different positions to design and develop customized applications. Applicants must have BS/MS with related IT experience. Please send resumes to bdixon@eclaroit.com EOE. No calls.

Corporate Computer Services (CCS) has multiple openings for System/Programmer Analysts, S/W Engineers, both entry & experienced levels (minimum BS). Use skills C/C++, VB, Oracle, etc. We are small but we do not lay off. Attractive wage w/ benefits. Apply hR@ccsiusa.net. EOE.

Senior Test Engineer wanted in Glen Allen, VA office. Must have Master's deg. or equiv. in Engineering, Comp. Eng. or related field & 3 yrs. testing & integration exper. Incl at least 1 yr. exper. using IP-based Voice & Video Unified Messaging systems & VoIP signaling with SIP protocol as per RFC standards. Telecom & VoIP test tools for conformance & compliance testing, Directory & Messaging Services with UM architecture, testing of SS7, & exper. on Italtel iMSS SoftSwitch, Cisco BTS 10200 SoftSwitch, SIP proxy servers & Media Gateways & at least 6 mos. exper with Veritas High Availability architecture using RAID cluster technology. (A Bach. Deg. in Eng., Comp. Eng., or related field & 5 yrs. progressive exper. will be accepted as equiv to a Master's deg. & 3 yrs. exper.) Send cover letter & resume to Corporate Recruiting, Code VARM, LogicaCMG, 32 Hartwell Ave., Lexington, MA 02421. No third parties or phone calls please. LogicaCMG is an EEO, M/F/V Employer.

Software Engineer, under Supervision, will develop software engineering standards. Will design and develop commercial client/server applications using Oracle, Visual Basic, SQL, C, C++, Fortran, WATCOM, Power Builder and Unix. Bachelors or Associate Degree, with 3 years experience required. Competitive Salary, 40 hrs. a week. Send resume, HR Manager Integrated Business Group, 20 Arcadia Drive, Suite 54, North Waterboro, ME 04061.

Uson LP, a Roper Industries company, seeks a Software Engineer at its Houston, Texas facility. Candidate will develop new features and sustain maintenance of Uson's "Vector" software used in automotive and medical industries. Perform detailed software design, software implementation, testing, debugging, and documentation of GUI for real-time embedded systems for commercial and industrial test tester based on Object Oriented Design. Requires a Bachelor's degree in Engineering, Computer Science or related field plus 1 yr experience as Software Developer or Comput-er Programmer. Must include experience in object oriented programming in C++ and Java, OOD programming design concepts, MS Access Database, and RDBMS. Submit resume by email to: MRobbins@Uson.com.

Several positions available. Requirements and salary vary per position. Send resume to: Srivatsan Ramachandran, A.M.I., 6145F Northbelt Parkway, Norcross, Georgia 30071.

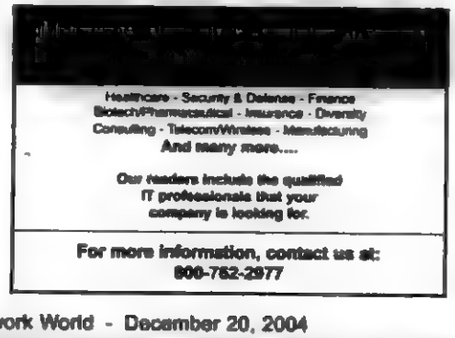
Software Engineers needed. Seeking candidates w/ MS in Comp Sci, Engg, Math or related and rel work exp. Part of rel work exp must include 1 yrs. working w/ XSLT, HTML, and Java. 2 years of experience on entire software development life cycle plus JavaScript and Weblogic preferred. Duties include: Design comp systems, analyze reqs and customize software. Must be willing to relocate. Mail resume & refs to: San Francisco Systems, Inc., PO Box 171, Rockland, ME 04841.

Programmer Analysts to analyze, develop, test wireless/web software systems using C, Java, XML/XSL, J2EE, JDBC, EJB, JSP, Servlets, HTML, ASP with Oracle, SQL Server databases on Windows, LINUX & UNIX OS, determine functional reqs, write functional design specs, evaluate tech. feasibility, develop reporting system for wireless appl on web servers/appl server, provide guidance for complex user problems and trouble shoot production issues. Require: BS or foreign equiv in CS/Comp Engineering and 2 yrs exp in IT or M.S. in CS/Comp Engineering. Competitive salary. Full Time. Respond with Job code: AZW1204. HR, Air2Web, Inc., 1230 Peachtree Street NE, Promenade II, 12th Fl., Atlanta, GA30309.

Software Eng/Programmer wanted by National Computer Systems in NJ & ME. Requires BS in Comp Sci or related field w/ min 3 yrs working exp. Job duties incl design, develop & implement intranet/internet & client server applications, including ERP, analyze, review & alter programs to optimize performance; develop programming aids for software to meet new requirements, direct & participate in various aspects of system life cycle; estab system stds for hardware, software, etc; write software development documentation; test the developed application for software QA; write test cases & system plans. Fax resume to 732-940-2276 (NJ) & 207-221-9999(ME).

Systems Engineer wanted by Energy Measuring Device Manuf. in Westbury, NY. Must have MS Degree in EE or Comp Sci. + Extensive Exp. Send res to: Electro Industries, Fax: 516-336-2637. Attn: Personnel

Programmer Analysts to analyze, design web appls using Java, VB, Java Script, VBScript, HTML, DHTML, ASP, PHP, Access, Oracle, SQL Server, Dreamweaver, Active X, IIS under Windows, UNIX OS; generate batch reports; conduct user req/feasibility studies & systems analysis; maintain, document, support, test and debug appls. Require: B.S. or foreign equiv in CS/Engg(any branch) with 2 yrs exp in web based appls. High Salary. F/T Travel involved. Resume to HR, Salem Associates, Inc., 405, 6th Ave., Ste102, Des Moines, IA 50309.



First Consulting Group is a leading provider of information based consulting, integration, and management services to healthcare, health plan, pharmaceutical and other life sciences organizations in North America and Europe. We are currently seeking a Technical Master III - Technical Integration. Perform healthcare integration consulting, analysis, design and development. Develop interfaces between applications using interface engines and programs. Require: Bachelor's degree or foreign degree equivalent in Computer Science, or a closely related field, plus 5 years of experience in the job offered or as an Analyst in the health care industry. Must have HIE Cloverleaf Interface Engine certificate. Paid travel on long or short term assignments to various unanticipated client sites within the U.S. as required. Send resume to: recruiter@fcg.com (preferred) or DP-Human Resources, First Consulting Group, Inc., 111 W. Ocean Blvd, 4th Floor, Long Beach, CA 90802 (No Phone Calls Please)

SQL Server Database Administrator: Will be responsible for complete life cycle of the project using Visual Basic, ASP, PL/SQL, T-SQL, Pro*C, C, PHP, MS - SQL Server 2000, Oracle, Java Script, and VBScript, Erwin, Visual SourceSafe, PVCS, HTML, DHTML, CSS, XML, XSL, UNIX, DTS, SQL*Loader, SQL data compare DTS, etc. AND SAP Business Warehouse Developer: will be responsible for complete life cycle of projects using SAP R/3, Sap BW-3.SAP ABAP/4 in MM, PP, SD, FICO Oracle, Cognos, Business Objects, Informatica, SQL, PL-SQL, Java-Script, VBScript, Html, and XML, etc. Bachelors Degree, with 2 years experience required. Competitive Salary, 40 hrs. a week. Send resume, HR Manager, Integrated Business Group, 20 Arcadia Drive, Suite 54, North Waterboro, ME 04061.

Avi Tech has openings for the following positions to work throughout the U.S:

SAP Programmer Analyst: Experience in various SAP modules and client server technologies such as VB, ASP and IIS.

.Net Software Engineer: Experience in net technologies including VB.net, ASP.net, C#, Crystal Reports, SQL, Biz Talk, XML, IIS and Ado.net.

Database Admin: Experience working in MS Access, VB, SQL, Oracle, Crystal Reports.

Java Programmer Analyst: Exp in java technologies, QA Testing, Internet Wireless Devices, ASP, XML, Solaris Platform, Apache Webserver and JRUN.

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After researching market conditions, prepare project proposals for recruitment & placement of software professionals on IT projects using all survey, networking & lead generation tools. Then execute plan by contracting w/clients to satisfy technical project needs on acceptable terms. BS in Comp. Sci. or Electrical or Electronics Engrng + 2 yrs of experience in job offered or as a Bus. Dvlpmnt Mgr/Analyst reqd. High mobility preferred. 40 hrs/wk, OT as reqd, 8am - 5pm, $84,260/yr. Submit resume to: Site Administrator, Greene County CareerLink, 4 West High Street, Waynesburg, PA 15370-1324. Refer to Job Order No. WEB 460643.

ScanSoft, Inc. seeks a Director, Telco & Multimodal Solutions for its Peabody, MA office to manage technical & commercial aspects of multimodal product line business, incl. product development & marketing, sales engineering, & solutions. Must have Master's in Comp. Sci., & 2 yrs of software product exper. w/ multimodal client/server technol. & multimodal applics., product mgmnt. exper., & exper w/ mobile technol., incl exper w/ mobile applic. development SDKs, as well as 1 yr. of exper. in technical pre-sales to telecom customers. (Exper. can be concurrent.) Must also be proficient w/ 2.5G wireless network architectures & w/ mobile platforms (i.e., BREW & Nokia Series 60). Candidates should send resume to Mary-Ellen Messer, Employment Specialist, ScanSoft, Inc., 9 Centennial Dr., Peabody, MA 01960.

Software Engineers to lead teams to analyze, design, develop client/server, web apps in ASP, XML, ActiveX Controls, VB, ASP.NET, VB.Net, ADO Net, HTML, Oracle, SQL Server, Windows etc; create complex business components using COM dynamic link libraries and implement them in multi-tier server using MS Transaction Server; trouble shoot software /hardware problems; interact between project members, vendors, customers; provide training to end users, team members. Require MS in CS/Engg (any branch) & 3 yrs exp in job offered or a BS or foreign equiv in CS/Engg(any branch) & 5 yrs of progressive exp in IT Travel involved Comp.Salary. F/T. Resumes: HR, Synergy America, Inc., 6340 Sugarloaf Parkway, Ste 140, Duluth, GA 30097.

Seeking qualified applicants for the following positions in Orlando, FL. Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent* in computer science, engineering, MIS or related field plus 5 years of experience in systems/applications development. Experience with C++, Unix and transportation revenue processing systems also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to LaWanda Thompson, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Paradigm Infotech is looking for programmer/system analysts, DBA, s/w engineers. Candidates must have BS/MS with experience. Good skills in C/C++, Java, Oracle, WebLogic, VB, HTML. ERP are plus. Traveling required for some jobs. Apply jobs@paradigminfotech.com. EOE. No call.

Corpus, Inc. has multiple openings for IT professionals to design and develop applications using Oracle, SAP, SQL, PL/SQL, COBOL, C/C++, VB, Java, XML, ERP, ASP, NT, XSL. Min BS/MS with exp. Travel maybe required. Please send resumes to resumes@corpusinc.com. EOE. No calls.

Programmer Analysts to analyze, design s/w apps using SAP R/3, ABAP/4, C, C++, Java, VB, JSP, JScript, HTML on UNIX/Windows os; gather/document reqs from user community; test/troubleshoot project appl code according to system objectives. Require a B.S. or foreign equiv in CS/Engg (any branch)with 2 yrs exp in IT. Competitive salary. F/T. Travel involved. Resume to HR, Smartsoft International, Inc., 3985 Johns Creek Court, Ste 500, Suwanee, GA 30024.

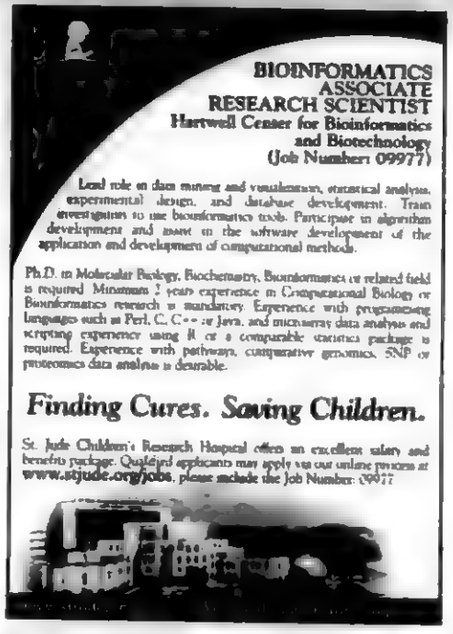
System Architect. Judge Technical Services has an internal opening for an IT professional with five years strong technical experience with MQ Series, Java, Unix, Middleware, EAI design, development and architecture. Must be willing to travel. Submit resume to G. Demos, 300 Conshohocken State Road, Ste. 300, Conshohocken, PA 19428-2949.

Software Engineers needed. Seeking candidates w/ BS or equiv and rel work exp. Part of rel work exp must include at least 3 yrs working w/ Oracle technologies, J2EE & XML. Duties include: Installation, Design, Development, Testing, and Deployment of databases and software systems to using HP-UX, Oracle, J2EE/MS.NET to user specs. Mail resume & refs to: Ozburn-Hessey Logistics, 833 Thompson Lane, Nashville, TN 37204. EOE.

Techgene Solutions has openings for Software Engineers or other IT staff. Candidates must have BS/MS with experience. Skills in Cobol, JCL, Oracle, SQL, VB, C/C++ are plus. Travel may be required for some positions. Competitive salary. Please apply at bagusk@yahoo.com. No calls. EOE.

Paradigm Technologies is looking for program/system analysts, DBA, s/w engineers. Candidates must have BS/MS with experience. Good skills in C/C++, Java, Oracle, WebLogic, VB, HTML. ERP are plus. Traveling required for some jobs. Please apply at jobs@paradigmtek.com. EOE. No calls.

Programmer Analyst, Sr. for Sunrise, FL corp. Must have a Bachelor's Degree in Comp. Sc., IS, Software Engineering or Math and 5 years exp. Must have solid background using OOP architecture as well as experience with MBS, DB2/400, MS SQL Server, MS-Access, dBase and Oracle. Please send resumes to Laura Callis, Director of IT, 1613 North Harrison Pkwy, Bldg. C, Suite 200, Sunrise, FL 33323.



BIOINFORMATICS ASSOCIATE RESEARCH SCIENTIST
Hartwell Center for Bioinformatics and Biotechnology
(Job Number: 09977)

Lead role in data mining and visualization, statistical analysis, experimental design, and database development. Train investigators to use bioinformatics tools. Participate in algorithm development and assist in the software development of the application and development of computational methods.

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DBA: Req exp performing Oracle database design using ASE and DB Artisan, writing Perl Scripts and Setting up cron jobs

Project Manger: Req exp as Project Manager

SQA Tester Analyst: Req exp writing and implementing BRD and SRS docs and preparing test plans, procedures, formulations scripts and cases for manual and automated testing.

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Apply to: Sagesoft, Inc. 78 Eastern Blvd, Glastonbury, CT 06033.

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Software Engineer sought by consulting services company in Denver, CO to work in Denver and other unanticipated job sites in the U.S. to engage in full life-cycle software application development and enterprise wide integration of diverse software applications. Analyze requirements. Create application architecture, design infrastructure, code, test, and de-bug the software applications. Use Object Oriented Design techniques, J2EE, JSP, JAVA, C++, Servlets, WebLogic, WebSphere, relational database management systems, XML, UML and automated testing tools in the development process. Requires master's in computer science; working knowledge of software development utilizing Object Oriented Design techniques, J2EE, JSP, JAVA, C++, Servlets, WebLogic, WebSphere, relational database management systems, XML, UML and automated test tools. (Working knowledge may be gained in an academic or employment setting) M-F, 8am-5pm, $76,275/yr. Respond by resume to Workforce Development Programs, PO Box 46547, Denver, CO 80202 and respond to JON CO5099827.

Sr. Business Systems Analyst (Boston, MA) Manage business systems analyses, develop IT projects, and integrate systems. Min req's: M.Sc. in Computer Science or a related field plus 2 yrs exp in job offered or 2 yrs exp in IT project development position gathering, analyzing and documenting technical requirements for software applications, designing and developing software solutions to integrate applications, and working throughout the software life cycle including analyses, design, development, system selection, implementation, testing, support, and evaluation Exp must include: development of multi-tiered web solutions using XML/XSL, SQL servers, Visual Basic, COM/DCOM, ASP and HTML to develop GUIs; management of a team of developers; development of applications for hand-held devices; maintenance and integration of document and contact management systems; and management of day-to-day relations with vendors and contractors. 40 hrs/wk. Send resume to Ellen Looney, Human Resources Manager, Exchange Place, Boston, MA 02109. EOE.

The MathWorks, Inc. leads the market in developing and delivering high performance interactive software products such as MATLAB® to the engineering and scientific communities. We're increasing our lead by hiring the best people for every job in the organization. We have the following positions available at our offices in Natick, MA

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Senior Design Automation UI Quality Engineer (2)
Develop test suites & hands on testing using MATLAB for Simulink & Stateflow User Interface

Int'l Sales Account Specialist - Latin America
Manage reseller location & selection for engineering and scientific products & develop new business opportunities in Latin America

Senior Quality Engineer
Develop test suites & hands on testing using MATLAB for Real-Time Workshop products

Senior Release Engineer
Assist in build & test of code changes for Controls Design Automation products

Systems Services Project Manager
Plan, design, implement, control & close IT infrastructure projects for multinational locations

Senior Consultant (Engineer)
Assist customers & developers in MATLAB programming and model construction, provide training development & customer demonstrations.

Embedded DSP Software Engineer
Serve as Technical Development Lead for Simulink-based DSP code generation product

Electronic Automation and Design Engineer
Create next generation EDA (Electronic Design Automation) tools for products that interface MATLAB and Simulink with HDL simulators

Control Systems Product Marketing Specialist
Implement & project-manage strategic projects of Control Systems Technical Marketing Group. Project manage internal & external projects for Industry Marketing & Control Systems groups

Software Engineer - Desktop Deployment Products
Develop and support MATLAB compiler and associated builder products

The aforementioned positions are available at all levels and require a minimum of a B.S. or M.S. in Computer Science, Engineering, Math or a related degree and 0-8 years of experience

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- **Simulink Engine Quality Engineer**
- **DSP Simulink Blockset Engineer**
- **Senior Guide Engineer**
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Infrastructure Analyst, Charlotte, NC - Review and analyze business requirements for complex voice applications and services, provide high level and detailed engineering designs, including latest voice and call delivery technologies (QSIG signaling, SS7 survivability) using PBX and CCS (Common Channel Signaling); collaborate with voice manufacturers and voice service providers to provide exact hardware and circuitry proposals, certifying functionality of designs, survivability and contingency of designs, and accuracy of pricing models; present engineering designs, proposals, and business cases to senior management to gain funding and support for project implementation; review voice system functional operability to insure that adequate capacity and services exist for all aspects of voice delivery in large, complex campus; provide analysis and recommendations for emerging technologies as applicable to campus voice systems. Requires a Bachelors degree in Electronic Engineering Technology or employer will accept Bachelors degree equivalent based on combination of education and/or experience as determined by a professional education/experience evaluation service. Also requires either 5 years experience in the job offered or 5 years experience in design and configuration of Nortel SL100 voice system using PBX and CCS applications and system software translation and routing applications. Salary $90,000/yr, 8 AM to 5 PM, Mon-Fri. Send resume to nearest Employment Security Office or submit resume to: Employment Security Commission, 500 West Trade Street, Charlotte, NC 28202; refer to job order #NC2852914 and DOT code 030.062-010. All resumes must include applicant's social security #.

Programmer/Systems Analyst, Mobile, AL. Provide tech. support for CRM processes. Admin. & dvlp applics. to provide for efficient & effective business processes. Perform admin. duties for SalesLogix applic. Assist w/ training & support remote & ntwrk users on SalesLogix. Coordinate web design projects w/ 3rd party mktg. agency. Design, implement & support client-server web applics. Create user documentation to assist w/ bus. processes. Tune SAP syst. for effectiveness incld. user auth., background proc'g, instance maintenance, correction & transport sys. config., local & remote clt. copying & ITS srvr. monitoring. Resp. for co.'s "Do Not Call" db to meet FTC reqmts. REQ'S: Bach.'s, or for equiv., in CS/IS or Engr. Mail resume w/ ad (no calls) to Bryan Hack, KMPS, One Magnum Pass, Mobile, AL 36618.

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Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analysis, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B; or 2 of A and 1 of B; or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server; and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SQL, SQL*-FORMS, ESQL/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK); High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,533 - $78,000 per year. Qualified applicants should contact or send resume to: Fayette County CareerLink, ATTN: CareerLink Program Supervisor, 135 Waylan Smith Drive, Uniontown, PA 15401. Refer to Job Order # WEB 461245.

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Oracle

ducks in a row just to have to prepare for another conversion to a hybrid Oracle/PeopleSoft/J.D. Edwards product," Robinson said.

"Oracle has to win us over," agreed Andrew Albarelle, principal executive at Denver-based staffing company Remy Corp., which runs PeopleSoft's financial software. "I have not seen a clear message from them."

Albarelle said Remy had planned to license several additional application modules from PeopleSoft late this month. But now he will hold off and evaluate his company's options for maintaining its ERP system. He said he will consider building applications in-house as new functionality is needed and look at third-party maintenance providers.

Albarelle isn't the only user thinking that way. In a recent survey of 150 PeopleSoft users by Boston-based AMR Research Inc., 15% said they would immediately drop their software maintenance contracts with the vendor if it was bought by Oracle.

Burden of Proof

Other PeopleSoft users said they plan to treat Oracle like any other potential supplier.

"Like with any other vendor, if they want me to buy more or something new, they need to find a way to show me they care about my firm and are looking to help us succeed," said Bubba Tyler, CIO at Conshohocken, Pa.-based Quaker Chemical Corp., an EnterpriseOne shop. "They have to prove our ongoing relationship will lead to mutual value and not just their profits."

Some customers are more inclined to believe that Oracle will stick to its pledge to continue enhancing and supporting the acquired applications.

"I would have to say that at this point, Oracle is saying all the right things and making the type of commitments most customers, including me, would want," said Fred Pond, director of information services at Schnitzer Steel Industries Inc. in Portland, Ore., and president of the Quest International Users Group for J.D. Edwards customers.

Pond said he's open to working with Oracle but wants to see it deliver on upgrades that are in PeopleSoft's pipeline. He also wants bug fixes and regulatory updates on any currently supported version of EnterpriseOne.

Uncertainty Prevails

If nothing else, PeopleSoft's agreement to accept Oracle's offer lifts a cloud of uncertainty that had been hanging over users for months, Philip Carnelley, research director at London-based consultancy Ovum Ltd., said in a report. "At least now [PeopleSoft customers] will get some certainty, even if they don't like the outcome," he wrote.

But some users are resigned to finding a new application vendor in the long term.

"The chances are good we'll be someone else's customer in 10 to 12 years," said Casey McMullen, CIO at Agri Beef Co., a beef supplier in Boise, Idaho. "Oracle has a long row to hoe if they think they're going to woo me into doing business with them."

McMullen said he's no fan of Oracle, the company's products or its flamboyant CEO, Larry Ellison. He said he may stay a customer if Ellison departs and Oracle continues to develop PeopleSoft's products and ensures that they can run on multiple databases, such as SQL Server. **51518**

Stacy Cowley of the IDG News Service contributed to this report.

TIMELINE

Key Dates in Oracle/PeopleSoft Battle

JUNE: PeopleSoft announces friendly purchase of J.D. Edwards; Oracle launches hostile $5.3 billion bid for PeopleSoft.

NOVEMBER: European Union launches investigation into merger and eventually approves it; PeopleSoft unveils plan for "poison pill" refunds to customers in case the merger succeeds.

FEBRUARY: Oracle raises bid to $9.4 billion; U.S. Department of Justice sues to block merger.

JULY: PeopleSoft misses quarterly earnings projections, citing sales problems caused by Oracle's bid.

SEPTEMBER: Federal judge rejects the Justice Department's lawsuit.

OCTOBER: PeopleSoft fires CEO Craig Conway.

NOVEMBER: A majority of shareholders tender their stock to Oracle.

DECEMBER: PeopleSoft agrees to sell for $10.3 billion.

MORE ONLINE

Go to our Web site for full coverage of the Oracle/PeopleSoft deal

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Oracle Exec Outlines PeopleSoft Plan

Phillips promises rapid integration of companies, new releases of key apps

BY MARC L. SONGINI

PeopleSoft will be integrated into Oracle next month, right after the expected close of the $10.3 billion deal, according to Oracle Co-President Charles Phillips.

During a press conference last week, Phillips said the two companies are already working on the integration plans.

But Bill Swanton, an analyst at AMR Research Inc. in Boston, predicted that the integration will be easier said than done. "They will have to work very hard to succeed," Swanton said. "There are lots of places [where] they could run into trouble."

Product Plans

Without disclosing much in the way of details, Phillips said that Oracle will continue to enhance PeopleSoft's existing products and will develop new versions of both the flagship PeopleSoft Enterprise suite and the EnterpriseOne line of midmarket applications.

Phillips also said Oracle will continue to maintain the World green-screen applications that PeopleSoft gained along with EnterpriseOne through its mid-2003 acquisition of J.D. Edwards & Co.

Over time, Phillips said, Oracle plans to merge the functions of the PeopleSoft and Oracle product lines so they "look more alike" and to make it easier for users to migrate from PeopleSoft to Oracle.

Oracle said its E-Business Suite software will eventually become the more advanced set of applications. The company wouldn't say whether the merged products would support databases from vendors other than Oracle.

"With the database, it's hard to say," Phillips said. "I would surmise that at some point there would be customers who perhaps are using PeopleSoft on DB2, and they'll end up with the Oracle product and database as well."

Swanton said Oracle must quickly convince users that they won't be forced to give up their PeopleSoft applications overnight. "No one is going to pay full maintenance just to be ported to the E-Business Suite," he said.



"We have to give good service and give [PeopleSoft users] a reason not to look elsewhere."

CHARLES PHILLIPS, co-president, Oracle

Phillips acknowledged that Oracle has to keep its new customers happy to hold on to maintenance revenue. "We have to give good service and give them a reason not to look elsewhere," he said.

Oracle does plan to do some rationalization of the technology — which most likely means paring down PeopleSoft's reliance on BEA Systems Inc.'s and IBM's middleware stacks in favor of its own products, Phillips said.

In an e-mail, Phillips acknowledged that many mergers in the IT industry have failed, but he pointed out that "a few deals have worked." He cited SAP AG's acquisition of TopTier Software Inc. for its portal technology and many of the deals made by Computer Associates International Inc. as examples.

"[The buyout] wasn't easy, but this a good thing for the industry," he said. **51514**

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Where to Start

READY FOR 2005? It's shaping up as a year for innovation — and uncomfortable decisions. Things are changing. IBM is dropping out of the PC business. Oracle is swallowing PeopleSoft. Outsourcing, offshore and otherwise, looms large as an option — or maybe a requirement. Sarbanes-Oxley and HIPAA, grids and Linux, wireless and RFID all require corporate IT to bite the bullet, make choices and then move forward to do new things.

We've put these decisions off for years. We can't any longer. But how to make those choices? Start with the filter IBM used in deciding to sell its PC line: innovations vs. commodities.

PCs are commodities. That means it's hard to differentiate products, so competition is fierce and return on investment is low. True, IBM ThinkPad laptops have a reputation for innovation in design. But IBM decided that innovation couldn't add enough to a ThinkPad's price to make the business worth keeping.

So how does an IBM competitor like Dell stay afloat? By pouring the innovation into its manufacturing and marketing processes, not just into its products. That's why Dell will still be in the PC business in 2005 and IBM won't.

The day after IBM said it will sell its PC business to Chinese vendor Lenovo, PalmSource — which makes the operating system for Palm handhelds — announced it's buying China MobileSoft, which makes a version of Linux for cell phones. PalmSource also said it will turn Palm OS into a layer on top of Linux. That makes sense. Operating systems are now commodities. PalmSource doesn't want to invest in a low-return commodity business.

But PalmSource *does* want to keep control of that high-value Palm OS layer. That's where the innovation is. And innovation is where the money is in 2005.

The fact that operating systems are commodities also explains why Microsoft keeps trying to climb up to innovation-oriented layers like business intelligence and Internet search. Monopoly Microsoft may thumb its nose at antitrust regulators, but it can't finesse the relentless pressure of commoditization.

Why has Oracle gone after PeopleSoft? Because relational databases — still Oracle's core business — are commodities too. Sure, there's some innovation, but mostly a database is a database. Lots of PeopleSoft customers use databases from IBM, Microsoft and other vendors. Oracle wants those customers. And buying the enterprise application out from under those customers looks to Oracle like a good way to capture them.

Oracle may also genuinely want to leverage the innovation that's in PeopleSoft's applications. Only time will tell whether that's true.

What do we learn from all this? The same things that drive these vendors will drive our decisions in 2005.

What should we outsource? The low-return commodity work, obviously. Unless, like Dell, we can find innovative ways to do that work to create a competitive advantage. If we get a higher return from doing it in-house, then we should keep it in-house.

How do we handle regulatory requirements like Sarbanes-Oxley and HIPAA? The first step is meeting the deadlines. But after that, what? If cranking out that data is a commodity process, we should find the cheapest way to deal with it. But if we can provide insight to business-siders for boosting the top or bottom lines, we should invest more in that kind of data collection.

On-demand IT provisioning makes sense if computing and storage are commodities to us — but not if we can find innovative ways to leverage those elements for business advantage. Going with Linux might make sense, but not if there are special, innovative ways that we're using Windows or Unix. Wireless and RFID may be commodities or innovation points, depending on what we need and how we use them.

Yes, 2005 will be a year for innovation. But deciding what's ripe for innovation and what's a commodity — that's the decision we'll have to tackle first. 51484



Frank Hayes, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

Conflict Management

"Process control and IT do not always get along," says a process-control pilot fish at a highly automated chemical plant. "If the computer goes down, the factory may or may not have an operator in control." So fish is stunned when he walks into the control room to find a tech from IT upgrading the main computer. "No one in the entire plant knew he was coming," fish fumes. "We were lucky only one pump was running." Next day, plant personnel get a new directive: "If any IT people come in without checking in at the plant manager's office, they are to be rendered unconscious and removed from the control room."

What For?

At this data center in the late 1970s, it's the third-shift operator's job to back up the master files every night. So when there's a mid-day hardware failure and the day operators can't find last night's backup tapes, they go looking for last night's operator. "When called at home, he explained that he had checked the tape-use logs and found that no one had used the backup tapes in over a year," reports a pilot fish on the scene. "So he thought the job was a waste of his time — and he had not run the backup jobs for several months."

Security

This defense agency wants to issue laptops to users so they can dial in for orders via e-mail. And the security group is worried about using unsecured phone lines. So when users get the laptops, it takes four separate passwords to log on — and the messages can't be printed out. "Users add their own level of security — they don't unhook the laptops on," says a pilot fish in the know. "Orders are now sent by a means acceptable to the security section: by fax or voice over the very same 'insecure' phone lines."

Um . . . Right

Pilot fish has to OK system changes with the help desk — which doesn't always get it. So when fish asks for triggers on the database tables to be changed, confirmation comes back: "User states that critters on three tables need to be modified."

Square One

User tells support pilot fish she needs a CD. A blank CD or a prerecorded one for testing? fish asks. Blank, user says. CD-R or CD-RW? asks fish, who then has to explain the difference. "After she decided she needed a CD-R, I got one out of the supply cabinet for her," fish says. "She stopped me and said, 'That's not the kind of CD I need. I need a square CD.' I handed her a diskette, and she went away happy."

SHARK'S GONE AWAY, TOO — but just for the holidays. Meanwhile, send me your true tale of IT life at sharktank@computerworld.com, and you'll get a sharp Shark shirt if I use it when I get back. And you can still check out the daily feed, browse the Sharklives and sign up for Shark Tank home delivery at computerworld.com/sharktank.

Is your IT department a to work?

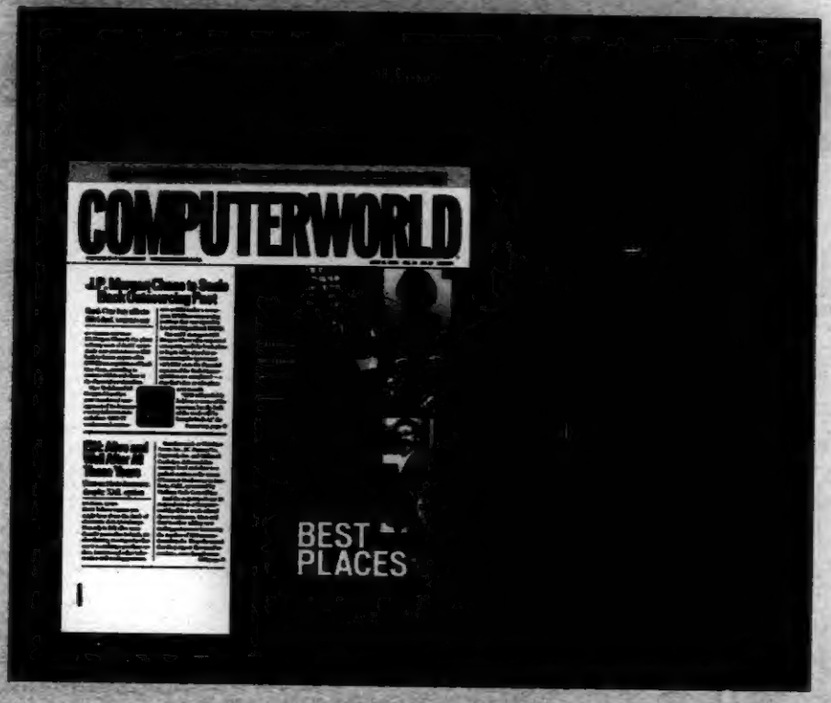
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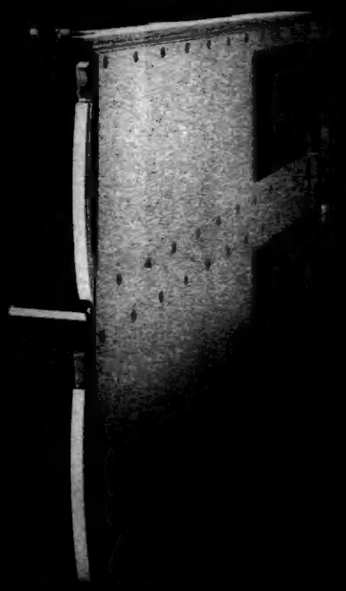
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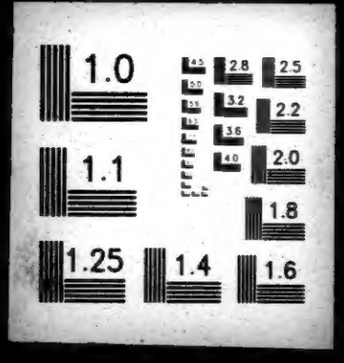
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